00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Clinton Twp. City Of Fraser

3) WATERCOURSE: Harrington Drain

4) DOCUMENT TYPE: detailed Comment Methodology Field Recon.

00BREAK00

CLINTON TOWNSHIP FLOOD INSURANCE STUDY
HARRINGTON DRAIN J-A JOB NO. 5670-02
PROJECT MANAGER WILLIAM ROSSOW

3-7-77

SAVE JA 4/27/77

detailed comment/methodology & [illegible] reason

FIELD SECTION	SECNO	DESCRIPTION
	75	VALLEY SECTION A RELOCATED INVERT ADJUSTED START AT CRITICAL DEPTH SEE TEXT RIGHT ENCROACHMENT DUE TO EXPANSION
	125	VALLEY SECTION A RELOCATED INVERT ADJUSTED RIGHT ENCROACHMENT DUE TO EXPANSION
	280	VALLEY SECTION A RELOCATED INVERT ADJUSTED RIGHT ENCROACHMENT DUE TO EXPANSION
	490	VALLEY SECTION A RELOCATED INVERT ADJUSTED RIGHT ENCROACHMENT DUE TO EXPANSION
A	700	VALLEY SECTION A RIGHT ENCROACHMENT DUE TO EXPANSION
B	1470	VALLEY SECTION B LEFT ENCROACHMENT DUE TO EXPANSION RIGHT ENCROACHMENT DUE TO EXPANSION
	1554	BRIDGE SECTION C RELOCATED GROUND POINTS ONLY
	1555	BRIDGE SECTION C HARRINGTON ROAD DOWNSTREAM FACE
C	1536	BRIDGE SECTION C HARRINGTON ROAD UPSTREAM FACE
	1587	BRIDGE SECTION C RELOCATED GROUND POINTS ONLY
	2030	VALLEY SECTION D RELOCATED INVERT ADJUSTED DISTANCE EQUAL TO BRIDGE CONTRACTION SECTION SKEWED FOR PERPENDICULARITY TO MASS OF FLO
D	2670	VALLEY SECTION D SECTION SKEWED FOR PERPENDICULARITY TO MASS OF FLOW
E	4470	VALLEY SECTION E
F	5470	VALLEY SECTION F
G	6770	VALLEY SECTION G
H	8170	VALLEY SECTION H
I	9270	VALLEY SECTION I
J	10720	VALLEY SECTION J
K	12370	VALLEY SECTION K
	12900	VALLEY SECTION L RELOCATED INVERTED ADJUSTED DISTANCE EQUAL TO FOUR BRIDGE SIDE CONSTRICTIONS LEFT ENCROACHMENT DUE TO HIGH GROUND

Harrington Drain
Clinton Twp.

L	13220	VALLEY SECTION L LEFT ENCROACHMENT DUE TO EXPANSION RIGHT ENCROACHMENT DUE TO EXPANSION
	13299	BRIDGE SECTION M RELOCATED GROUND POINTS ONLY SECTION SKEWED FOR PERPENDICULARITY TO MASS OF FLOW
	13300	BRIDGE SECTION M W.B. METRO PARKWAY DOWNSTREAM FACE SECTION SKEWED FOR PERPENDICULARITY TO MASS OF FLOW
M	13359	BRIDGE SECTION M W.B. METRO PARKWAY UPSTREAM FACE SECTION SKEWED FOR PERPENDICULARITY TO MASS OF FLOW
	13360	BRIDGE SECTION M RELOCATED GROUND POINTS ONLY SECTION SKEWED FOR PERPENDICULARITY TO MASS OF FLOW
	13406	BRIDGE SECTION N RELOCATED GROUND POINTS ONLY SECTION SKEWED FOR PERPENDICULARITY TO MASS OF FLOW
	13407	BRIDGE SECTION N E.B. METRO PARKWAY DOWNSTREAM FACE SECTION SKEWED FOR PERPENDICULARITY TO MASS OF FLOW
N	13466	BRIDGE SECTION N E.B. METRO PARKWAY UPSTREAM FACE SECTION SKEWED FOR PERPENDICULARITY TO MASS OF FLOW
	13467	BRIDGE SECTION N RELOCATED GROUND POINTS ONLY SECTION SKEWED FOR PERPENDICULARITY TO MASS OF FLOW
	13517	VALLEY SECTION O RELOCATED INVERT ADJUSTED DISTANCE EQUAL TO BRIDGE CONTRACTION LEFT ENCROACHMENT DUE TO SKEW AND LEFT BRIDGE ABUTMENT
O	15020	VALLEY SECTION O RIGHT ENCROACHMENT AT BUILDING LINE
P	16020	VALLEY SECTION P
	16145	BRIDGE SECTION KELLY ROAD DOWNSTREAM FACE GROUND POINTS ONLY BLEND OF SECTIONS P AND Q LEFT AND RIGHT ENCROACHMENTS AT BRIDGE ABUTMENTS
Q	16164	BRIDGE SECTION Q KELLY ROAD UPSTREAM FACE LEFT AND RIGHT ENCROACHMENTS AT BRIDGE ABUTMENTS
	16214	VALLEY SECTION P RELOCATED INVERT ADJUSTED
R	17565	VALLEY SECTION R RIGHT ENCROACHMENT DUE TO RADIAL ACCELERATION
S	19965	VALLEY SECTION S LEFT ENCROACHMENT AT BUILDING LINE RIGHT ENCROACHMENT AT BUILDING LINE
T	20165	VALLEY SECTION T LEFT ENCROACHMENT DUE TO IMPERMEABLE FENCE
U	20845	VALLEY SECTION U LEFT ENCROACHMENT AT BUILDING LINE
	20881	BRIDGE SECTION SALK SCHOOL FOOTBRIDGE DOWNSTREAM FACE GROUND POINTS ONLY BLEND OF SECTIONS U AND V LEFT AND RIGHT ENCROACHMENTS AT BRIDGE ABUTMENTS
V	20889	BRIDGE SECTION V SALK SCHOOL FOOTBRIDGE UPSTREAM FACE LEFT AND RIGHT ENCROACHMENTS AT BRIDGE ABUTMENTS

W	21400	VALLEY SECTION W LEFT ENCROACHMENT AT BUILDING LINE
X	21920	VALLEY SECTION X LEFT ENCROACHMENT AT BUILDING LINE
Y	22720	VALLEY SECTION Y LEFT ENCROACHMENT AT BUILDING LINE
	22970	BRIDGE SECTION BOBCEAN ROAD DOWNSTREAM FACE GROUND POINTS ONLY BLEND OF SECTIONS Z AND AA RIGHT ENCROACHMENT AT BUILDING LINE
Z	23050	BRIDGE SECTION Z BOBCEAN ROAD UPSTREAM FACE RIGHT ENCROACHMENT AT BUILDING LINE BRIDGE TABLE ENDS ON RIGHT AT BUILDING LINE STATION 0 AT LEFT BUILDING LINE
AA	23177	VALLEY SECTION AA LEFT ENCROACHMENT DUE TO IMPERMEABLE ? FENCE RIGHT ENCROACHMENT AT DIVIDE (CENTERLINE 15 MILE ROAD) FIELD SURVEY INDICATES THAT FLOW WILL NOT OCCUR ON SOUTH SIDE OF 15 MILE ROAD PARALLEL TO MAIN CHANNEL
	23305	BRIDGE SECTION PAPPSTEIN DRIVE DOWNSTREAM FACE GROUND POINTS ONLY BLEND OF SECTIONS AA AND AB STATION 0 AT LEFT LIMIT OF EXPANSION RIGHT ENCROACHMENT AT DIVIDE (CENTERLINE 15 MILE ROAD) FIELD SURVEY INDICATES THAT FLOW WILL NOT OCCUR ON SOUTH SIDE OF 15 MILE ROAD PARALLEL TO MAIN CHANNEL
AB	23385	BRIDGE SECTION AB PAPPSTEIN DRIVE UPSTREAM FACE STATION 0 AT LEFT LIMIT OF EXPANSION RIGHT ENCROACHMENT AT DIVIDE (CENTERLINE 15 MILE ROAD) BRIDGE TABLE STARTS ON LEFT AT STATION 0 BRIDGE TABLE ENDS ON RIGHT AT DIVIDE (C.L. 15 MILE RD) FIELD SURVEY INDICATES THAT FLOW WILL NOT OCCUR ON SOUTH SIDE OF 15 MILE ROAD PARALLEL TO MAIN CHANNEL
AC	23735	VALLEY SECTION AC STATION 0 AT LEFT BUILDING LINE RIGHT ENCROACHMENT AT DIVIDE (CENTERLINE 15 MILE ROAD) FIELD SURVEY INDICATES THAT FLOW WILL NOT OCCUR ON SOUTH SIDE OF 15 MILE ROAD PARALLEL TO MAIN CHANNEL
	24006	BRIDGE SECTION 15 MILE ROAD DOWNSTREAM FACE GROUND POINTS ONLY BLEND OF SECTIONS AD AND A (FRASER) LEFT ENCROACHMENT AT WALL RIGHT ENCROACHMENT AT END STATION DUE TO EXPANSION
AD	24050	BRIDGE SECTION AD 15 MILE ROAD UPSTREAM FACE LEFT ENCROACHMENT AT WALL RIGHT ENCROACHMENT AT END STATION DUE TO EXPANSION BRIDGE TABLE STARTS ON LEFT AT WALL BRIDGE TABLE ENDS ON RIGHT AT END STA DUE TO EXPANSION
A	24248	VALLEY SECTION A (CITY OF FRASER STUDY) LEFT ENCROACHMENT AT WALL RIGHT ENCROACHMENT DUE TO EXPANSION

HARRINGTON DRAIN
CITY OF FRASER FIS
PROJECT MANAGER - WILLIAM ROSSOW

3-18-77

SAVE JA 4/22/77

detailed comment methodology & Field recon

SECNO	DESCRIPTION
24248	VALLEY SECTION A - THIS SECTION IS THE FINAL SECTION ON THE HARRINGTON DRAIN, CLINTON TOWNSHIP STUDY (J&A JOB NO. 5670-02) STARTING WATER SURFACES WERE TAKEN FROM THAT STUDY. ENCROACHMENT AT BRICK WALL IN LEFT OVERBANK (STATION 326)
24398	REPEAT OF PREVIOUS SECTION - NO INVERT ADJUSTMENT REQUIRED THIS SECTION WAS PLACED AT SOUTH END OF BRICK WALL. ENCROACHED SAME AS PREVIOUS SECTION.
25008	VALLEY SECTION B ENCROACHMENT IN LEFT OVERBANK AT EDGE OF RO. OF HOUSES (STATION 190). ENCROACHMENT WAS THEN MOVED IN TO STATION 300 TO RAISE WATER SURFACE LESS THAN .1FT.
25388	THIS SECTION IS A DUPLICATE OF VALLEY SECTION C. THIS SECTION WAS PLACED HERE TO ENCROACH THE HOUSES FROM THE FLOODWAY IN THE LEFT OVERBANK (STATION 150) INVERT WAS ADJUSTED TO FOLLOW CHANNEL SLOPE. ENCROACHMENT PLACED AT STATION 350 ON ENCROACHED RUN TO RAISE WATER SURFACE LESS THAN .1FT.
25838	VALLEY SECTION C
25861	DOWNSTREAM FACE OF BRIDGE SECTION D ENCROACHED AT CENTER LINE OF GARFIELD ROAD (STATION 100) AND ENCROACHED TO END OF VALLEY SECTION C (STATION 500)
25935	UPSTREAM FACE OF BRIDGE SECTION D ENCROACHED SAME AS DOWNSTREAM FACE. BRIDGE TABLE ENCROACHED AT STATIONS 100 AND 500
25955	DUPLICATE OF VALLEY SECTION C
26198	VALLEY SECTION E
26300	DOWNSTREAM FACE OF BRIDGE SECTION F. CROSS SECTION IS SKEWED 45 DEGREES TO FLOW. SKEW FACTOR OF .707 INPUT TO CORRECT GR STATIONS FOR NON-PERPENDICULARITY SECTION CUT OFF AT STATION 200 BECAUSE OF CONSTRICTION UPSTREAM. ENCROACHMENT COULD NOT BE USED BECAUSE OF SKEW FACTOR INPUT
26355	UPSTREAM FACE OF BRIDGE SECTION F. SKEW FACTOR OF .707 INPUT TO CORRECT BT STATIONS SECTION CUT OFF SAME AS DOWNSTREAM FACE OF BRIDGE. BRIDGE TABLE IS ENCROACHED AT STATION 200
26455	DUPLICATE OF VALLEY SECTION E ENCROACHMENT IN LEFT AND RIGHT OVERBANKS AT EDGES OF HOUSES (STATIONS 95 AND 155)
26605	REPEAT OF PREVIOUS SECTION. THIS SECTION PLACED HERE TO ENCROACH HOUSES FROM FLOODWAY SIMILAR TO PREVIOUS SECTION
27278	VALLEY SECTION G - ENCROACHMENT PLACED AT STATION 200 ON ENCROACHED RUN TO RAISE WATER SURFACE LESS THAN .1FT.

Harrington Drain
City of Fraser

28378	VALLEY SECTION H ENCROACHMENTS LEFT AND RIGHT AT EDGES OF BUILDINGS THE RESULTING TOPWIDTH ALSO CORRESPONDS WITH THE TOPWIDTH REQUIRED FOR A 4:1 EXPANSION OF FLOW THROUGH UTICA ROAD BRIDGE
28449	DOWNSTREAM FACE OF BRIDGE SECTION I
28487	UPSTREAM FACE OF BRIDGE SECTION I
28538	DUPLICATE OF VALLEY SECTION H ENCROACHED FOR 1:1 CONTRACTION OF FLOW THROUGH BRIDGE
28848	DUPLICATE OF VALLEY SECTION K (30068) WITH INVERT ADJUSTED TO FOLLOW CHANNEL SLOPE. SECTION WAS USED TO MODEL EXPANSION OF FLOW INTO RIGHT OVERBANK AND THEN CONTRACTING INTO UTICA ROAD BRIDGE
29538	VALLEY SECTION J ENCROACHED AT EDGE OF HOUSES IN RIGHT OVERBANK (STATION 460)
29778	REPEAT OF PREVIOUS SECTION WITH INVERT ADJUSTED THIS SECTION PLACED HERE TO CUT OFF FLOODWAY AT EDGE OF HOUSES (STATION 460)
30068	VALLEY SECTION K
30838	VALLEY SECTION L ENCROACHED TO MODEL THE 4:1 EXPANSION OF FLOW THROUGH BRIDGE (STATIONS 180 AND 360)
31157	DOWNSTREAM FACE OF BRIDGE SECTION M
31199	UPSTREAM FACE OF BRIDGE SECTION M
31360	DUPLICATE OF VALLEY SECTION L
31948	VALLEY SECTION N
32548	VALLEY SECTION O - ENCROACHED AT STATION 100 TO MODEL 4:1 EXPANSION FROM UPSTREAM CONSTRICTION. ENCROACHMENTS MOVED IN TO STATIONS 150 AND 300 ON ENCROACHED RUN TO RAISE WATER SURFACE LESS THAN .1FT.
33058	VALLEY SECTION P ENCROACHED LEFT AND RIGHT AT EDGE OF HOUSES (STATIONS 90 AND 200)
33369	DUPLICATE OF VALLEY SECTION Q. NO ADJUSTMENT TO INVERT REQUIRED. SECTION IS ENCROACHED IN LEFT AND RIGHT OVERBANKS (STATIONS 120 @ 230) AT EDGE OF HOUSES.
33418	VALLEY SECTION Q ENCROACHED LEFT AND RIGHT AT EDGE OF HOUSES (STATIONS 120 AND 230)
33538	THIS SECTION REPRESENTS THE GROUND PROFILE BETWEEN THE HOUSES ALONG CAMBRIDGE DRIVE AND WAS USED AS THE WEIR IN THE CALCULATIONS FOR BRIDGE SECTION R. THE SECTION IS ENCROACHED AT STATION 267 BECAUSE OF THE HIGH GROUND IN THE RIGHT OVERBANK AT VALLEY SECTION S
33558	THIS SECTION IS IDENTICAL TO SECTION 33538
33620	THIS IS A VALLEY SECTION 1FT. UPSTREAM FROM THE INLET TO THE CAMBRIDGE DRIVE DRAIN ENCLOSURE.
33698	VALLEY SECTION S
33978	VALLEY SECTION T
34248	VALLEY SECTION U

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Clinton Twp

3) WATERCOURSE: Clinton River Upstream of forks

4) DOCUMENT TYPE: 100, 500 year floods Clinton Twp restudy

00BREAK00

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*****************************************************
*  WATER SURFACE PROFILES                           *
*  VERSION OF NOVEMBER 1976                         *
*  UPDATED MAY 1984                                 *
*                                                   *
*  RUN DATE  16 MAY 90 TIME    13:44:13             *
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* U.S. ARMY CORPS OF ENGINEERS       *
* THE HYDROLOGIC ENGINEERING CENTER  *
* 609 SECOND STREET, SUITE D         *
* DAVIS, CALIFORNIA 95616            *
* (916) 440-2105 (FTS) 448-2105      *
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X     X XXXXXXX  XXXXX          XXXXX
X     X X       X     X        X     X
X     X X       X                    X
XXXXXXX XXXX    X        XXXXX  XXXXX
X     X X       X              X
X     X X       X     X        X
X     X XXXXXXX  XXXXX         XXXXXXX
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LMMP
CLINTON TOWNSHIP RESTUDY
CLINTON RIVER U/S OF FORKS
100-YR & 500-YEAR FLOODS

THIS RUN EXECUTED 16 MAY 90 13:44:13

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HEC2 RELEASE DATED NOV 76 UPDATED MAY 1984
ERROR CORR - 01,02,03,04,05,06
MODIFICATION - 50,51,52,53,54,55,56
****

T1 CLINTON TOWNSHIP FLOOD INSURANCE RESTUDY
T2 MODIFICATION OF ORIGINAL MODEL
T3 CLINTON RIVER U/S OF THE FORKS, NEW 100-YEAR DISCHARGE

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	4.	0.	0.	0.000000	0.00	0.0	0.	593.174	0.000

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	1.000	0.000	-1.000	0.000	0.000	1.200	0.000	0.000	0.000	0.000

NC	0.090	0.090	0.040	0.300	0.500	0.000	0.000	0.000	0.000	0.000
NH	4.000	0.040	530.000	0.100	571.000	0.040	685.000	0.110	2520.000	0.000
QT	4.000	12600.000	19000.000	21300.000	28900.000	0.000	0.000	0.000	0.000	0.000
X1	11.052	56.000	569.000	691.000	750.000	330.000	750.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	550.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	589.000	0.000	599.900	100.000	595.300	200.000	591.000	300.000	591.600	394.000
GR	591.300	400.000	591.100	500.000	590.400	530.000	582.000	556.000	578.500	569.000
GR	574.300	571.000	572.000	580.000	571.700	590.000	571.400	600.000	571.200	610.000
GR	570.800	620.000	570.800	630.000	570.900	640.000	571.600	650.000	572.800	660.000
GR	573.000	670.000	572.900	680.000	575.300	685.000	584.100	691.000	583.000	700.000
GR	584.500	700.000	587.400	750.000	589.100	785.000	585.400	800.000	584.900	800.000
GR	578.800	820.000	582.900	900.000	585.500	900.000	585.800	1000.000	582.600	1000.100
GR	582.100	1050.000	585.600	1050.000	586.000	1100.000	587.800	1150.000	587.500	1250.000
GR	587.000	1350.000	587.800	1450.000	590.100	1550.000	591.000	1710.000	581.200	1750.000
GR	584.900	1850.000	584.100	1950.000	582.100	2010.000	588.400	2020.000	588.800	2050.000
GR	590.600	2150.000	590.700	2250.000	591.200	2354.000	593.300	2375.000	596.600	2450.000
GR	600.200	2520.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

QT	4.000	8580.000	13300.000	10400.000	13000.000	0.000	0.000	0.000	0.000	0.000
NH	5.000	0.100	41.000	0.040	126.000	0.110	1802.000	0.060	2032.000	0.030
NH	2302.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	11.292	39.000	41.000	126.000	1350.000	500.000	1268.000	0.000	0.000	0.000
GR	594.200	0.000	593.800	16.000	593.200	41.000	575.600	72.000	575.200	82.000
GR	573.500	87.000	571.200	92.000	569.400	102.000	569.900	112.000	574.500	122.000
GR	581.700	126.000	584.500	162.000	584.200	232.000	584.400	332.000	584.400	432.000
GR	585.200	532.000	585.600	632.000	588.700	732.000	585.600	832.000	586.000	882.000
GR	586.000	882.000	587.800	932.000	587.500	1032.000	587.000	1132.000	587.800	1232.000
GR	590.100	1332.000	591.000	1492.000	581.200	1532.000	584.900	1632.000	584.100	1732.000
GR	582.100	1792.000	588.400	1802.000	588.800	1832.000	590.600	1932.000	590.700	2032.000
GR	591.200	2136.000	593.300	2157.000	596.600	2232.000	600.200	2302.000	0.000	0.000

NH	5.000	0.100	272.400	0.040	358.100	0.110	1764.300	0.060	2008.800	0.030
NH	2192.200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	11.393	90.000	272.400	358.100	478.700	36.500	528.700	0.000	0.000	0.000
GR	594.800	0.000	594.700	9.300	594.700	18.700	594.600	28.100	594.500	37.500
GR	594.500	46.900	594.400	56.300	594.300	65.700	594.200	75.100	594.100	84.500
GR	593.600	93.900	593.500	103.300	593.400	112.700	593.300	122.100	593.300	131.500
GR	593.300	140.900	593.300	150.300	593.100	159.700	593.100	169.100	593.100	178.500
GR	593.200	187.800	593.000	197.200	592.900	206.600	592.700	216.000	592.400	225.400
GR	592.400	234.800	592.200	244.200	592.100	253.600	591.800	263.000	591.200	272.400
GR	588.900	275.300	587.300	278.100	585.900	281.000	584.500	283.800	583.200	286.700
GR	581.900	289.500	580.500	292.400	579.100	295.300	577.800	298.100	576.400	301.000
GR	575.100	303.800	575.000	306.700	574.800	309.500	574.700	312.400	574.200	315.300
GR	573.400	318.100	572.400	321.000	571.400	323.800	571.000	326.700	570.600	329.500
GR	570.200	332.400	569.950	335.300	570.100	338.100	570.400	341.000	570.700	343.800
GR	572.000	346.700	573.500	349.600	575.000	352.400	577.700	355.300	582.300	358.100
GR	584.700	419.300	584.800	480.400	585.100	541.500	585.300	602.700	585.800	663.800
GR	586.300	724.900	586.700	786.100	588.600	847.200	588.100	908.400	587.000	969.500
GR	588.500	1030.600	588.600	1091.800	588.400	1152.900	588.200	1214.000	588.700	1275.200
GR	589.900	1336.300	591.000	1397.400	591.500	1458.600	589.400	1519.700	585.300	1580.900
GR	587.000	1642.000	586.700	1703.100	586.300	1764.300	591.100	1825.400	592.100	1886.500
GR	592.200	1947.700	592.500	2008.800	594.400	2069.900	597.000	2131.000	600.100	2192.200
NC	0.000	0.000	0.000	0.100	0.300	0.000	0.000	0.000	0.000	0.000
NH	5.000	0.050	433.400	0.120	966.800	0.045	1045.900	0.060	1054.700	0.040
NH	1863.100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	11.695	90.000	966.800	1054.700	1486.300	109.500	1586.300	0.000	0.000	0.000
GR	596.900	0.000	596.700	33.300	596.500	66.600	596.300	100.000	596.100	133.300
GR	596.000	166.600	595.800	200.000	595.600	233.300	595.300	266.700	594.800	300.000
GR	593.200	333.300	592.700	366.700	592.400	400.000	592.100	433.400	592.200	466.700
GR	592.400	500.000	592.300	533.400	591.900	566.700	591.700	600.100	592.000	633.400
GR	592.300	666.700	591.900	700.100	591.600	733.400	590.600	766.700	589.500	800.100
GR	589.600	833.400	589.200	866.800	588.600	900.100	587.800	933.400	585.200	966.800
GR	581.200	969.700	579.400	972.600	578.700	975.600	578.100	978.500	577.600	981.400
GR	577.000	984.400	576.400	987.300	575.700	990.200	575.100	993.200	574.500	996.100
GR	573.900	999.000	573.600	1001.900	573.400	1004.900	573.300	1007.800	573.100	1010.700
GR	572.700	1013.700	572.400	1016.600	572.200	1019.500	572.100	1022.500	572.000	1025.400
GR	571.800	1028.300	571.700	1031.300	571.590	1034.200	572.400	1037.100	573.500	1040.000
GR	574.800	1043.000	576.900	1045.900	578.900	1048.800	581.400	1051.800	584.400	1054.700
GR	585.900	1081.600	586.600	1108.600	587.400	1135.500	588.100	1162.500	589.000	1189.400
GR	589.500	1216.400	589.900	1243.300	590.800	1270.300	591.000	1297.200	590.900	1324.200
GR	591.800	1351.100	591.900	1378.100	591.700	1405.000	591.700	1431.900	592.000	1458.900
GR	592.600	1485.800	593.400	1512.800	594.100	1539.700	593.900	1566.700	593.000	1593.600
GR	594.100	1620.600	594.500	1647.500	594.800	1674.500	596.500	1701.400	596.900	1728.400
GR	597.000	1755.300	597.200	1782.300	597.900	1809.200	598.800	1836.100	599.900	1863.100
NH	5.000	0.050	500.000	0.120	1311.000	0.045	1388.000	0.060	1400.000	0.040
NH	1700.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	11.845	34.000	1311.000	1400.000	735.000	54.000	785.000	0.000	0.000	0.000
GR	598.000	0.000	597.400	100.000	596.900	200.000	596.400	300.000	595.500	400.000
GR	591.800	477.000	592.400	500.000	591.500	600.000	592.100	700.000	590.900	800.000
GR	591.900	900.000	590.900	1000.000	587.700	1100.000	588.400	1135.000	586.500	1250.000
GR	584.400	1300.000	582.300	1311.000	575.700	1315.000	575.200	1320.000	574.500	1330.000
GR	573.600	1340.000	572.700	1350.000	572.400	1360.000	572.800	1370.000	572.500	1380.000

GR	576.200	1388.000	585.500	1400.000	590.600	1450.000	593.600	1514.000	593.300	1532.000
GR	594.000	1561.000	596.900	1600.000	599.100	1630.000	599.900	1700.000	0.000	0.000
NH	5.000	0.040	518.000	0.110	1251.900	0.045	1329.200	0.060	1341.200	0.045
NH	1666.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	11.860	90.000	1251.900	1341.200	77.200	75.600	78.900	0.000	0.000	0.000
GR	597.800	0.000	597.500	43.100	597.300	86.300	597.100	129.500	596.800	172.600
GR	596.600	215.800	596.400	259.000	596.200	302.100	595.800	345.300	595.200	388.500
GR	593.200	431.600	592.600	474.800	592.300	518.000	591.900	561.100	592.000	604.300
GR	592.200	647.500	592.100	690.700	591.500	733.800	591.300	777.000	591.600	820.200
GR	591.900	863.300	591.500	906.500	590.900	949.700	589.700	992.800	588.200	1036.000
GR	588.400	1079.200	587.800	1122.300	587.000	1165.500	585.600	1208.700	582.200	1251.900
GR	577.500	1254.800	575.600	1257.800	575.200	1260.800	575.000	1263.800	574.700	1266.700
GR	574.500	1269.700	574.200	1272.700	573.900	1275.700	573.700	1278.600	573.500	1281.600
GR	573.200	1284.600	573.000	1287.600	572.800	1290.500	572.700	1293.500	572.600	1296.500
GR	572.500	1299.500	572.480	1302.500	572.600	1305.400	572.700	1308.400	572.800	1311.400
GR	572.800	1314.400	572.700	1317.300	572.600	1320.300	573.600	1323.300	574.900	1326.300
GR	576.200	1329.200	578.500	1332.200	580.800	1335.200	583.200	1338.200	585.600	1341.200
GR	586.500	1352.000	587.400	1362.800	588.300	1373.700	589.200	1384.500	590.100	1395.300
GR	590.600	1406.200	591.000	1417.000	591.500	1427.900	591.800	1438.700	592.100	1449.500
GR	592.600	1460.400	592.600	1471.200	592.400	1482.100	592.500	1492.900	592.700	1503.700
GR	593.000	1514.600	593.800	1525.400	594.600	1536.300	595.300	1547.100	596.100	1557.900
GR	596.900	1568.800	597.700	1579.600	598.500	1590.500	598.700	1601.300	599.000	1612.100
GR	599.100	1623.000	599.300	1633.800	599.500	1644.700	599.600	1655.500	599.800	1666.400
NH	5.000	0.045	534.700	0.100	1192.800	0.045	1270.400	0.070	1282.400	0.050
NH	1632.800	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	11.875	90.000	1192.800	1282.400	77.300	75.600	78.900	0.000	0.000	0.000
GR	597.600	0.000	597.400	41.100	597.200	82.200	597.000	123.400	596.800	164.500
GR	596.600	205.600	596.400	246.800	596.200	287.900	595.800	329.000	595.300	370.200
GR	593.500	411.300	592.900	452.400	592.600	493.600	592.300	534.700	592.400	575.800
GR	592.500	617.000	592.400	658.100	591.900	699.200	591.600	740.400	591.900	781.500
GR	592.100	822.600	591.600	863.800	591.000	904.900	589.800	946.000	588.400	987.200
GR	588.500	1028.300	587.900	1069.400	587.200	1110.600	585.500	1151.700	582.200	1192.800
GR	577.700	1195.800	575.700	1198.800	575.300	1201.800	575.100	1204.800	574.800	1207.800
GR	574.500	1210.700	574.200	1213.700	573.900	1216.700	573.700	1219.700	573.500	1222.700
GR	573.300	1225.700	573.100	1228.600	572.900	1231.600	572.800	1234.600	572.700	1237.600
GR	572.700	1240.600	572.570	1243.600	572.800	1246.500	572.900	1249.500	573.000	1252.500
GR	572.900	1255.500	572.800	1258.500	572.800	1261.500	573.700	1264.400	574.900	1267.400
GR	576.200	1270.400	578.400	1273.400	580.800	1276.400	583.300	1279.400	585.700	1282.400
GR	586.500	1294.000	587.300	1305.700	588.100	1317.400	588.900	1329.100	589.700	1340.800
GR	590.200	1352.400	590.600	1364.100	591.000	1375.800	591.200	1387.500	591.400	1399.200
GR	591.800	1410.800	591.800	1422.500	591.600	1434.200	591.700	1445.900	591.800	1457.600
GR	592.200	1469.200	593.000	1480.900	593.800	1492.600	594.600	1504.300	595.500	1516.000
GR	596.300	1527.600	597.200	1539.300	598.000	1551.000	598.300	1562.700	598.700	1574.400
GR	598.900	1586.000	599.100	1597.700	599.400	1609.400	599.600	1621.100	599.800	1632.800
NH	5.000	0.045	539.800	0.090	978.400	0.040	1056.800	0.070	1068.900	0.060
NH	1510.300	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	11.929	90.000	978.400	1068.900	238.500	274.700	286.800	0.000	0.000	0.000
GR	597.000	0.000	596.900	33.700	596.700	67.400	596.600	101.200	596.500	134.900
GR	596.400	168.700	596.300	202.400	596.100	236.100	595.900	269.900	595.600	303.600
GR	594.400	337.400	594.000	371.100	593.800	404.800	593.600	438.600	593.600	472.300
GR	593.700	506.100	593.500	539.800	593.000	573.500	592.800	607.300	592.900	641.000

GR	592.600	674.800	592.000	708.500	591.300	742.200	590.100	776.000	589.000	809.700
GR	588.800	843.500	588.300	877.200	587.700	910.900	585.100	944.700	582.000	978.400
GR	578.300	981.400	576.200	984.500	575.600	987.500	575.300	990.500	574.900	993.500
GR	574.500	996.500	574.000	999.500	573.800	1002.500	573.600	1005.600	573.400	1008.600
GR	573.300	1011.600	573.300	1014.600	573.300	1017.600	573.300	1020.600	573.200	1023.600
GR	573.200	1026.700	572.890	1029.700	573.200	1032.700	573.300	1035.700	573.400	1038.700
GR	573.300	1041.700	573.300	1044.700	573.300	1047.800	574.000	1050.800	575.000	1053.800
GR	576.100	1056.800	578.200	1059.800	580.800	1062.800	583.500	1065.800	586.100	1068.900
GR	586.500	1083.600	586.900	1098.300	587.300	1113.000	587.800	1127.800	588.200	1142.500
GR	588.600	1157.200	589.100	1172.000	589.200	1186.700	589.000	1201.400	588.800	1216.200
GR	588.900	1230.900	588.800	1245.600	588.600	1260.300	588.500	1275.100	588.500	1289.800
GR	589.200	1304.500	590.100	1319.300	591.000	1334.000	592.000	1348.700	593.000	1363.500
GR	594.000	1378.200	595.000	1392.900	596.100	1407.600	596.800	1422.400	597.500	1437.100
GR	598.000	1451.800	598.400	1466.600	598.900	1481.300	599.300	1496.000	599.800	1510.300
NH	6.000	0.040	576.000	0.080	615.000	0.040	689.000	0.080	700.000	0.100
NH	1059.000	0.030	1300.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	12.023	28.000	608.000	700.000	437.000	474.300	495.400	0.000	0.000	0.000
GR	596.000	0.000	596.100	100.000	596.100	200.000	595.900	300.000	594.500	400.000
GR	590.000	500.000	588.800	563.000	587.800	576.000	584.500	586.000	581.800	608.000
GR	576.300	615.000	575.900	620.000	573.700	630.000	573.400	640.000	574.100	650.000
GR	574.100	660.000	574.100	670.000	574.400	680.000	576.200	689.000	586.800	700.000
GR	585.600	800.000	586.700	850.000	584.300	900.000	582.800	1000.000	586.200	1059.000
GR	588.700	1100.000	595.600	1200.000	599.700	1300.000	0.000	0.000	0.000	0.000
NH	5.000	0.050	1000.000	0.100	1104.000	0.045	1117.000	0.080	1165.000	0.040
NH	1300.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	12.339	24.000	1104.000	1200.000	1600.000	1600.000	1670.000	0.000	0.000	0.000
GR	596.700	0.000	596.000	100.000	594.900	200.000	592.100	300.000	591.900	400.000
GR	590.800	436.000	591.500	460.000	587.300	500.000	585.500	600.000	586.100	700.000
GR	587.200	800.000	587.700	850.000	586.900	900.000	586.000	1000.000	585.800	1104.000
GR	577.200	1117.000	574.100	1130.000	573.800	1140.000	573.000	1150.000	573.600	1160.000
GR	575.700	1165.000	578.900	1167.000	593.900	1200.000	600.000	1300.000	0.000	0.000
NH	7.000	0.060	400.000	0.100	598.000	0.060	607.000	0.045	680.000	0.060
NH	692.000	0.120	941.000	0.040	1050.000	0.000	0.000	0.000	0.000	0.000
X1	12.544	26.000	598.000	692.000	1020.000	1050.000	1080.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	250.000	0.000	1000.000	0.000	0.000	0.000	0.000
GR	597.100	0.000	595.500	100.000	594.400	200.000	591.600	300.000	592.200	400.000
GR	591.700	422.000	586.700	500.000	587.000	598.000	577.200	607.000	576.000	610.000
GR	575.700	620.000	574.700	630.000	575.200	640.000	575.300	650.000	575.500	660.000
GR	575.600	670.000	576.400	680.000	584.400	692.000	584.500	700.000	585.000	710.000
GR	588.100	720.000	586.300	800.000	586.800	900.000	586.400	941.000	593.300	1000.000
GR	602.000	1050.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	0.100	0.500	0.000	0.000	0.000	0.000	0.000
NH	6.000	0.040	400.000	0.100	1420.000	0.045	1494.000	0.060	1504.000	0.080
NH	1570.000	0.040	1600.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	12.799	30.000	1420.000	1504.000	1300.000	1200.000	1350.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	1600.000	0.000	0.000	0.000	0.000
GR	597.200	0.000	596.500	100.000	594.200	200.000	594.000	300.000	592.800	320.000
GR	590.900	400.000	590.900	500.000	590.400	600.000	588.900	700.000	587.800	800.000
GR	587.600	900.000	587.400	1000.000	588.600	1100.000	587.900	1200.000	585.800	1300.000
GR	584.100	1400.000	583.600	1420.000	578.200	1427.000	577.700	1430.000	576.400	1440.000

GR	575.000	1450.000	574.400	1460.000	573.500	1470.000	573.700	1480.000	576.000	1490.000
GR	578.100	1494.000	584.000	1504.000	587.700	1549.000	599.400	1570.000	601.000	1600.000
NC	0.090	0.090	0.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	13.144	37.000	400.000	463.000	1781.000	1800.000	1820.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	250.000	0.000	1250.000	0.000	0.000	0.000	0.000
GR	597.800	0.000	598.100	100.000	597.500	200.000	598.200	250.000	597.700	268.000
GR	597.200	300.000	596.900	310.000	585.700	363.000	584.200	400.000	578.500	406.000
GR	576.100	410.000	574.400	420.000	574.800	430.000	575.600	440.000	576.000	450.000
GR	579.200	461.000	582.400	463.000	584.000	480.000	586.300	600.000	585.800	659.000
GR	587.700	700.000	586.200	800.000	585.200	900.000	585.900	1000.000	587.200	1100.000
GR	592.100	1123.000	593.800	1200.000	592.700	1300.000	595.400	1400.000	596.300	1500.000
GR	597.800	1600.000	597.100	1700.000	597.900	1800.000	598.600	1900.000	599.100	2000.000
GR	599.800	2100.000	601.200	2200.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	7.000	0.040	255.000	0.075	462.200	0.050	468.700	0.045	522.600	0.050
NH	527.000	0.090	1190.300	0.040	2185.400	0.000	0.000	0.000	0.000	0.000
X1	13.163	90.000	462.200	527.000	64.700	78.700	100.100	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	1275.000	0.000	0.000	0.000	0.000
GR	597.800	0.000	597.900	15.900	597.900	31.800	597.900	47.800	597.700	63.700
GR	597.400	79.600	597.300	95.600	597.300	111.500	597.300	127.500	597.200	143.400
GR	597.200	159.300	597.100	175.300	597.100	191.200	597.000	207.200	596.900	223.100
GR	597.000	239.000	597.200	255.000	597.400	270.900	597.600	286.900	597.300	302.800
GR	597.000	318.700	596.800	334.700	596.500	350.600	594.800	366.600	592.000	382.500
GR	589.300	398.400	586.500	414.400	585.300	430.300	584.800	446.300	584.300	462.200
GR	582.200	464.400	580.100	466.500	578.200	468.700	577.000	470.800	576.000	473.000
GR	575.700	475.100	575.400	477.300	575.000	479.500	574.700	481.600	574.580	483.800
GR	574.600	485.900	574.700	488.100	574.800	490.300	574.900	492.400	575.000	494.600
GR	575.100	496.700	575.300	498.900	575.500	501.000	575.700	503.200	575.800	505.400
GR	575.800	507.500	575.900	509.700	576.000	511.800	576.200	514.000	576.800	516.200
GR	577.400	518.300	578.000	520.500	578.600	522.600	579.300	524.800	582.400	527.000
GR	584.800	582.200	586.000	637.500	586.300	692.800	587.900	748.100	587.400	803.400
GR	586.600	858.600	586.100	913.900	586.000	969.200	586.400	1024.500	587.000	1079.800
GR	587.700	1135.100	593.100	1190.300	593.800	1245.600	593.200	1300.900	593.800	1356.200
GR	595.200	1411.500	595.900	1466.800	596.400	1522.000	597.300	1577.300	597.600	1632.600
GR	597.300	1687.900	597.400	1743.200	597.800	1798.400	598.300	1853.700	598.600	1909.000
GR	598.900	1964.300	599.200	2019.600	599.600	2074.900	600.300	2130.100	601.000	2185.400
NH	7.000	0.040	245.600	0.075	508.900	0.060	513.300	0.040	570.500	0.060
NH	575.000	0.080	1161.400	0.040	2174.500	0.000	0.000	0.000	0.000	0.000
X1	13.191	90.000	508.900	575.000	48.500	59.100	75.100	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	1275.000	0.000	0.000	0.000	0.000
GR	597.800	0.000	597.900	17.500	597.900	35.000	597.900	52.600	597.500	70.100
GR	596.900	87.700	596.800	105.200	596.800	122.800	596.700	140.300	596.700	157.900
GR	596.700	175.400	596.600	193.000	596.600	210.500	596.500	228.100	596.500	245.600
GR	596.600	263.200	596.800	280.700	597.000	298.300	597.100	315.800	596.900	333.400
GR	596.600	350.900	596.400	368.500	596.000	386.000	594.400	403.600	591.700	421.100
GR	589.100	438.700	586.500	456.200	585.300	473.800	584.900	491.300	584.400	508.900
GR	582.200	511.100	580.000	513.300	578.200	515.500	577.000	517.800	576.000	519.900
GR	575.700	522.100	575.400	524.300	575.100	526.500	574.700	528.700	574.680	530.900
GR	574.700	533.100	574.800	535.300	574.800	537.500	575.000	539.700	575.000	541.900
GR	575.200	544.100	575.400	546.300	575.600	548.500	575.800	550.700	575.800	552.900
GR	575.900	555.100	576.000	557.300	576.100	559.500	576.300	561.700	576.900	563.900
GR	577.400	566.100	578.000	568.300	578.700	570.500	579.400	572.700	582.400	575.000

GR	584.800	628.300	586.100	681.600	586.600	734.900	588.200	788.200	587.700	841.500
GR	587.000	894.900	586.500	948.200	586.500	1001.500	586.900	1054.800	587.500	1108.100
GR	588.100	1161.400	593.300	1214.800	594.000	1268.100	593.400	1321.400	594.000	1374.700
GR	595.300	1428.000	596.000	1481.300	596.500	1534.700	597.300	1588.000	597.600	1641.300
GR	597.300	1694.600	597.400	1747.900	597.800	1801.200	598.300	1854.600	598.600	1907.900
GR	598.900	1961.200	599.200	2014.500	599.500	2067.800	600.200	2121.200	600.900	2174.500
NH	6.000	0.040	246.200	0.070	649.000	0.060	656.000	0.040	709.700	0.060
NH	719.000	0.060	2141.900	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	13.220	90.000	649.000	719.000	145.600	177.200	225.300	0.000	0.000	0.000
X3	0.000	0.000	0.000	360.000	0.000	1350.000	0.000	0.000	0.000	0.000
GR	597.900	0.000	598.100	22.300	598.100	44.700	598.000	67.100	597.100	89.500
GR	595.700	111.900	595.400	134.200	595.300	156.600	595.300	179.000	595.300	201.400
GR	595.300	223.800	595.300	246.200	595.300	268.500	595.300	290.900	595.300	313.300
GR	595.500	335.700	595.700	358.100	595.800	380.400	595.900	402.800	595.800	425.200
GR	595.600	447.600	595.200	470.000	594.800	492.400	593.400	514.700	591.000	537.100
GR	588.800	559.500	586.500	581.900	585.500	604.300	585.200	626.600	584.800	649.000
GR	582.400	651.400	580.000	653.700	578.200	656.000	577.100	658.400	576.200	660.700
GR	576.000	663.000	575.700	665.400	575.400	667.700	575.100	670.000	575.030	672.300
GR	575.100	674.700	575.100	677.000	575.200	679.300	575.300	681.700	575.400	684.000
GR	575.500	686.300	575.700	688.700	575.900	691.000	576.100	693.300	576.200	695.700
GR	576.300	698.000	576.400	700.300	576.500	702.700	576.700	705.000	577.200	707.300
GR	577.700	709.700	578.300	712.000	579.100	714.300	579.900	716.700	582.700	719.000
GR	584.900	766.400	586.500	813.900	587.500	861.300	589.400	908.700	589.000	956.100
GR	588.400	1003.600	588.000	1051.000	588.000	1098.400	588.400	1145.900	589.000	1193.300
GR	589.600	1240.700	594.100	1288.200	594.700	1335.600	594.200	1383.000	594.600	1430.400
GR	595.800	1477.900	596.400	1525.300	596.800	1572.700	597.500	1620.200	597.800	1667.600
GR	597.500	1715.000	597.700	1762.500	598.000	1809.900	598.400	1857.300	598.700	1904.700
GR	599.000	1952.200	599.300	1999.600	599.600	2047.000	600.200	2094.500	600.800	2141.900
NH	8.000	0.040	157.000	0.050	235.000	0.030	1242.000	0.035	1507.000	0.070
NH	1514.000	0.040	1571.000	0.070	1601.000	0.050	1942.000	0.000	0.000	0.000
X1	13.481	33.000	1507.000	1601.000	891.200	1085.600	1379.500	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	1750.000	0.000	0.000	0.000	0.000
GR	598.300	0.000	599.400	42.000	598.600	157.000	595.400	203.000	588.600	235.000
GR	585.700	342.000	586.400	442.000	587.200	542.000	587.200	642.000	588.100	742.000
GR	588.900	842.000	588.400	942.000	589.200	1042.000	587.000	1142.000	586.400	1242.000
GR	586.200	1342.000	586.800	1442.000	587.200	1507.000	578.700	1514.000	577.200	1521.000
GR	577.300	1531.000	577.200	1541.000	577.200	1551.000	577.400	1561.000	578.300	1571.000
GR	578.600	1581.000	579.600	1591.000	583.900	1601.000	585.900	1617.000	596.000	1642.000
GR	598.500	1742.000	598.700	1842.000	599.800	1942.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	0.100	0.500	0.000	0.000	0.000	0.000	0.000
NH	7.000	0.035	213.000	0.050	416.000	0.060	428.000	0.040	495.000	0.060
NH	513.000	0.080	913.000	0.040	1873.000	0.000	0.000	0.000	0.000	0.000
X1	13.799	33.000	416.000	513.000	800.000	1050.000	1680.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	1010.000	0.000	0.000	0.000	0.000
GR	600.500	0.000	600.500	13.000	601.700	113.000	593.900	213.000	587.300	292.000
GR	586.900	313.000	587.300	363.000	586.900	416.000	579.800	428.000	578.000	433.000
GR	577.500	443.000	576.300	453.000	575.900	463.000	576.800	473.000	578.200	483.000
GR	579.500	495.000	587.200	513.000	587.000	613.000	586.500	713.000	586.500	735.000
GR	593.200	758.000	592.700	813.000	594.600	913.000	599.100	1013.000	596.900	1113.000
GR	599.200	1213.000	598.000	1313.000	598.500	1413.000	599.700	1513.000	598.300	1613.000
GR	598.600	1713.000	598.100	1813.000	601.500	1873.000	0.000	0.000	0.000	0.000

NH	9.000	0.040	200.000	0.080	720.000	0.060	733.000	0.045	780.000	0.060
NH	800.000	0.080	1140.000	0.060	1427.000	0.050	1700.000	0.035	1900.000	0.000
X1	14.061	36.000	720.000	828.000	1100.000	1100.000	1380.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	200.000	0.000	1400.000	0.000	0.000	0.000	0.000
GR	601.100	0.000	599.600	100.000	598.200	155.000	598.700	200.000	598.100	273.000
GR	593.100	300.000	587.000	360.000	585.800	400.000	589.300	500.000	589.200	609.000
GR	589.200	700.000	589.600	720.000	579.700	733.000	578.000	740.000	577.500	750.000
GR	578.200	760.000	578.700	770.000	579.500	780.000	580.500	790.000	581.000	796.000
GR	585.100	800.000	584.900	813.000	588.500	828.000	585.300	900.000	586.600	1000.000
GR	584.900	1100.000	586.900	1140.000	588.800	1200.000	588.200	1300.000	591.000	1400.000
GR	595.900	1427.000	595.300	1500.000	594.100	1600.000	596.200	1700.000	597.200	1800.000
GR	599.500	1900.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	7.000	0.035	777.000	0.050	1006.000	0.060	1015.000	0.045	1080.000	0.060
NH	1084.000	0.070	1200.000	0.040	1400.000	0.000	0.000	0.000	0.000	0.000
X1	14.258	34.000	726.000	1105.000	1040.000	950.000	1040.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	400.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	599.300	0.000	597.200	100.000	596.700	200.000	598.400	270.000	597.800	300.000
GR	598.900	400.000	597.700	500.000	591.300	600.000	589.100	645.000	592.600	700.000
GR	593.400	726.000	592.200	777.000	586.900	802.000	586.500	890.000	584.800	897.000
GR	584.500	901.000	587.100	909.000	588.000	960.000	587.700	1006.000	581.200	1015.000
GR	579.400	1020.000	578.700	1030.000	578.500	1040.000	578.000	1050.000	579.100	1060.000
GR	580.400	1070.000	580.800	1080.000	581.300	1084.000	588.300	1105.000	589.200	1200.000
GR	591.000	1260.000	594.100	1300.000	599.900	1335.000	601.500	1400.000	0.000	0.000
NC	0.000	0.000	0.000	0.100	0.300	0.000	0.000	0.000	0.000	0.000
NH	3.000	0.030	995.000	0.040	1065.000	0.050	1276.000	0.000	0.000	0.000
X1	14.523	28.000	990.000	1085.000	1350.000	1400.000	1400.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	1300.000	0.000	0.000	0.000	0.000
GR	600.200	0.000	597.500	87.000	597.100	100.000	594.400	200.000	594.100	300.000
GR	593.200	400.000	591.300	500.000	588.200	600.000	588.100	700.000	588.400	800.000
GR	588.700	900.000	591.100	984.000	590.800	990.000	580.200	995.000	579.100	1000.000
GR	578.400	1010.000	578.900	1020.000	579.100	1030.000	579.400	1040.000	579.700	1050.000
GR	581.300	1060.000	581.600	1065.000	588.500	1078.000	589.700	1085.000	588.800	1100.000
GR	587.700	1200.000	589.000	1245.000	602.200	1276.000	0.000	0.000	0.000	0.000
NH	6.000	0.040	300.000	0.030	600.000	0.070	610.000	0.040	665.000	0.050
NH	680.000	0.100	1500.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	15.057	33.000	600.000	680.000	2600.000	2300.000	2820.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	250.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	599.800	0.000	600.800	100.000	598.200	200.000	596.600	300.000	596.900	335.000
GR	593.700	400.000	593.000	500.000	592.700	600.000	583.400	610.000	581.900	615.000
GR	581.300	620.000	579.000	630.000	579.000	640.000	580.000	650.000	581.300	655.000
GR	583.000	660.000	583.900	665.000	586.600	668.000	588.400	680.000	590.000	700.000
GR	589.100	800.000	591.500	865.000	585.800	875.000	586.100	884.000	591.500	904.000
GR	590.700	1000.000	590.500	1100.000	590.300	1200.000	591.500	1300.000	591.500	1329.000
GR	598.000	1363.000	598.700	1400.000	599.700	1500.000	0.000	0.000	0.000	0.000

NH	5.000	0.040	1079.000	0.100	1111.000	0.040	1180.000	0.100	2030.000	0.040
NH	2565.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	15.722	41.000	1079.000	1200.000	2100.000	2700.000	3510.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	1000.000	0.000	2200.000	0.000	0.000	0.000	0.000
GR	601.500	0.000	600.100	100.000	600.300	200.000	597.900	300.000	596.500	368.000
GR	589.200	383.000	589.200	385.000	596.200	400.000	597.800	500.000	598.900	600.000
GR	599.600	700.000	599.500	776.000	599.300	800.000	600.200	900.000	601.400	1000.000
GR	600.700	1079.000	582.700	1111.000	579.300	1120.000	579.600	1130.000	578.700	1140.000
GR	578.200	1150.000	578.000	1160.000	580.000	1170.000	582.300	1180.000	594.100	1200.000
GR	592.600	1300.000	591.200	1400.000	591.600	1500.000	589.200	1600.000	590.200	1700.000
GR	590.200	1800.000	591.300	1900.000	593.400	2000.000	593.400	2030.000	596.600	2075.000
GR	596.800	2100.000	598.100	2200.000	599.400	2300.000	600.100	2400.000	598.100	2500.000
GR	598.700	2565.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	0.300	0.500	0.000	0.000	0.000	0.000	0.000
NH	5.000	0.040	1079.000	0.100	1115.000	0.040	1195.000	0.100	2030.000	0.040
NH	2565.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	15.736	54.000	1085.000	1231.000	80.000	80.000	80.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	1000.000	0.000	2400.000	0.000	0.000	0.000	0.000
GR	601.500	0.000	600.100	100.000	600.300	200.000	597.900	300.000	596.500	368.000
GR	589.200	383.000	589.200	385.000	596.200	400.000	597.800	500.000	598.900	600.000
GR	599.600	700.000	599.500	776.000	599.300	800.000	600.200	900.000	601.000	1000.000
GR	600.700	1079.000	595.300	1085.000	592.500	1086.000	592.000	1095.000	590.800	1105.000
GR	587.700	1115.000	584.900	1125.000	582.300	1132.000	582.300	1132.100	582.300	1134.900
GR	582.300	1135.000	582.400	1145.000	581.500	1155.000	581.300	1165.000	579.900	1175.000
GR	576.700	1182.000	576.700	1182.100	577.200	1184.900	577.200	1185.000	578.200	1195.000
GR	591.200	1225.000	592.200	1230.000	592.200	1231.000	592.600	1300.000	591.200	1400.000
GR	591.600	1500.000	589.200	1600.000	590.200	1700.000	590.200	1800.000	591.300	1900.000
GR	593.400	2000.000	593.400	2030.000	596.600	2075.000	596.800	2100.000	598.100	2200.000
GR	599.400	2300.000	600.100	2400.000	598.100	2500.000	598.700	2565.000	0.000	0.000
SB	0.000	2.100	3.040	0.000	115.000	0.000	1512.000	0.000	0.000	0.000
NH	3.000	0.090	1085.000	0.040	1231.000	0.090	2565.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	6.110	6.110	1000.000	2400.000	0.000	0.000	0.000
X1	15.748	0.000	0.000	0.000	71.000	71.000	71.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	595.300	596.200	0.000	0.000	0.000	0.000	0.000
BT	-30.000	0.000	601.500	0.000	100.000	600.100	0.000	200.000	600.300	0.000
BT	0.000	300.000	597.900	0.000	400.000	596.200	0.000	500.000	597.800	0.000
BT	0.000	600.000	598.900	0.000	700.000	599.600	0.000	776.000	599.500	0.000
BT	0.000	800.000	599.300	0.000	900.000	600.200	0.000	1000.000	601.000	0.000
BT	0.000	1085.000	601.700	595.300	1086.000	601.700	597.000	1132.000	601.700	597.000
BT	0.000	1132.100	601.700	582.300	1134.900	601.700	582.300	1135.000	601.700	597.000
BT	0.000	1182.000	601.700	597.000	1182.100	601.700	576.700	1184.900	601.700	577.200
BT	0.000	1185.000	601.700	597.000	1230.000	601.800	597.000	1231.000	601.800	592.200
BT	0.000	1300.000	601.000	0.000	1400.000	599.300	0.000	1500.000	599.000	0.000
BT	0.000	2200.000	598.100	0.000	2300.000	599.400	0.000	2400.000	600.100	0.000
NH	6.000	0.050	412.000	0.055	445.000	0.045	520.000	0.060	525.000	0.050
NH	825.000	0.035	925.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	16.063	25.000	325.000	525.000	1694.000	1694.000	1749.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	601.300	0.000	600.400	29.000	599.700	125.000	601.000	225.000	601.600	325.000
GR	599.100	412.000	591.900	429.000	586.100	435.000	584.200	445.000	583.200	455.000
GR	581.600	465.000	580.100	475.000	578.200	485.000	576.400	495.000	577.000	505.000
GR	580.400	515.000	583.900	520.000	589.400	525.000	591.300	534.000	589.200	625.000
GR	593.300	714.000	592.900	725.000	597.800	825.000	600.700	875.000	601.700	925.000
NC	0.000	0.000	0.000	0.100	0.500	0.000	0.000	0.000	0.000	0.000
NH	5.000	1.000	107.000	0.060	566.000	0.040	634.000	0.100	760.000	0.070
NH	1038.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	16.396	24.000	560.000	641.000	1700.000	1650.000	1760.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	50.000	0.000	800.000	0.000	0.000	0.000	0.000
GR	601.200	0.000	600.200	53.000	600.200	66.000	591.400	107.000	589.400	160.000
GR	589.100	260.000	588.700	360.000	588.200	460.000	589.700	560.000	584.300	566.000
GR	584.200	580.000	583.300	590.000	582.300	600.000	581.800	610.000	582.100	620.000
GR	581.400	630.000	583.300	634.000	591.300	641.000	593.700	664.000	594.600	733.000
GR	598.300	760.000	599.500	860.000	598.900	960.000	600.900	1038.000	0.000	0.000
NH	7.000	1.000	700.000	0.100	1300.000	0.080	1704.000	0.100	1711.000	0.040
NH	1730.000	0.100	1781.000	0.040	2120.000	0.000	0.000	0.000	0.000	0.000
X1	16.866	35.000	1704.000	1792.000	2400.000	2300.000	2480.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	800.000	0.000	1900.000	0.000	0.000	0.000	0.000
GR	603.900	0.000	602.800	100.000	602.000	200.000	600.900	300.000	599.800	400.000
GR	599.800	500.000	598.800	600.000	598.700	700.000	597.900	800.000	597.800	700.000
GR	597.300	1000.000	595.900	1100.000	593.000	1200.000	593.400	1300.000	593.900	1400.000
GR	593.600	1500.000	593.000	1600.000	593.400	1704.000	584.800	1711.000	582.100	1720.000
GR	582.300	1730.000	582.400	1740.000	582.200	1750.000	582.000	1760.000	582.200	1765.000
GR	584.700	1773.000	591.000	1781.000	595.500	1792.000	596.000	1800.000	600.100	1893.000
GR	600.600	1947.000	600.200	2000.000	600.600	2055.000	604.100	2100.000	605.100	2120.000
NH	6.000	0.040	1000.000	0.100	1308.000	0.075	1319.000	0.040	1371.000	0.075
NH	1396.000	0.040	1625.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	17.089	29.000	1308.000	1396.000	1100.000	1100.000	1180.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	950.000	0.000	1500.000	0.000	0.000	0.000	0.000
GR	601.800	0.000	601.300	100.000	599.300	200.000	598.900	300.000	598.900	400.000
GR	598.500	500.000	598.400	600.000	598.000	700.000	598.100	800.000	597.800	822.000
GR	593.400	900.000	591.900	1000.000	592.000	1100.000	592.400	1200.000	593.200	1300.000
GR	593.400	1308.000	586.800	1319.000	585.700	1325.000	584.900	1330.000	582.600	1340.000
GR	583.200	1350.000	583.200	1360.000	584.800	1371.000	589.400	1378.000	589.800	1387.000
GR	595.000	1396.000	598.900	1425.000	599.800	1500.000	601.300	1625.000	0.000	0.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA    LEFT/RIGHT
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN        SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID       ENDST


 *PROF 1

 CCHV=    0.300 CEHV=    0.500
 1490 NH CARD USED
 *SECNO 11.052

 3470 ENCROACHMENT STATIONS=        550.0      2520.0  TYPE=       1  TARGET=     -550.000
      11.05      22.37     593.17       0.00     593.17     593.38       0.20       0.00       0.00     578.50
    21300.        272.     12024.      9004.       229.      2541.     10296.         0.         0.     584.10
       0.00       1.19       4.73       0.87      0.120      0.047      0.132      0.000     570.80     550.00
   0.000431       750.       750.       330.          0          0          0       0.00    1823.74    2373.74


 1490 NH CARD USED
 *SECNO 11.292
      11.29      24.23     593.63       0.00       0.00     593.66       0.03       0.23       0.05     593.20
    10400.          0.      3110.      7290.         4.      1421.     13568.       198.        25.     581.70
       0.23       0.05       2.19       0.54      0.120      0.048      0.124      0.000     569.40      23.18
   0.000137      1350.      1268.       500.          1          0          0       0.00    2141.27    2164.45


 1490 NH CARD USED
 *SECNO 11.393
      11.39      23.70     593.65       0.00       0.00     593.72       0.06       0.04       0.02     591.20
    10400.         29.      4415.      5956.       140.      1472.      9432.       226.        29.     582.30
       0.26       0.21       3.00       0.63      0.120      0.048      0.128      0.000     569.95      92.91
   0.000243       479.       529.        37.          2          0          0       0.00    1952.96    2045.87


 CCHV=    0.100 CEHV=    0.300
 1490 NH CARD USED
 *SECNO 11.695

 3265 DIVIDED FLOW

      11.69      22.29     593.88       0.00       0.00     594.03       0.15       0.29       0.02     585.20
    10400.        957.      6117.      3326.      1799.      1630.      1813.       330.        49.     584.40
       0.35       0.53       3.75       1.83      0.137      0.054      0.048      0.000     571.59     319.06
   0.000421      1486.      1586.       110.          2          0          0       0.00    1260.48    1615.30


 1490 NH CARD USED
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
*SECNO 11.845									
11.84	21.74	594.14	0.00	0.00	594.33	0.20	0.29	0.02	582.30
10400.	2294.	7246.	860.	3386.	1721.	461.	405.	64.	585.50
0.41	0.68	4.21	1.86	0.141	0.054	0.048	0.000	572.40	428.36
0.000503	735.	785.	54.	2	0	0	0.00	1134.48	1562.85
1490 NH CARD USED									
*SECNO 11.860									
11.86	21.71	594.19	0.00	0.00	594.37	0.18	0.04	0.00	582.20
10400.	2358.	7035.	1007.	3184.	1731.	622.	415.	66.	585.60
0.41	0.74	4.07	1.62	0.128	0.054	0.054	0.000	572.48	410.16
0.000463	77.	79.	76.	2	0	0	0.00	1120.62	1530.78
1490 NH CARD USED									
*SECNO 11.875									
11.88	21.67	594.24	0.00	0.00	594.41	0.17	0.04	0.00	582.20
10400.	2329.	6917.	1154.	2888.	1732.	791.	425.	68.	585.70
0.42	0.81	3.99	1.46	0.116	0.054	0.060	0.000	572.57	394.58
0.000453	77.	79.	76.	0	0	0	0.00	1104.34	1498.92
1490 NH CARD USED									
*SECNO 11.929									
11.93	21.47	594.36	0.00	0.00	594.52	0.16	0.11	0.00	582.00
10400.	1595.	6777.	2027.	1987.	1741.	1644.	457.	74.	586.10
0.45	0.80	3.89	1.23	0.106	0.048	0.072	0.000	572.89	340.55
0.000343	239.	287.	275.	0	0	0	0.00	1042.98	1383.53
1490 NH CARD USED									
*SECNO 12.023									
12.02	21.17	594.57	0.00	0.00	594.66	0.09	0.13	0.01	581.80
10400.	1144.	5410.	3847.	976.	1747.	3952.	523.	83.	586.80
0.51	1.17	3.10	0.97	0.064	0.049	0.098	0.000	573.40	394.65
0.000225	437.	495.	474.	2	0	0	0.00	790.49	1185.14
1490 NH CARD USED									
*SECNO 12.339									
12.34	21.99	594.99	0.00	0.00	595.02	0.03	0.35	0.01	585.80
10400.	7801.	2596.	3.	6067.	1490.	10.	787.	117.	593.90
0.83	1.29	1.74	0.30	0.066	0.073	0.048	0.000	573.00	191.92
0.000211	1600.	1670.	1600.	2	0	0	0.00	1025.93	1217.85

```
 SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
 Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
 TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
 SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


1490 NH CARD USED
*SECNO 12.544

3470 ENCROACHMENT STATIONS=      250.0     1000.0  TYPE=      1   TARGET=      750.000
     12.54     20.51    595.21     0.00      0.00    595.34     0.13      0.29      0.03    587.00
    10400.     1670.     6310.    2420.     1839.     1735.    2456.      949.      138.     584.40
      0.95      0.91      3.64     0.99     0.108     0.054    0.121     0.000    574.70    250.00
  0.000393     1020.     1080.    1050.         0         0        0      0.00    750.00   1000.00


CCHV=   0.100 CEHV=    0.500
1490 NH CARD USED
*SECNO 12.799

3470 ENCROACHMENT STATIONS=        0.0     1600.0  TYPE=      1   TARGET=     1599.999
     12.80     22.16    595.66     0.00      0.00    595.71     0.05      0.35      0.01    583.60
    10400.     5655.     4280.     465.     8164.     1618.     498.     1191.      170.     584.00
      1.19      0.69      2.65     0.93     0.114     0.055    0.096     0.000    573.50    136.69
  0.000196     1300.     1350.    1200.         2         0        0      0.00   1426.59   1563.28


*SECNO 13.144

3470 ENCROACHMENT STATIONS=      250.0     1250.0  TYPE=      1   TARGET=     1000.000
     13.14     21.61    596.01     0.00      0.00    596.07     0.06      0.36      0.00    584.20
    10400.      544.     3720.    6136.      661.     1228.    6924.     1584.      219.     582.40
      1.49      0.82      3.03     0.89     0.108     0.048    0.108     0.000    574.40    314.21
  0.000204     1781.     1820.    1800.         2         0        0      0.00    935.79   1250.00


1490 NH CARD USED
*SECNO 13.163

3470 ENCROACHMENT STATIONS=        0.0     1275.0  TYPE=      1   TARGET=     1274.999
     13.16     21.46    596.04     0.00      0.00    596.09     0.05      0.02      0.00    584.30
    10400.      843.     3611.    5946.      784.     1259.    6424.     1600.      220.     582.40
      1.51      1.08      2.87     0.93     0.090     0.053    0.106     0.000    574.58    355.05
  0.000224       65.      100.      79.         0         0        0      0.00    919.95   1275.00


1490 NH CARD USED
*SECNO 13.191
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 SECNO      DEPTH     CWSEL     CRIWS     WSELK      EG        HV        HL        OLOSS   BANK ELEV
 Q          QLOB      QCH       QROB      ALOB       ACH       AROB      VOL       TWA    LEFT/RIGHT
 TIME       VLOB      VCH       VROB      XNL        XNCH      XNR       WTN       ELMIN      SSTA
 SLOPE      XLOBL     XLCH      XLOBR     ITRIAL     IDC       ICONT     CORAR     TOPWID     ENDST


3470 ENCROACHMENT STATIONS=       0.0      1275.0  TYPE=      1  TARGET=    1274.999
    13.19     21.37    596.05      0.00      0.00    596.10      0.06      0.01      0.00    584.40
   10400.      870.     3751.     5779.      882.     1282.     5944.     1612.      222.     582.40
     1.52      0.99      2.92      0.97     0.090     0.048     0.092     0.000    574.68    383.89
 0.000191       49.       75.       59.         0         0         0      0.00    891.11   1275.00


1490 NH CARD USED
*SECNO 13.220

3470 ENCROACHMENT STATIONS=     360.0      1350.0  TYPE=      1  TARGET=     990.000
    13.22     21.05    596.08      0.00      0.00    596.14      0.06      0.04      0.00    584.80
   10400.     1229.     3792.     5380.     1238.     1339.     4650.     1643.      225.     582.70
     1.55      0.99      2.83      1.16     0.084     0.050     0.072     0.000    575.03    360.00
 0.000191      146.      225.      177.         0         0         0      0.00    990.00   1350.00


1490 NH CARD USED
*SECNO 13.481

3470 ENCROACHMENT STATIONS=       0.0      1750.0  TYPE=      1  TARGET=    1749.999
    13.48     18.99    596.19      0.00      0.00    596.20      0.01      0.05      0.00    587.20
   10400.     8899.     1355.      146.    11382.     1654.      312.     1882.      253.     583.90
     1.93      0.78      0.82      0.47     0.037     0.054     0.060     0.000    577.20    191.70
 0.000021      891.     1380.     1086.         2         0         0      0.00   1457.76   1649.46


CCHV=    0.100 CEHV=    0.500
1490 NH CARD USED
*SECNO 13.799

3470 ENCROACHMENT STATIONS=       0.0      1010.0  TYPE=      1  TARGET=    1009.999
    13.80     20.30    596.20      0.00      0.00    596.29      0.09      0.06      0.04    586.90
   10400.     2580.     5143.     2677.     1606.     1645.     2678.     2101.      277.     587.20
     2.06      1.61      3.13      1.00     0.060     0.050     0.096     0.000    575.90    183.46
 0.000268      800.     1680.     1050.         2         0         0      0.00    765.18    948.64


1490 NH CARD USED
*SECNO 14.061

3470 ENCROACHMENT STATIONS=     200.0      1400.0  TYPE=      1  TARGET=    1200.000
```

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

14.06	19.02	596.52	0.00	0.00	596.54	0.02	0.24	0.01	589.60
10400.	2517.	2916.	4966.	3321.	1618.	5263.	2315.	301.	588.50
2.36	0.76	1.80	0.94	0.096	0.060	0.086	0.000	577.50	281.55
0.000153	1100.	1380.	1100.	2	0	0	0.00	1118.45	1400.00

1490 NH CARD USED
*SECNO 14.258

3470 ENCROACHMENT STATIONS= 400.0 1400.0 TYPE= 1 TARGET= -400.000

14.26	18.69	596.69	0.00	0.00	596.73	0.05	0.18	0.01	593.40
10400.	1413.	7372.	1615.	935.	3898.	1335.	2503.	323.	588.30
2.52	1.51	1.89	1.21	0.042	0.054	0.065	0.000	578.00	515.84
0.000216	1040.	1040.	950.	2	0	0	0.00	799.76	1315.61

CCHV= 0.100 CEHV= 0.300
1490 NH CARD USED
*SECNO 14.523

3470 ENCROACHMENT STATIONS= 0.0 1300.0 TYPE= 1 TARGET= 1299.999

14.52	18.47	596.87	0.00	0.00	596.90	0.03	0.17	0.00	590.80
10400.	6636.	2490.	1274.	5062.	1484.	1433.	2727.	354.	589.70
2.81	1.31	1.68	0.89	0.036	0.046	0.060	0.000	578.40	108.37
0.000078	1350.	1400.	1400.	2	0	0	0.00	1155.12	1263.49

1490 NH CARD USED
*SECNO 15.057

3470 ENCROACHMENT STATIONS= 250.0 1500.0 TYPE= 1 TARGET= -250.000

15.06	18.22	597.22	0.00	0.00	597.32	0.10	0.40	0.02	592.70
10400.	1993.	4200.	4207.	977.	1152.	4548.	3151.	419.	588.40
3.13	2.04	3.64	0.93	0.036	0.048	0.120	0.000	579.00	261.26
0.000430	2600.	2820.	2300.	2	0	0	0.00	1097.66	1358.92

1490 NH CARD USED
*SECNO 15.722

3470 ENCROACHMENT STATIONS= 1000.0 2200.0 TYPE= 1 TARGET= 1200.000

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN        SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID       ENDST


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       600.70 ELREA=       594.10

     15.72     20.34    598.34      0.00      0.00    598.43      0.08      1.10      0.00    600.70
    10400.        0.     5384.     5016.        0.     1724.     6097.     3620.      487.     594.10
      3.54      0.00      3.12      0.82     0.000     0.048     0.116     0.000    578.00   1083.19
  0.000315     2100.     3510.     2700.         2         0         0      0.00   1116.81   2200.00

CCHV=    0.300 CEHV=    0.500
1490 NH CARD USED
*SECNO 15.736

3470 ENCROACHMENT STATIONS=     1000.0     2400.0  TYPE=      1  TARGET=     1400.000
     15.74     21.69    598.39      0.00      0.00    598.46      0.06      0.02      0.01    595.30
    10400.        1.     5432.     4967.        5.     2029.     6061.     3635.      489.     592.20
      3.56      0.24      2.68      0.82     0.120     0.054     0.116     0.000    576.70   1081.56
  0.000303       80.       80.       80.         2         0         0      0.00   1140.96   2222.52


SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
SB   XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
      0.00       2.10       3.04       0.00     115.00       0.00    1512.00       0.00     576.70     576.70

1490 NH CARD USED
*SECNO 15.748
     3700.    BRIDGE STENCL=    1000.00    STENCR=    2400.00
3280 CROSS SECTION      15.75 EXTENDED        0.65 FEET

PRESSURE AND WEIR FLOW


  EGPRS       EGLWC        H3        QWEIR       QPR        BAREA    TRAPEZOID      ELLC       ELTRD
                                                                       AREA
     599.94     598.46      0.00      1883.      8424.      1512.      2139.      595.30     596.20


3470 ENCROACHMENT STATIONS=     1000.0     2400.0  TYPE=      1  TARGET=     1400.000
     15.75     22.65    599.35      0.00      0.00    599.41      0.05      0.95      0.00    595.30
    10400.        2.     5275.     5123.        9.     2169.     7050.     3649.      491.     592.20
      3.57      0.24      2.43      0.73     0.108     0.048     0.108     0.000    576.70   1080.50
  0.000180       71.       71.       71.         2         0         2      0.00   1216.00   2296.50
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

1490 NH CARD USED
*SECNO 16.063

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      601.60 ELREA=      589.40

     16.06     23.35    599.75      0.00      0.00    599.87      0.13      0.43      0.04    601.60
    10400.        0.     6187.     4213.        0.     1838.     2250.     3910.      524.    589.40
      3.74      0.00      3.37      1.87     0.000     0.046     0.060     0.000    576.40    389.52
  0.000367     1694.     1749.     1694.         2         0         0      0.00    469.03    858.55

CCHV=   0.100 CEHV=   0.500
1490 NH CARD USED
*SECNO 16.396

3470 ENCROACHMENT STATIONS=       50.0     800.0  TYPE=     1  TARGET=     750.000
     16.40     18.84    600.24      0.00      0.00    600.29      0.05      0.40      0.01    589.70
    10400.     6710.     3297.      393.     5245.     1354.      769.     4134.      547.    591.30
      4.04      1.28      2.43      0.51     0.073     0.049     0.118     0.000    581.40     50.88
  0.000164     1700.     1760.     1650.         2         0         0      0.00    749.12    800.00

1490 NH CARD USED
*SECNO 16.866

3470 ENCROACHMENT STATIONS=      800.0    1900.0  TYPE=     1  TARGET=    1100.000
     16.87     18.90    600.90      0.00      0.00    600.95      0.05      0.66      0.00    593.40
    10400.     6275.     3657.      467.     5473.     1407.      310.     4537.      598.    595.50
      4.44      1.15      2.60      1.51     0.104     0.079     0.048     0.000    582.00    800.00
  0.000532     2400.     2480.     2300.         1         0         0      0.00   1100.00   1900.00

1490 NH CARD USED
*SECNO 17.089
3280 CROSS SECTION     17.09 EXTENDED      0.16 FEET

3470 ENCROACHMENT STATIONS=      950.0    1500.0  TYPE=     1  TARGET=     550.000
     17.09     18.86    601.46      0.00      0.00    601.59      0.13      0.61      0.04    593.40
    10400.     4834.     5126.      441.     3268.     1323.      289.     4691.      619.    595.00
      4.56      1.48      3.87      1.52     0.101     0.052     0.048     0.000    582.60    950.00
  0.000540     1100.     1180.     1100.         2         0         0      0.00    550.00   1500.00
```

THIS RUN EXECUTED 16 MAY 90 13:44:24

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
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T1 CLINTON TOWNSHIP FLOOD INSURANCE RESTUDY
T2 RECREATION OF ORIGINAL MODEL
T3 CLINTON RIVER U/S OF THE FORKS, 100-YEAR DISCHARGE

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	5.	0.	0.	0.000000	0.00	0.0	0.	596.190	0.000

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	15.000	0.000	-1.000	0.000	0.000	1.200	0.000	0.000	0.000	0.000

```
     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA   LEFT/RIGHT
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN       SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID      ENDST

*PROF 2

CCHV=    0.300 CEHV=    0.500
1490 NH CARD USED
*SECNO 11.052

3470 ENCROACHMENT STATIONS=       550.0      2520.0  TYPE=      1  TARGET=     -550.000
       11.05      25.39     596.19       0.00     596.19     596.36       0.17       0.00       0.00     578.50
     28900.        348.    13605.     14948.        287.      2909.     15470.          0.         0.     584.10
        0.00       1.21       4.68       0.97      0.120      0.047      0.132      0.000     570.80     550.00
   0.000354       750.       750.       330.          0          0          0       0.00    1890.68    2440.68

1490 NH CARD USED
*SECNO 11.292
3280 CROSS SECTION      11.29 EXTENDED       2.34 FEET

       11.29      27.14     596.54       0.00       0.00     596.55       0.01       0.15       0.05     593.20
     13000.         25.     3013.      9963.        117.      1668.     19595.        274.        26.     581.70
        0.27       0.21       1.81       0.51      0.120      0.048      0.119      0.000     569.40       0.00
   0.000076      1350.      1268.       500.          2          0          0       0.00    2230.57    2230.57

1490 NH CARD USED
*SECNO 11.393
3280 CROSS SECTION      11.39 EXTENDED       1.75 FEET

       11.39      26.60     596.55       0.00       0.00     596.58       0.03       0.02       0.01     591.20
     13000.        269.     4167.      8565.        856.      1720.     14428.        314.        30.     582.30
        0.31       0.31       2.42       0.59      0.120      0.048      0.123      0.000     569.95       0.00
   0.000129       479.       529.        37.          2          0          0       0.00    2120.31    2120.31

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 11.695
       11.69      25.05     596.64       0.00       0.00     596.71       0.07       0.13       0.01     585.20
     13000.       2093.     5393.      5514.       3833.      1874.      3521.        482.        57.     584.40
        0.42       0.55       2.88       1.57      0.124      0.054      0.048      0.000     571.59      41.05
   0.000207      1486.      1586.       110.          0          0          0       0.00    1670.70    1711.76
```

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
1490 NH CARD USED									
*SECNO 11.845									
11.84	24.35	596.75	0.00	0.00	596.88	0.12	0.15	0.02	582.30
13000.	4144.	7156.	1700.	5842.	1954.	933.	601.	76.	585.50
0.48	0.71	3.66	1.82	0.136	0.054	0.048	0.000	572.40	229.51
0.000324	735.	785.	54.	2	0	0	0.00	1368.50	1598.02
1490 NH CARD USED									
*SECNO 11.860									
11.86	24.31	596.79	0.00	0.00	596.90	0.11	0.02	0.00	582.20
13000.	4280.	6856.	1863.	5545.	1963.	1163.	617.	79.	585.60
0.49	0.77	3.49	1.60	0.119	0.054	0.054	0.000	572.48	174.11
0.000292	77.	79.	76.	2	0	0	0.00	1393.24	1567.34
1490 NH CARD USED									
*SECNO 11.875									
11.88	24.25	596.82	0.00	0.00	596.92	0.10	0.02	0.00	582.20
13000.	4233.	6721.	2046.	5126.	1963.	1396.	632.	81.	585.70
0.50	0.83	3.42	1.47	0.109	0.055	0.060	0.000	572.57	161.05
0.000285	77.	79.	76.	0	0	0	0.00	1373.27	1534.32
1490 NH CARD USED									
*SECNO 11.929									
11.93	24.00	596.89	0.00	0.00	596.99	0.10	0.07	0.00	582.00
13000.	3097.	6792.	3111.	3826.	1970.	2489.	682.	89.	586.10
0.53	0.81	3.45	1.25	0.097	0.049	0.072	0.000	572.89	33.90
0.000230	239.	287.	275.	0	0	0	0.00	1390.57	1424.47
1490 NH CARD USED									
*SECNO 12.023									
3280 CROSS SECTION 12.02 EXTENDED 1.02 FEET									
12.02	23.63	597.03	0.00	0.00	597.09	0.06	0.09	0.00	581.80
13000.	2133.	5614.	5253.	1956.	1972.	5190.	775.	103.	586.80
0.61	1.09	2.85	1.01	0.058	0.049	0.093	0.000	573.40	0.00
0.000164	437.	495.	474.	1	0	0	0.00	1234.60	1234.60

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


1490 NH CARD USED
*SECNO 12.339
3280 CROSS SECTION      12.34 EXTENDED       0.62 FEET

     12.34     24.32    597.32      0.00      0.00    597.34      0.03      0.25      0.00    585.80
    13000.    10250.     2700.       50.     8453.     1714.       96.     1134.      149.    593.90
      0.96      1.21      1.58      0.53     0.065     0.073     0.048     0.000    573.00      0.00
  0.000142     1600.     1670.     1600.         2         0         0      0.00   1255.99   1255.99


1490 NH CARD USED
*SECNO 12.544

3470 ENCROACHMENT STATIONS=      250.0     1000.0  TYPE=      1  TARGET=      750.000
     12.54     22.77    597.47      0.00      0.00    597.58      0.11      0.21      0.03    587.00
    13000.     2716.     6901.     3383.     2625.     1947.     3151.     1348.      172.    584.40
      1.08      1.03      3.54      1.07     0.104     0.054     0.118     0.000    574.70    250.00
  0.000324     1020.     1080.     1050.         0         0         0      0.00    750.00   1000.00


CCHV=    0.100 CEHV=    0.500
1490 NH CARD USED
*SECNO 12.799

3470 ENCROACHMENT STATIONS=        0.0     1600.0  TYPE=      1  TARGET=     1599.999
     12.80     24.33    597.83      0.00      0.00    597.86      0.04      0.27      0.01    583.60
    13000.     8011.     4415.      574.    11110.     1800.      631.     1663.      207.    584.00
      1.36      0.72      2.45      0.91     0.109     0.055     0.096     0.000    573.50      0.00
  0.000146     1300.     1350.     1200.         2         0         0      0.00   1567.17   1567.17


*SECNO 13.144

3470 ENCROACHMENT STATIONS=      250.0     1250.0  TYPE=      1  TARGET=     1000.000
     13.14     23.71    598.11      0.00      0.00    598.16      0.06      0.29      0.01    584.20
    13000.      744.     4161.     8094.      882.     1360.     8575.     2164.      259.    582.40
      1.67      0.84      3.06      0.94     0.108     0.048     0.108     0.000    574.40    253.27
  0.000181     1781.     1820.     1800.         2         0         0      0.00    996.73   1250.00


1490 NH CARD USED
*SECNO 13.163
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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA    LEFT/RIGHT
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN       SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID      ENDST


3470 ENCROACHMENT STATIONS=        0.0      1275.0  TYPE=      1  TARGET=     1274.999
     13.16      23.55     598.13      0.00      0.00     598.18      0.05      0.02      0.00     584.30
   13000.      1218.     3935.     7848.     1306.     1396.     7996.     2184.       261.      582.40
      1.68       0.93      2.82      0.98     0.087     0.053     0.105     0.000    574.58       0.00
  0.000190       65.       100.       79.         1         0         0      0.00   1275.00    1275.00


1490 NH CARD USED
*SECNO 13.191

3470 ENCROACHMENT STATIONS=        0.0      1275.0  TYPE=      1  TARGET=     1274.999
     13.19      23.46     598.14      0.00      0.00     598.19      0.05      0.01      0.00     584.40
   13000.      1329.     4053.     7618.     1611.     1421.     7412.     2199.       263.      582.40
      1.69       0.82      2.85      1.03     0.086     0.048     0.091     0.000    574.68       0.00
  0.000159       49.        75.       59.         0         0         0      0.00   1275.00    1275.00


1490 NH CARD USED
*SECNO 13.220

3470 ENCROACHMENT STATIONS=      360.0      1350.0  TYPE=      1  TARGET=      990.000
     13.22      23.14     598.17      0.00      0.00     598.22      0.05      0.03      0.00     584.80
   13000.      1739.     4071.     7190.     1842.     1486.     5969.     2239.       267.      582.70
      1.72       0.94      2.74      1.20     0.084     0.050     0.072     0.000    575.03     360.00
  0.000157      146.       225.      177.         0         0         0      0.00    990.00    1350.00


1490 NH CARD USED
*SECNO 13.481

3470 ENCROACHMENT STATIONS=        0.0      1750.0  TYPE=      1  TARGET=     1749.999
     13.48      21.06     598.26      0.00      0.00     598.27      0.01      0.04      0.00     587.20
   13000.     11344.     1455.      200.    14138.     1848.      498.     2536.       296.      583.90
      2.09       0.80      0.79      0.40     0.037     0.055     0.060     0.000    577.20     161.91
  0.000017      891.      1380.     1086.         2         0         0      0.00   1570.42    1732.33


CCHV=   0.100 CEHV=    0.500
1490 NH CARD USED
*SECNO 13.799

3470 ENCROACHMENT STATIONS=        0.0      1010.0  TYPE=      1  TARGET=     1009.999
```

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
13.80	22.37	598.27	0.00	0.00	598.35	0.08	0.05	0.04	586.90
13000.	3558.	5676.	3766.	2113.	1845.	3625.	2806.	322.	587.20
2.23	1.68	3.08	1.04	0.059	0.050	0.095	0.000	575.90	157.00
0.000226	800.	1680.	1050.	2	0	0	0.00	837.50	994.51

1490 NH CARD USED
*SECNO 14.061

3470 ENCROACHMENT STATIONS= 200.0 1400.0 TYPE= 1 TARGET= 1200.000

14.06	21.03	598.53	0.00	0.00	598.55	0.02	0.20	0.01	589.60
13000.	3393.	3262.	6346.	4227.	1835.	6417.	3071.	348.	588.50
2.53	0.80	1.78	0.99	0.096	0.061	0.086	0.000	577.50	220.36
0.000129	1100.	1380.	1100.	2	0	0	0.00	1179.64	1400.00

1490 NH CARD USED
*SECNO 14.258

3470 ENCROACHMENT STATIONS= 400.0 1400.0 TYPE= 1 TARGET= -400.000

14.26	20.67	598.67	0.00	0.00	598.71	0.05	0.15	0.01	593.40
13000.	2220.	8549.	2231.	1415.	4649.	1764.	3305.	372.	588.30
2.69	1.57	1.84	1.26	0.042	0.055	0.064	0.000	578.00	419.24
0.000168	1040.	1040.	950.	2	0	0	0.00	908.34	1327.57

CCHV= 0.100 CEHV= 0.300
1490 NH CARD USED
*SECNO 14.523

3470 ENCROACHMENT STATIONS= 0.0 1300.0 TYPE= 1 TARGET= 1299.999

14.52	20.42	598.82	0.00	0.00	598.84	0.03	0.13	0.00	590.80
13000.	8852.	2589.	1560.	6837.	1668.	1784.	3592.	406.	589.70
2.99	1.29	1.55	0.87	0.036	0.046	0.060	0.000	578.40	44.59
0.000058	1350.	1400.	1400.	2	0	0	0.00	1223.46	1268.05

1490 NH CARD USED
*SECNO 15.057

3470 ENCROACHMENT STATIONS= 250.0 1500.0 TYPE= 1 TARGET= -250.000

15.06	20.07	599.07	0.00	0.00	599.15	0.08	0.29	0.02	592.70
13000.	3448.	4270.	5282.	1623.	1300.	5842.	4142.	475.	588.40
3.34	2.12	3.28	0.90	0.036	0.048	0.120	0.000	579.00	250.00
0.000304	2600.	2820.	2300.	2	0	0	0.00	1186.81	1436.81

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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN        SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID       ENDST


 1490 NH CARD USED
 *SECNO 15.722
 3280 CROSS SECTION     15.72 EXTENDED       1.24 FEET


 3470 ENCROACHMENT STATIONS=     1000.0     2200.0  TYPE=      1  TARGET=     1200.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      600.70 ELREA=      594.10

     15.72     21.94    599.94      0.00      0.00    600.02      0.08      0.87      0.00    600.70
    13000.        0.     5952.     7048.        0.     1913.     7696.     4730.      546.    594.10
      3.77      0.00      3.11      0.92     0.000     0.049     0.113     0.000    578.00   1080.35
  0.000289     2100.     3510.     2700.         2         0         0      0.00   1119.65   2200.00


 CCHV=   0.300 CEHV=    0.500
 1490 NH CARD USED
 *SECNO 15.736
 3280 CROSS SECTION     15.74 EXTENDED       1.29 FEET


 3470 ENCROACHMENT STATIONS=     1000.0     2400.0  TYPE=      1  TARGET=     1400.000
     15.74     23.29    599.99      0.00      0.00    600.05      0.06      0.02      0.01    595.30
    13000.        4.     6052.     6944.       12.     2262.     7751.     4748.      548.    592.20
      3.78      0.30      2.68      0.90     0.120     0.055     0.112     0.000    576.70   1079.79
  0.000273       80.       80.       80.         2         0         0      0.00   1304.06   2383.85



 SPECIAL BRIDGE

 5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
 SB   XK          XKOR        COFQ        RDLEN       BWC         BWP       BAREA        SS          ELCHU       ELCHD
        0.00        2.10        3.04        0.00      115.00        0.00     1512.00        0.00      576.70      576.70

 1490 NH CARD USED
 *SECNO 15.748
      3700.    BRIDGE STENCL=    1000.00    STENCR=    2400.00
 3280 CROSS SECTION     15.75 EXTENDED       1.77 FEET

 PRESSURE AND WEIR FLOW
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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA    LEFT/RIGHT
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN        SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID       ENDST


 EGPRS        EGLWC         H3         QWEIR        QPR          BAREA    TRAPEZOID       ELLC        ELTRD
                                                                             AREA
    602.40      600.05       0.00       6849.        6142.        1512.      2139.        595.30      596.20


3470 ENCROACHMENT STATIONS=     1000.0     2400.0  TYPE=      1  TARGET=     1400.000
     15.75      23.77     600.47       0.00     599.35     600.53       0.06       0.48       0.00     595.30
   13000.          4.      6234.      6762.        15.      2332.      8310.      4765.       550.     592.20
      3.79       0.30       2.67       0.81      0.108      0.048      0.108      0.000     576.70    1079.26
  0.000198        71.        71.        71.          2          0          3       0.00    1320.74    2400.00

1490 NH CARD USED
*SECNO 16.063

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      601.60 ELREA=      589.40

     16.06      24.50     600.90       0.00     599.75     601.05       0.15       0.48       0.04     601.60
   13000.          0.      7319.      5681.         0.      2017.      2647.      5065.       586.     589.40
      3.95       0.00       3.63       2.15      0.000      0.041      0.060      0.000     576.40     349.40
  0.000414      1694.      1749.      1694.          2          0          0       0.00     535.54     884.94

CCHV=    0.100 CEHV=    0.500
1490 NH CARD USED
*SECNO 16.396
3280 CROSS SECTION     16.40 EXTENDED       0.56 FEET

3470 ENCROACHMENT STATIONS=       50.0      800.0  TYPE=      1  TARGET=      750.000
     16.40      20.06     601.46       0.00     600.24     601.51       0.06       0.46       0.01     589.70
   13000.       8478.      3931.       591.      5865.      1453.       962.      5318.       611.     591.30
      4.22       1.45       2.71       0.61      0.074      0.049      0.117      0.000     581.40      50.00
  0.000186      1700.      1760.      1650.          2          0          0       0.00     750.00     800.00

1490 NH CARD USED
*SECNO 16.866

3470 ENCROACHMENT STATIONS=      800.0     1900.0  TYPE=      1  TARGET=     1100.000
     16.87      20.15     602.15       0.00     600.90     602.20       0.05       0.69       0.00     593.40
   13000.       8174.      4012.       814.      6627.      1519.       448.      5784.       662.     595.50
      4.61       1.23       2.64       1.82      0.105      0.079      0.048      0.000     582.00     800.00
  0.000498      2400.      2480.      2300.          1          0          0       0.00    1100.00    1900.00
```

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

1490 NH CARD USED
*SECNO 17.089
3280 CROSS SECTION 17.09 EXTENDED 1.41 FEET

3470 ENCROACHMENT STATIONS= 950.0 1500.0 TYPE= 1 TARGET= 550.000

17.09	20.11	602.71	0.00	601.46	602.86	0.15	0.61	0.05	593.40
13000.	6179.	6012.	809.	3715.	1433.	419.	5966.	683.	595.00
4.72	1.66	4.19	1.93	0.101	0.053	0.048	0.000	582.60	950.00
0.000580	1100.	1180.	1100.	2	0	0	0.00	550.00	1500.00

THIS RUN EXECUTED 16 MAY 90 13:44:29

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

CLINTON RIVER U/S OF THE

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
11.052	0.00	0.00	0.00	570.80	21300.00	593.17	0.00	593.38	4.31	4.73	13066.03	10254.75
11.052	0.00	0.00	0.00	570.80	28900.00	596.19	0.00	596.36	3.54	4.68	18665.06	15349.92
11.292	1268.00	0.00	0.00	569.40	10400.00	593.63	0.00	593.66	1.37	2.19	14992.84	8874.62
11.292	1268.00	0.00	0.00	569.40	13000.00	596.54	0.00	596.55	0.76	1.81	21379.27	14960.91
11.393	528.70	0.00	0.00	569.95	10400.00	593.65	0.00	593.72	2.43	3.00	11043.88	6672.99
11.393	528.70	0.00	0.00	569.95	13000.00	596.55	0.00	596.58	1.29	2.42	17003.90	11455.74
11.695	1586.30	0.00	0.00	571.59	10400.00	593.88	0.00	594.03	4.21	3.75	5242.16	5067.46
11.695	1586.30	0.00	0.00	571.59	13000.00	596.64	0.00	596.71	2.07	2.88	9227.11	9034.45
11.845	785.00	0.00	0.00	572.40	10400.00	594.14	0.00	594.33	5.03	4.21	5568.94	4638.99
11.845	785.00	0.00	0.00	572.40	13000.00	596.75	0.00	596.88	3.24	3.66	8729.38	7222.04
11.860	78.90	0.00	0.00	572.48	10400.00	594.19	0.00	594.37	4.63	4.07	5536.93	4833.65
11.860	78.90	0.00	0.00	572.48	13000.00	596.79	0.00	596.90	2.92	3.49	8670.00	7613.58
11.875	78.90	0.00	0.00	572.57	10400.00	594.24	0.00	594.41	4.53	3.99	5410.46	4883.67
11.875	78.90	0.00	0.00	572.57	13000.00	596.82	0.00	596.92	2.85	3.42	8485.50	7706.99
11.929	286.80	0.00	0.00	572.89	10400.00	594.36	0.00	594.52	3.43	3.69	5371.78	5619.01
11.929	286.80	0.00	0.00	572.89	13000.00	596.89	0.00	596.99	2.30	3.45	8286.20	8571.51
12.023	495.40	0.00	0.00	573.40	10400.00	594.57	0.00	594.66	2.25	3.10	6674.85	6934.14
12.023	495.40	0.00	0.00	573.40	13000.00	597.03	0.00	597.09	1.64	2.85	9118.87	10144.75
12.339	1670.00	0.00	0.00	573.00	10400.00	594.99	0.00	595.02	2.11	1.74	7567.12	7160.49
12.339	1670.00	0.00	0.00	573.00	13000.00	597.32	0.00	597.34	1.42	1.58	10262.61	10909.91
12.544	1080.00	0.00	0.00	574.70	10400.00	595.21	0.00	595.34	3.93	3.64	6029.60	5244.43
12.544	1080.00	0.00	0.00	574.70	13000.00	597.47	0.00	597.58	3.24	3.54	7723.63	7227.22

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
12.799	1350.00	0.00	0.00	573.50	10400.00	595.66	0.00	595.71	1.96	2.65	10279.40	7437.02
12.799	1350.00	0.00	0.00	573.50	13000.00	597.83	0.00	597.86	1.46	2.45	13540.84	10744.43
13.144	1820.00	0.00	0.00	574.40	10400.00	596.01	0.00	596.07	2.04	3.03	8812.72	7287.17
13.144	1820.00	0.00	0.00	574.40	13000.00	598.11	0.00	598.16	1.81	3.06	10817.73	9656.78
13.163	100.10	0.00	0.00	574.58	10400.00	596.04	0.00	596.09	2.24	2.87	8467.40	6948.51
13.163	100.10	0.00	0.00	574.58	13000.00	598.13	0.00	598.18	1.90	2.82	10697.80	9436.96
13.191	75.10	0.00	0.00	574.68	10400.00	596.05	0.00	596.10	1.91	2.92	8108.56	7529.33
13.191	75.10	0.00	0.00	574.68	13000.00	598.14	0.00	598.19	1.59	2.85	10444.40	10303.97
13.220	225.30	0.00	0.00	575.03	10400.00	596.08	0.00	596.14	1.91	2.83	7226.88	7534.33
13.220	225.30	0.00	0.00	575.03	13000.00	598.17	0.00	598.22	1.57	2.74	9296.98	10388.36
13.481	1379.50	0.00	0.00	577.20	10400.00	596.19	0.00	596.20	0.21	0.82	13348.38	22624.28
13.481	1379.50	0.00	0.00	577.20	13000.00	598.26	0.00	598.27	0.17	0.79	16485.30	31549.37
13.799	1680.00	0.00	0.00	575.90	10400.00	596.20	0.00	596.29	2.68	3.13	5928.46	6358.40
13.799	1680.00	0.00	0.00	575.90	13000.00	598.27	0.00	598.35	2.26	3.08	7582.40	8652.83
14.061	1380.00	0.00	0.00	577.50	10400.00	596.52	0.00	596.54	1.53	1.80	10201.88	8412.01
14.061	1380.00	0.00	0.00	577.50	13000.00	598.53	0.00	598.55	1.29	1.78	12479.11	11442.60
14.258	1040.00	0.00	0.00	578.00	10400.00	596.69	0.00	596.73	2.16	1.89	6167.65	7081.61
14.258	1040.00	0.00	0.00	578.00	13000.00	598.67	0.00	598.71	1.68	1.84	7828.06	10038.05
14.523	1400.00	0.00	0.00	578.40	10400.00	596.87	0.00	596.90	0.78	1.68	7978.40	11806.98
14.523	1400.00	0.00	0.00	578.40	13000.00	598.82	0.00	598.84	0.58	1.55	10289.01	17126.04
15.057	2820.00	0.00	0.00	579.00	10400.00	597.22	0.00	597.32	4.30	3.64	6677.12	5016.24
15.057	2820.00	0.00	0.00	579.00	13000.00	599.07	0.00	599.15	3.04	3.28	8765.02	7453.87
15.722	3510.00	0.00	0.00	578.00	10400.00	598.34	0.00	598.43	3.15	3.12	7820.33	5862.48
15.722	3510.00	0.00	0.00	578.00	13000.00	599.94	0.00	600.02	2.89	3.11	9608.55	7653.13
15.736	80.00	0.00	0.00	576.70	10400.00	598.39	0.00	598.46	3.03	2.68	8095.08	5971.20
15.736	80.00	0.00	0.00	576.70	13000.00	599.99	0.00	600.05	2.73	2.68	10024.48	7864.80
15.748	71.00	596.20	595.30	576.70	10400.00	599.35	0.00	599.41	1.80	2.43	9228.38	7/53.71
15.748	71.00	596.20	595.30	576.70	13000.00	600.47	0.00	600.53	1.98	2.67	10656.70	9249.71
16.063	1749.00	0.00	0.00	576.40	10400.00	599.75	0.00	599.87	3.67	3.37	4087.70	5425.32
16.063	1749.00	0.00	0.00	576.40	13000.00	600.90	0.00	601.05	4.14	3.63	4663.70	6386.67
16.396	1760.00	0.00	0.00	581.40	10400.00	600.24	0.00	600.29	1.64	2.43	7368.12	8115.61
16.396	1760.00	0.00	0.00	581.40	13000.00	601.46	0.00	601.51	1.86	2.71	8279.66	9537.03
16.866	2480.00	0.00	0.00	582.00	10400.00	600.90	0.00	600.95	5.32	2.60	7190.51	4507.53
16.866	2480.00	0.00	0.00	582.00	13000.00	602.15	0.00	602.20	4.98	2.64	8594.89	5824.34

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
17.089	1180.00	0.00	0.00	582.60	10400.00	601.46	0.00	601.59	5.40	3.87	4881.10	4474.93
17.089	1180.00	0.00	0.00	582.60	13000.00	602.71	0.00	602.86	5.80	4.19	5567.75	5395.77

CLINTON RIVER U/S OF THE

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
11.052	21300.00	593.17	0.00	0.00	0.00	1823.74	0.00
11.052	28900.00	596.19	3.02	0.00	0.00	1890.68	0.00
11.292	10400.00	593.63	0.00	0.46	0.00	2141.27	1268.00
11.292	13000.00	596.54	2.90	0.35	0.00	2230.57	1268.00
11.393	10400.00	593.65	0.00	0.02	0.00	1952.96	528.70
11.393	13000.00	596.55	2.89	0.01	0.00	2120.31	528.70
11.695	10400.00	593.88	0.00	0.23	0.00	1260.48	1586.30
11.695	13000.00	596.64	2.76	0.10	0.00	1670.70	1586.30
11.845	10400.00	594.14	0.00	0.25	0.00	1134.48	785.00
11.845	13000.00	596.75	2.62	0.11	0.00	1368.50	785.00
11.860	10400.00	594.19	0.00	0.06	0.00	1120.62	78.90
11.860	13000.00	596.79	2.60	0.04	0.00	1393.24	78.90
11.875	10400.00	594.24	0.00	0.05	0.00	1104.34	78.90
11.875	13000.00	596.82	2.58	0.03	0.00	1373.27	78.90
11.929	10400.00	594.36	0.00	0.12	0.00	1042.98	286.80
11.929	13000.00	596.89	2.53	0.07	0.00	1390.57	286.80
12.023	10400.00	594.57	0.00	0.21	0.00	790.49	495.40
12.023	13000.00	597.03	2.45	0.14	0.00	1234.60	495.40
12.339	10400.00	594.99	0.00	0.41	0.00	1025.93	1670.00
12.339	13000.00	597.32	2.33	0.29	0.00	1255.99	1670.00
12.544	10400.00	595.21	0.00	0.23	0.00	750.00	1080.00
12.544	13000.00	597.47	2.26	0.16	0.00	750.00	1080.00
12.799	10400.00	595.66	0.00	0.44	0.00	1426.59	1350.00
12.799	13000.00	597.83	2.17	0.36	0.00	1567.17	1350.00
13.144	10400.00	596.01	0.00	0.35	0.00	935.79	1820.00
13.144	13000.00	598.11	2.10	0.28	0.00	996.73	1820.00
13.163	10400.00	596.04	0.00	0.02	0.00	919.95	100.10
13.163	13000.00	598.13	2.10	0.02	0.00	1275.00	100.10
13.191	10400.00	596.05	0.00	0.01	0.00	891.11	75.10
13.191	13000.00	598.14	2.10	0.01	0.00	1275.00	75.10
13.220	10400.00	596.08	0.00	0.04	0.00	990.00	225.30
13.220	13000.00	598.17	2.09	0.03	0.00	990.00	225.30

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
13.481	10400.00	596.19	0.00	0.10	0.00	1457.76	1379.50
13.481	13000.00	598.26	2.07	0.09	0.00	1570.42	1379.50
13.799	10400.00	596.20	0.00	0.02	0.00	765.18	1680.00
13.799	13000.00	598.27	2.06	0.01	0.00	837.50	1680.00
14.061	10400.00	596.52	0.00	0.31	0.00	1118.45	1380.00
14.061	13000.00	598.53	2.02	0.26	0.00	1179.64	1380.00
14.258	10400.00	596.69	0.00	0.17	0.00	799.76	1040.00
14.258	13000.00	598.67	1.98	0.14	0.00	908.34	1040.00
14.523	10400.00	596.87	0.00	0.19	0.00	1155.12	1400.00
14.523	13000.00	598.82	1.94	0.15	0.00	1223.46	1400.00
15.057	10400.00	597.22	0.00	0.35	0.00	1097.66	2820.00
15.057	13000.00	599.07	1.85	0.25	0.00	1186.81	2820.00
15.722	10400.00	598.34	0.00	1.12	0.00	1116.81	3510.00
15.722	13000.00	599.94	1.60	0.87	0.00	1119.65	3510.00
15.736	10400.00	598.39	0.00	0.05	0.00	1140.96	80.00
15.736	13000.00	599.99	1.59	0.05	0.00	1304.06	80.00
15.748	10400.00	599.35	0.00	0.96	0.00	1216.00	71.00
15.748	13000.00	600.47	1.11	0.48	1.11	1320.74	71.00
16.063	10400.00	599.75	0.00	0.39	0.00	469.03	1749.00
16.063	13000.00	600.90	1.15	0.43	1.15	535.54	1749.00
16.396	10400.00	600.24	0.00	0.49	0.00	749.12	1760.00
16.396	13000.00	601.46	1.22	0.56	1.22	750.00	1760.00
16.866	10400.00	600.90	0.00	0.66	0.00	1100.00	2480.00
16.866	13000.00	602.15	1.26	0.70	1.26	1100.00	2480.00
17.089	10400.00	601.46	0.00	0.57	0.00	550.00	1180.00
17.089	13000.00	602.71	1.25	0.56	1.25	550.00	1180.00

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Clinton Twp.

3) WATERCOURSE: Clinton River

4) DOCUMENT TYPE: Analyses

00BREAK00

MAY 1990

Clinton Township, Macomb County, Michigan
Limited Map Maintenance Program
Hydraulic Background Information

This study covers the Clinton River, starting from its confluence with the North Branch of the Clinton River to the upstream Corporate Limit. The study was performed to check on the present validity of the discharges used in the existing FIS for the indicated reach of river. This study was limited to only the 100- and 500-year floods. Also the hydraulic model was modified to account for a bridge replacement at Garfield Road and to make a new encroached run. At the time of the original study, the HEC-2 encroachment option was not available. It was felt that the full extent of allowable encroachment had not been determined.

As part of this study a field survey was made in the fall of 1989. The survey only included the river channel and Garfield Road. The MDNR also supplied a hard copy of the original FIS HEC-2 input data. A comparison plot was made for the channel sections of the FIS HEC-2 data and that obtained in the new survey. The differences were minor, so it was decided to use the original FIS HEC-2 input except for recoding the Garfield Road Bridge. Initially the FIS HEC-2 data was typed into the computer and a run was executed to check for typographical mistakes and consistency of results. In the original data a mistake was found on a NC card with a channel and overbank "n" value being transposed; the mistake was corrected. Even with this change the output matched the original study for both profiles within 0.11 foot. The largest difference occurred at the section with the transposed "n" values.

The coding on the existing FIS HEC-2 data was then modified to include the new 100- and 500-year discharges (as approved by the hydrology section of the MDNR) and the replaced bridge at Garfield Road. The new bridge is slightly upstream of the original bridge, resulting in a slight change in the bridge stationing. Also, the left overbank had an encroachment due to structures, but did not restrict the weir flow. In the current model, the weir flow is being restricted beyond the encroachment. The only other changes were minor adjustments to several encroachments. The starting conditions were obtained at the initial cross section from the existing FIS. Based on a frequency analysis of discharges at the U.S.G.S. Moravian Drive gage, conditions were determined to be unchanged from the original FIS. A floodway model was also developed utilizing the HEC-2 encroachment option.

As a result of the changes to the hydrologic and hydraulic models, there are inconsistencies with the profiles and/or hydrology for adjacent areas. These include the Red Run Drain in Clinton Township, Sterling Heights and possibly Warren, and on the Clinton River in Sterling Heights.

The work map used in this study is an enlargement of the U.S.G.S. Mt. Clemens West 7.5 minute quadrangle map. It is the same map used in the original study except for the photorevision of 1980. The stationing along the stream was established so that it matches the existing FIS at Moravian Drive and Garfield Road (the old location). At intermediate locations there is some minor differences in the stationing as evidenced by small changes in the locations of cross sections. The flood plain delineation was supplemented over much of the study area by use of a 2 foot contour interval topographic map. The map was produced for the U.S. Army Corps of Engineers, Detroit District from aerial photography flown in April 1978. The MDNR supplied site maps for several subdivision developments which also contained varying levels of topographic information. Due to the more detailed mapping available on the supplemental sources, at some locations the flood plain delineations are not compatible with contour lines shown on the work map. The floodway and flood plain delineations were discontinued in the area of the North Branch of the Clinton River, at a location were there was no change from the existing study.

During the survey for this study, an error was discovered in the published elevation for RM 3. The elevation is not 599.92. It should be 600.96.

Enclosed for your information are HEC-2 output for the 100- and 500-year profile, an encroached run, and a work map for the revised study area of the Clinton River in Clinton Township.

Telex: 23-5793
Phone: (313) 334-9901

Johnson&Anderson,Inc.
CONSULTING ENGINEERS
P. O. Box 1166 • 2300 Dixie Highway • Pontiac, Mich. 48056

May 17, 1977

RECEIVED
MAY 17 1977
WATER MANAGEMENT

Mr. Dan Morgan, Acting Chief
Flood Insurance Unit
MDNR-Water Management Division
P. O. Box 30028
Lansing, Michigan 48909

Re: Hydraulic Computations
Clinton Township FIS
City of Sterling Heights FIS

Ref: J&A File Nos. 5670-02, 10-1

Dear Mr. Morgan:

Enclosed are our hydraulic computations (plan & profile, HEC-2 input, output and J&A IPLOT, and hydraulic analysis book) for the following:

1. Clinton River
2. Clinton River Spillway
3. Clinton River Main Branch
4. Clinton River Middle Branch
5. Clinton River North Branch
6. Miller Drain

We would appreciate your review and approval of these computations as soon as possible.

Sincerely,

William C. Rossow

William C. Rossow, P.E.
Project Manager

djp
encl.
cc: File

Packet 4

CLINTON TOWNSHIP
AND
CITY OF STERLING HEIGHTS

FLOOD INSURANCE STUDY

CLINTON RIVER
CLINTON RIVER SPILLWAY
NORTH BRANCH OF THE CLINTON RIVER
MIDDLE BRANCH OF THE CLINTON RIVER
MILLER DRAIN

HYDRAULIC ANALYSIS

J & A File Numbers
5670-02
5670-10

JOHNSON & ANDERSON, INC.
Consulting Engineers
2300 Dixie Highway, P. O. Box 1166
Pontiac, Michigan 48056

TABLE OF CONTENTS

Introduction

The streams being studied are the Clinton River, Clinton River Spillway, North Branch of the Clinton River, Middle Branch of the Clinton River and Miller Drain in Clinton Township, Macomb County, Michigan. The Clinton River is also being studied in the City of Sterling Heights, Macomb County, Michigan. The study limits on the Clinton River run from the eastern boundary of Clinton Township through the northern boundary of the City of Sterling Heights. The Clinton River Spillway is being studied upstream from the eastern boundary of Clinton Township to its confluence with the Clinton River. In north central Clinton Township there is a place known as the Forks Area. In this small area, the Miller Drain joins the Middle Branch of the Clinton River which in a very short distance joins the North Branch of the Clinton River, which promptly runs into the Clinton River. The Miller Drain, Middle Branch and North Branch are being studied from their downstream limits in the Forks Area to the points where they each exit Clinton Township at its northern boundary. The date of field survey was the summer and fall of 1976.

The discharges were computed using three methods including the Unit Hydrograph-Infiltration Capacity Method developed by Dr. Ernest F. Brater, gage analysis and standard flood routing techniques. Each of these methods were used where they were found to be most appropriate. The 10-, 50-, 100-, and 500-year flood frequency flows used in this study have been accepted by the Michigan Department of Natural Resources (letter dated April 5, 1977). Of these flows only those below the confluence of the Clinton River and Clinton River Spillway are on a tenative basis.

based on rating curve (divided flow situation)

The Project Manager for this analysis is William C. Rossow, P.E.

Method of Analysis

Water-surface profiles were computed by the HEC-2 Standard Step-Backwater Computer Program developed by the U. S. Army Corps of Engineers.[1]

The hydraulic model was developed for the 100-year flow. The "Normal Bridge" Routine was used for constrictions under low flow conditions for the 100-year discharge or when all four flows were fully submerged. The "Special Bridge" Routine was used for constrictions that experienced pressure flow for the 100-year discharge. All constrictions were inspected for inlet control.

Valley sections upstream and downstream of culverts were located where full cross-section flow would be developed out of the influence of the bridge constriction. The criteria for placement of these sections were those outlined on pages 18-21 of the HEC Training Document No. 6 Application of the HEC-2 Bridge Routines. Accordingly, the downstream section was placed at a distance of about four times the average length of the side constriction caused by the bridge abutment. The upstream section was placed at a distance about equal to the bridge constriction. If the actual field-surveyed cross-section fell within this distance, this section was encroached as appropriate.

Starting Point

Profile computations for the Miller Drain, Middle Branch of the Clinton River and the North Branch of the Clinton River were begun at the mouth of each stream. The water surface elevations were determined by backwater curves started at Lake St. Clair and carried on up to the mouth of each stream. From the profiles, stage discharge curves were established at the mouth of each stream. The flow used below the confluence were those when the stream in question was at peak discharge. The Clinton River and Clinton River Spillway were begun at the mean annual flood level of Lake St. Clair.

Variables and Coefficients

The roughness factors (Manning's "n"), taking into account the proper season were established by comparing the photographs and descriptions found on pages 101-123 in Open-Channel Hydraulics by Ven Te Chow, with photographs and field inspection trips taken at every cross-section. For the Clinton River up to the Forks Area, Clinton River Spillway and North Branch, the proposed flood season is late spring. For all other streams it is summer. The variation of roughness was taken into account by use of the NH card with due consideration made of conditions existing upstream and downstream of the given section.

The coefficient of contraction varied from 0.1 (Reflecting a gradual change) to 0.5 (used for abrupt changes). The coefficient of expansion ranged from 0.3 to 1.0 for gradual to abrupt changes respectively.

The total loss coefficient (XKOR) used in the HEC-2 "Special Bridge" routine was determined as outlined in Exhibit 2 of the HEC-2 Users Manual. The inlet coefficients were taken from tables published by the Bureau of Public Roads.[2]

For inlet control, nomographs from the Bureau of Public Roads[2] were used. The weir discharge and submergence coefficients were taken from charts supplied by the Michigan Department of Natural Resources.[3]

Synthetic Cross-Section

Synthetic cross-sections utilized in the hydraulic analysis were developed in three ways. The three methods used were blending of the two cross-sections, repetition of a field-surveyed cross-section with appropriate invert and area adjustment, or interpolating between two field surveyed cross-sections using the Johnson & Anderson, Inc., AVSEC computer program. The AVSEC program develops an average cross-section by averaging the overbanks and channel of the two known cross-sections.

Since inverts are known only at field sections, a straight line is assumed between these known points.

Special Conditions

For the purpose of finding a starting water surface elevation for the Clinton River at the confluence of the Clinton River Spillway the split of flow between the streams had to be determined. A family of backwater curves were run up each stream to the confluence. Downstream of Clinton Township, field data was supplied for this purpose by the Detroit District, Army Corps of Engineers from their Harrison Township Flood Insurance Study. From the results, energy versus discharge curves were drawn for each stream.

By assuming that the energies of the Clinton River and Clinton River Spillway would be equal at their confluence, the two energy versus discharge curves were

to : Files
From : J. Auzins
date : 6/7/77

5-18-77 Subm.

re: Clinton River FIS
~~& Red Run FIS~~

(preliminary) comments (general)

Request the following additional data:
1. Calibration & discussion of hydraulic model using 1968 Flood event.
(see check, p. 4, 5 of 5)

2. Natural runs and floodplain delineation in addition to the floodway for comparision.

FP delineation received 11/11/77

preliminary concerns (specific)

Clinton River -

1. Encroachment @ sec. U & V (10.695 & 10.818) may not be appropriate.

check / gage records

Clinton River @ Mt. Clemens
p. 226, Water Surface Records USGS

gage datum @ 570.43 USGS

period of record
max Q @ 21,200 cfs Apr 6, 1947
gage height 23.55 from floodmark

$$\begin{array}{r} 570.43 \\ 23.55 \\ \hline 593.98 \end{array}$$ from floodmark

@ J&A V-S (V), river mile 10.818
(~ location of USGS gage)

from computer output, 100-yr
flood stage @ 592.14 for 21,300 cfs

J&A is (593.98 − 592.14) 1.84 ft lower
than flood of record

note: 1) Clinton River Spillway not
present in 1947
2) Apr. 6, 1947 Lake St. Clair level
not known

3) Outflow hydrograph is known but inflow hydrograph not available. However, the 1947 flood could be reconstituted using high water marks.

Recommend using 1968 flood for calibration since inflow and outflow hydrographs are known
RSW / JA

J&A 10-yr Q @ 12600 cfs ; fp @ 587.66

max 1975 Q @ 12,100 cfs ; gage ht 16.58 ft

$$\begin{array}{r} 16.58 \\ 570.43 \\ \hline 587.01 \end{array}$$

J&A is (587.66 − 587.01) 0.65 ft higher

combined to give a total discharge versus energy curve. By use of these relationships, given a flow above the confluence the proper split of flow between the Clinton River and Clinton River Spillway plus the starting energy for the total flow can be found. The results obtained from these curves were used to input the water surface at SECNO 8.717 through the use of an X5 card.

The selection of Manning's "n" values was aided on several portions of the basin by the existance of stream gages. Two gages are on the Clinton River, one being 10.846 miles above the mouth at Moravian Drive and other 15.73 miles above the mouth near Garfield Road. The only other gage within the study area is on the North Branch of the Clinton River at Hall Road. For each case a number of low flows were run in the stream with the "n" values being adjusted until the stage-discharge relationship was matched. These values were then used with the flood flows. no back up results.

Immediately downstream of the Red Run Drain on the Clinton River the maximum peak discharges are caused by the Red Run Drain. Due to the different times of concentration, the Red Run Drain peaks at the confluence before the Clinton River. * Because of this, a new run was made upstream of the Red Run Drain at the time of peak for the Clinton River. This run will be carried upstream to the limits of the study. In the final report, Clinton River flood elevations due to the Red Run Drain peak flow, will be extended horizontally until the corresponding Clinton River profiles are intersected.

ok approx but why not a M1 or backwater curve

* 100 yr st. W.S., Red Run Dr. @ 601.4
100 yr W.S., Clinton River @ confluence is 602.44 (to be superposed)

REFERENCES

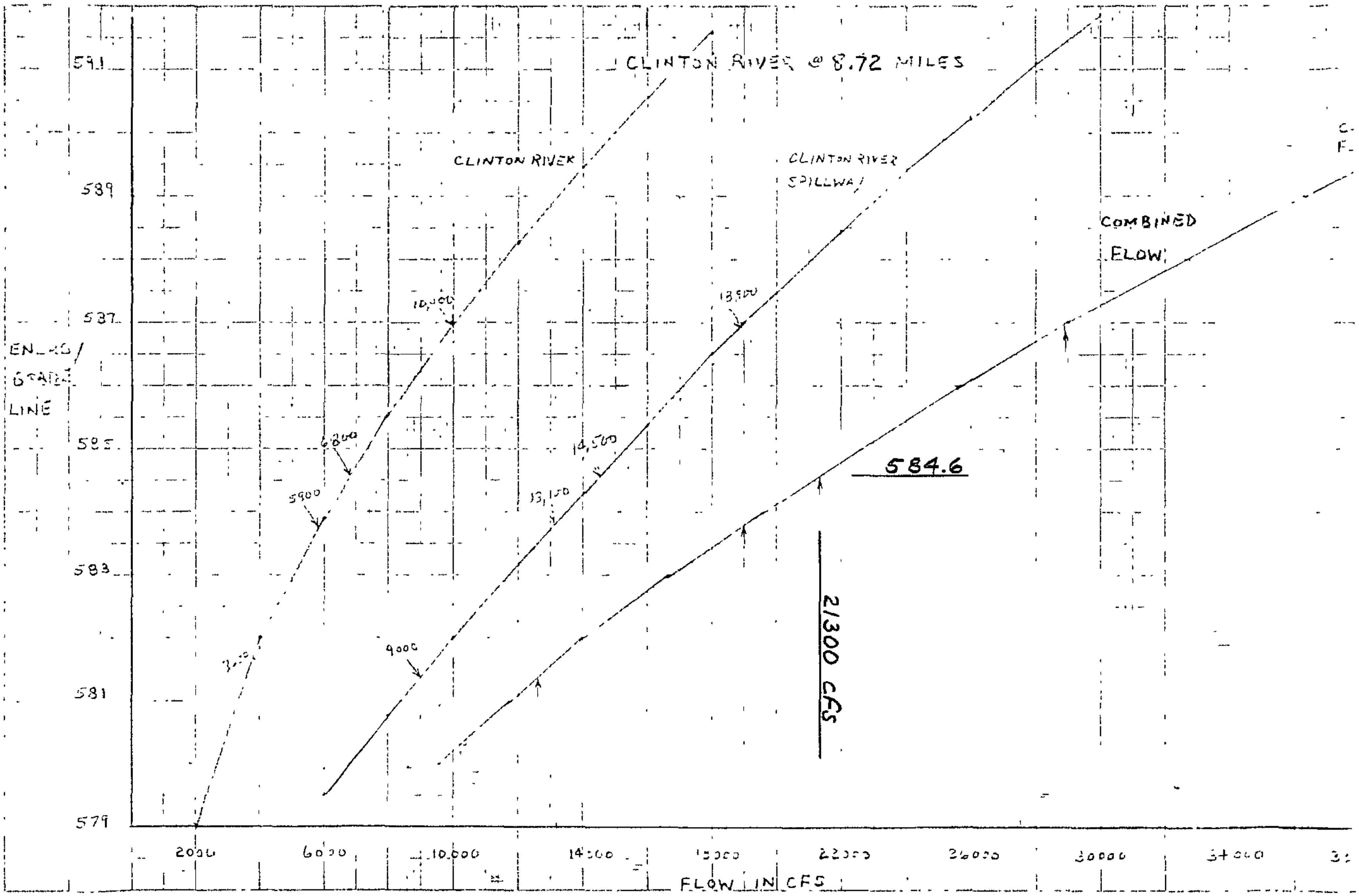
1. U. S. Army Corps of Engineers, Hydrologic Engineering Center, HEC-2 Water Surface-Profile, Users Manual, 1973.

2. Hydraulic Charts for the Selection of Highway Culverts, Bureau of Public Roads, Hydraulic Engineering Circular No. 5 (1965).

3. Measurement of Peak Discharge at Dams by Indirect Methods, U. S. Department of the Interior, Geological Survey, Techniques of Water-Resources Investigations, Book 3, Chapter A5, p. 23.

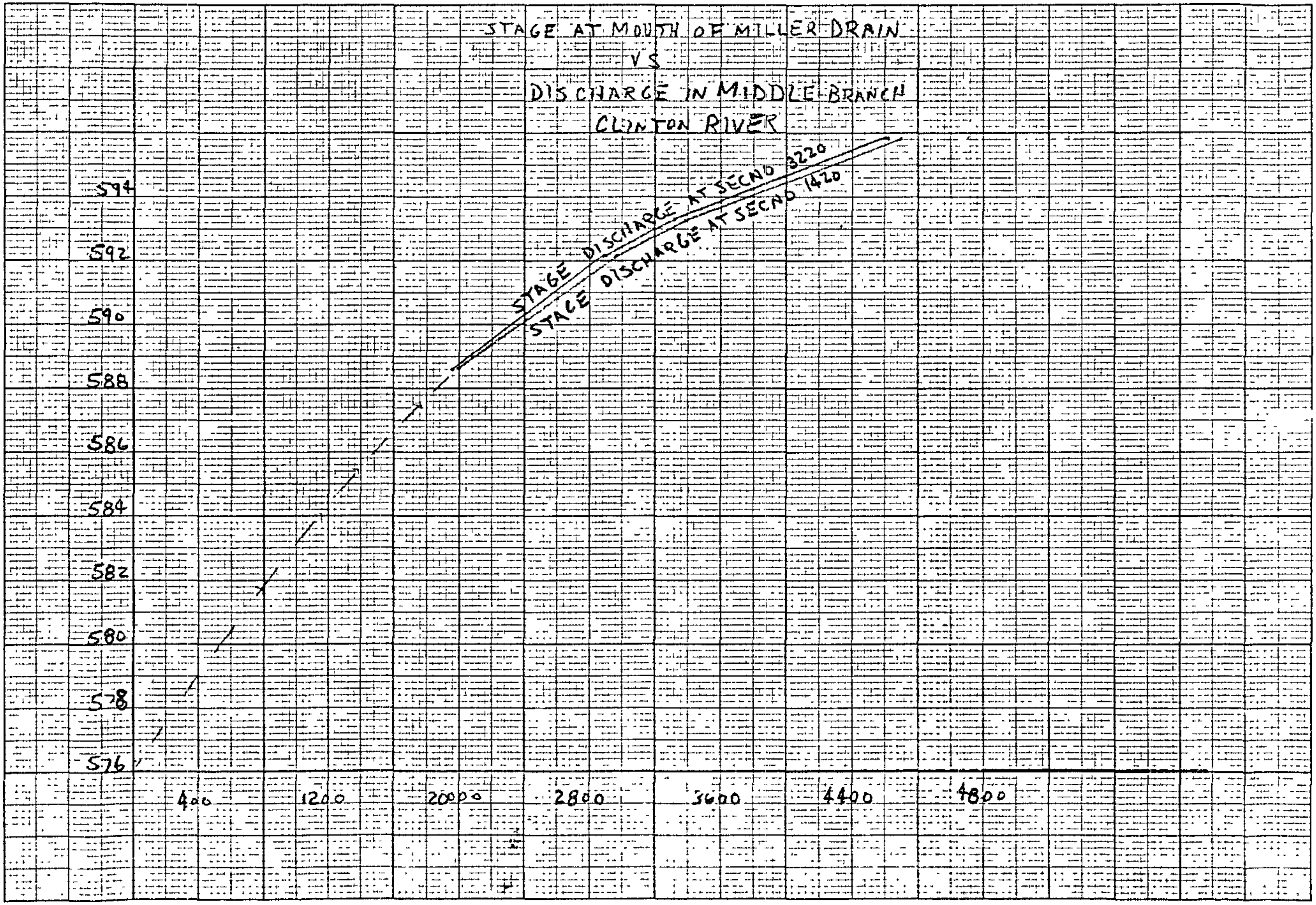
APPENDIX A
DIVISION OF FLOW AT SPILLWAY

K+E 20 X 20 TO THE INCH • 7 X 10 INCHES KEUFFEL & ESSER CO MADE IN U.S.A. 46 1240

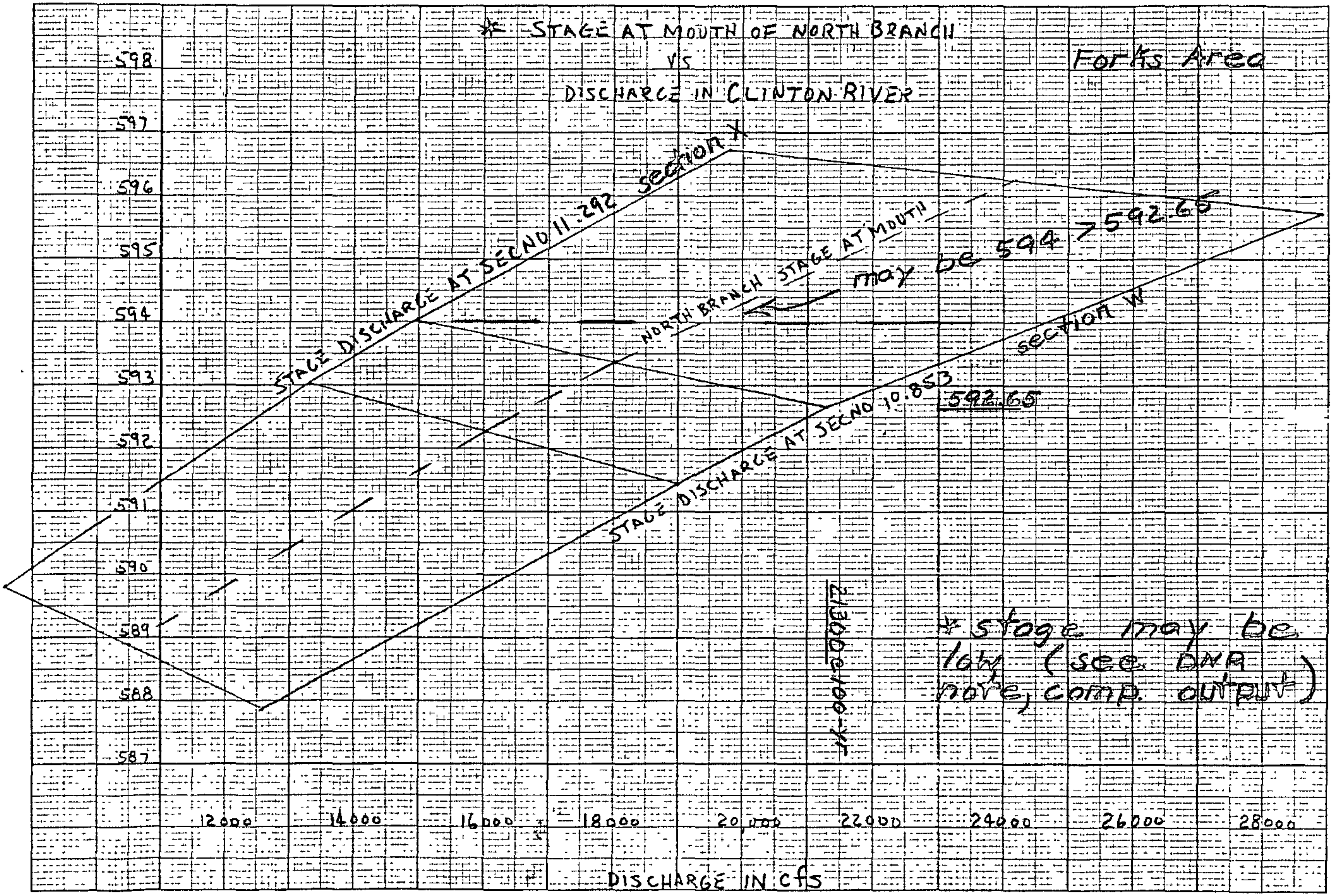


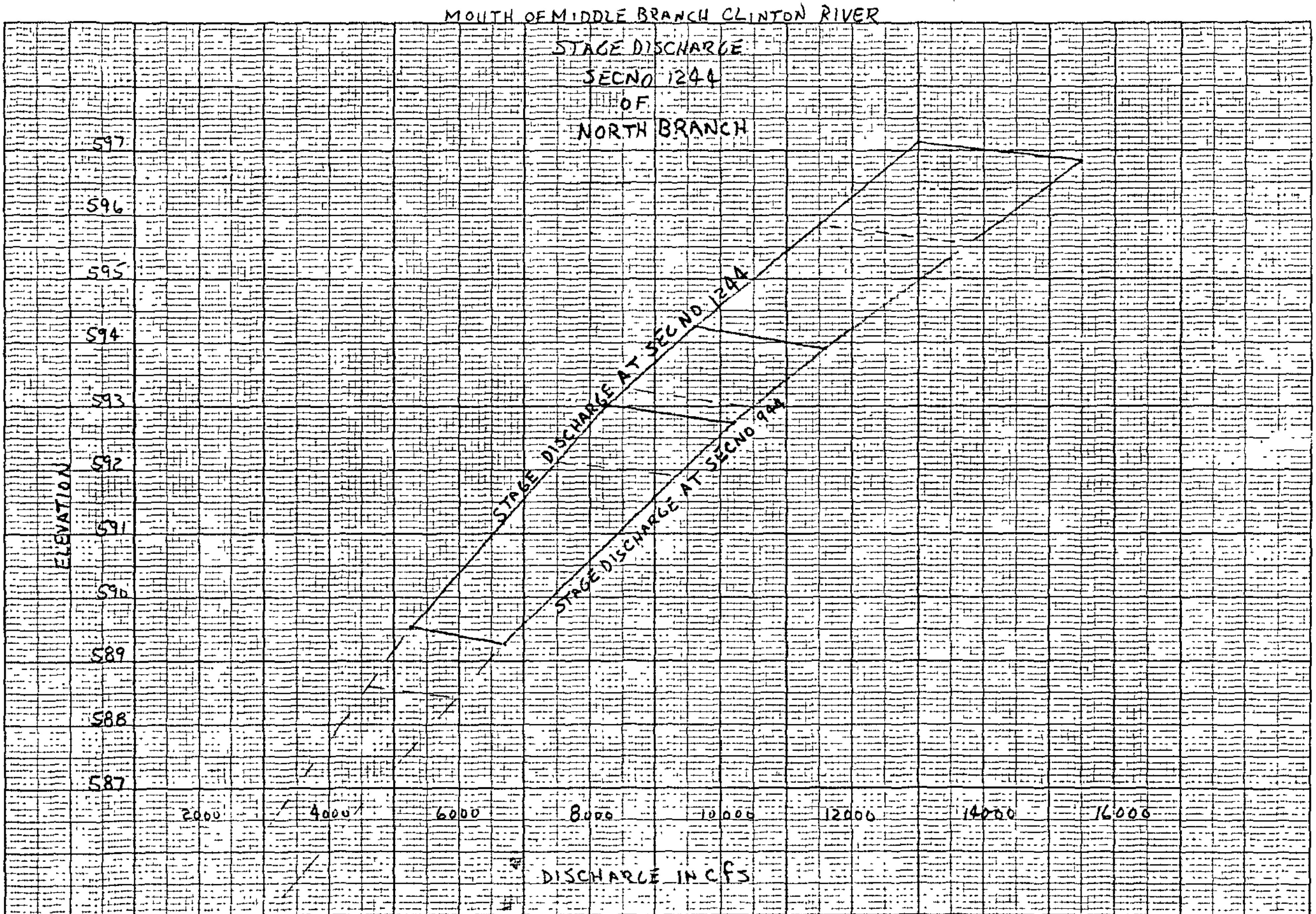
APPENDIX B

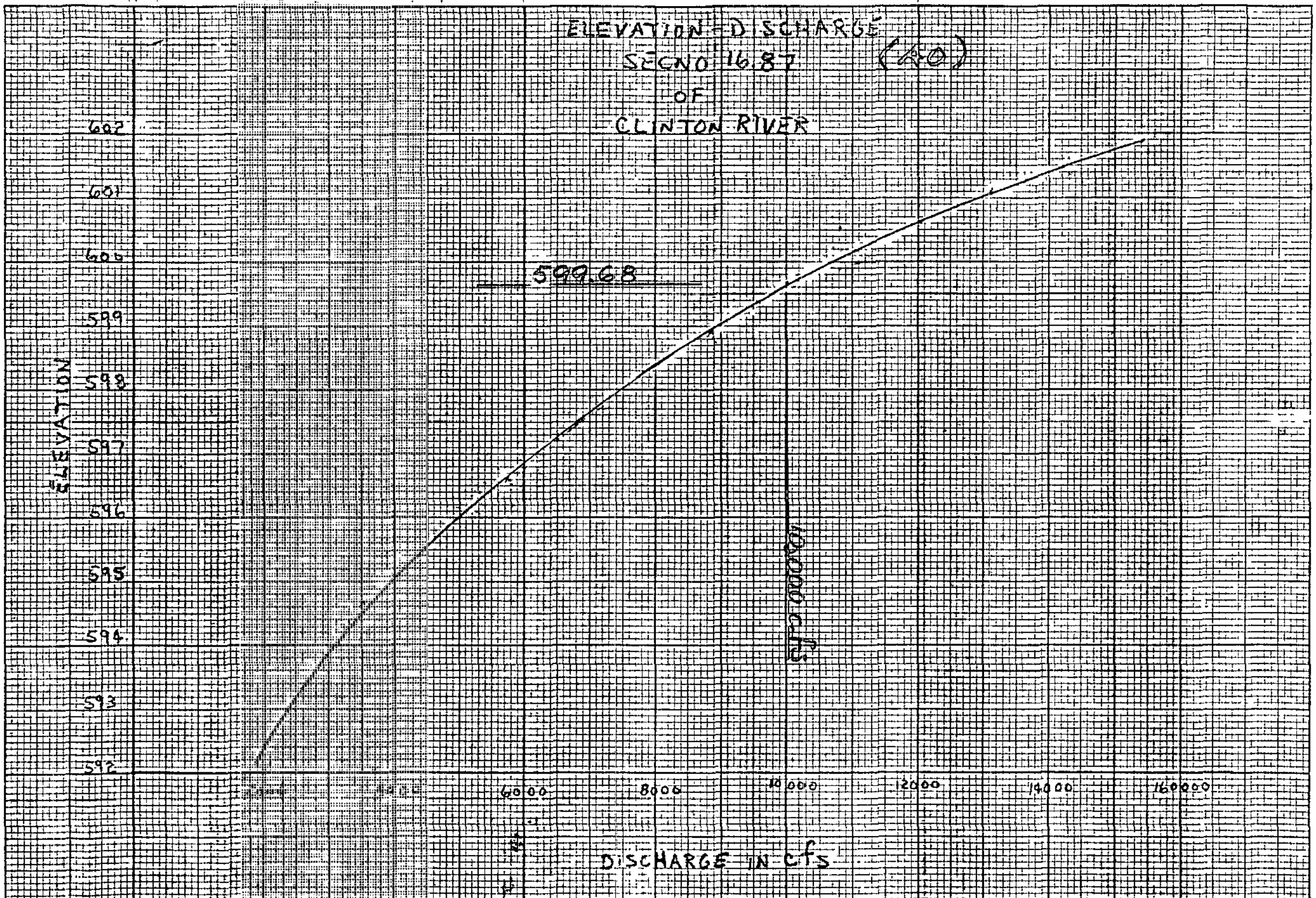
STAGE DISCHARGE CURVES FOR STARTING WATER SURFACE ELEVATIONS


STAGE AT MOUTH OF MILLER DRAIN
VS
DISCHARGE IN MIDDLE BRANCH
CLINTON RIVER
STAGE DISCHARGE AT SECNO 3220
STAGE DISCHARGE AT SECNO 1420
594
592
590
588
586
584
582
580
578
576
400
1200
2000
2800
3600
4400
4800

46 1240


* STAGE AT MOUTH OF NORTH BRANCH
VS
DISCHARGE IN CLINTON RIVER
Forks Area
598
597
596
595
594
593
592
591
590
589
588
587
12000
14000
16000
18000
20000
22000
24000
26000
28000
DISCHARGE IN cfs
STAGE DISCHARGE AT SEC NO 11.292 section X
STAGE DISCHARGE AT SEC NO 10.853 section W
NORTH BRANCH STAGE AT MOUTH
may be 594 > 592.65
592.65
21300 @ 100-yr
* stage may be low (see DWR note, comp. output)


MOUTH OF MIDDLE BRANCH CLINTON RIVER
STAGE DISCHARGE
SECNO 1244
OF
NORTH BRANCH
STAGE DISCHARGE AT SECNO 1244
STAGE DISCHARGE AT SECNO 944
ELEVATION
597
596
595
594
593
592
591
590
589
588
587
2000
4000
6000
8000
10000
12000
14000
16000
DISCHARGE IN CFS


ELEVATION - DISCHARGE
SECNO 16.87 (40)
OF
CLINTON RIVER
599.68
10,000 cfs
ELEVATION
602
601
600
599
598
597
596
595
594
593
592
6000
8000
10000
12000
14000
160000
DISCHARGE IN cfs

APPENDIX C - SECNO TABLE, XKOR DATA AND CALCULATIONS

CLINTON TOWNSHIP FLOOD INSURANCE STUDY
CLINTON RIVER MAIN JMA NO. 5670-02
PROJECT MANAGER WILLIAM ROSSOW (continuation of Harrison Twp study)

(computer run - From Lk St. Clair to confluence / Red Run)

FIELD SECTION	SECNO	DESCRIPTION
A	6.057	VALLEY SECTION A RIGHT ENCROACHMENT DUE TO HOUSES
B	6.489	VALLEY SECTION B RIGHT ENCROACHMENT DUE TO STRUCTURES
C	6.883	VALLEY SECTION C LEFT ENCROACHMENT DUE TO BUILDING LINE
D	7.096	VALLEY SECTION D
	7.142	BRIDGE SECTION E RELOCATED GROUND POINTS ONLY SECTION SKEWED FOR PERPENDICULARITY TO MASS OF FLOW
	7.143	BRIDGE SECTION E DICKINSON STREET DOWNSTREAM FACE SECTION SKEWED FOR PERPENDICULARITY TO MASS OF FLOW
E	7.154	BRIDGE SECTION E DICKINSON STREET UPSTREAM FACE SECTION SKEWED FOR PERPENDICULARITY TO MASS OF FLOW
	7.155	BRIDGE SECTION E RELOCATED GROUND POINTS ONLY SECTION SKEWED FOR PERPENDICULARITY TO MASS OF FLOW
	7.163	VALLEY SECTION F RELOCATED INVERT ADJUSTED DISTANCE EQUAL TO BRIDGE CONTRACTION
F	7.222	VALLEY SECTION F
	7.253	VALLEY SECTION F RELOCATED INVERT ADJUSTED DISTANCE EQUAL TO BRIDGE EXPANSION
	7.288	BRIDGE SECTION G RELOCATED GROUND POINTS ONLY
	7.289	BRIDGE SECTION G CROCKER BLVD. DOWNSTREAM FACE
G	7.296	BRIDGE SECTION G CROCKER BLVD. UPSTREAM FACE
	7.297	BRIDGE SECTION G RELOCATED GROUND POINTS ONLY
	7.300	VALLEY SECTION F RELOCATED INVERT ADJUSTED DISTANCE EQUAL TO BRIDGE CONTRACTION LEFT ENCROACHMENT DUE TO FLOW CONTRACTION
H	7.731	VALLEY SECTION H RIGHT ENCROACHMENT DUE TO HOUSE LINE
I	8.023	VALLEY SECTION I LEFT ENCROACHMENT DUE TO HOUSE LINE ? ENCROACHMENT ON 10-YEAR FLOW AT RIGHT SIDE DUE TO HIGH GROUND
J	8.278	VALLEY SECTION J RIGHT ENCROACHMENT DUE TO HIGH GROUND LEFT ENCROACHMENT DUE TO HIGH GROUND

K	8.713	VALLEY SECTION K RIGHT ENCROACHMENT DUE TO HIGH GROUND
	8.717	VALLEY SECTION MANUFACTURED FROM CLINTON RIVER SECTION K AND CLINTON RIVER SPILLWAY SECTION D RIGHT ENCROACHMENT DUE TO HIGH GROUND
	8.922	VALLEY SECTION INTERPOLATED DUE TO LARGE VELOCITY CHANGE RIGHT ENCROACHMENT DUE TO FLOW EXPANSION
	8.972	VALLEY SECTION INTERPOLATED DUE TO LARGE VELOCITY CHANGE RIGHT ENCROACHMENT DUE TO FLOW EXPANSION
	9.023	VALLEY SECTION INTERPOLATED DUE TO LARGE VELOCITY CHANGE RIGHT ENCROACHMENT DUE TO FLOW EXPANSION
L	9.074	VALLEY SECTION L RIGHT ENCROACHMENT DUE TO FLOW EXPANSION
	9.106	VALLEY SECTION INTERPOLATED DUE TO LARGE VELOCITY CHANGE LEFT ENCROACHMENT DUE TO FLOW EXPANSION SECTION SKEWED FOR PERPENDICULARITY TO MASS OF FLOW
	9.137	BRIDGE SECTION M RELOCATED GROUND POINTS ONLY SECTION SKEWED FOR PERPENDICULARITY TO MASS OF FLOW ENCROACHMENTS DUE TO BRIDGE OPENING
	9.138	BRIDGE SECTION M N.B. GRATIOT AVE. DOWNSTREAM FACE SECTION SKEWED FOR PERPENDICULARITY TO MASS OF FLOW
M	9.150	BRIDGE SECTION M N.B. GRATIOT AVE. UPSTREAM FACE SECTION SKEWED FOR PERPENDICULARITY TO MASS OF FLOW
	9.151	BRIDGE SECTION M RELOCATED GROUND POINTS ONLY SECTION SKEWED FOR PERPENDICULARITY TO MASS OF FLOW ENCROACHMENTS DUE TO BRIDGE OPENING
	9.213	BRIDGE SECTION N RELOCATED GROUND POINTS ONLY SECTION SKEWED FOR PERPENDICULARITY TO MASS OF FLOW ENCROACHMENTS DUE TO BRIDGE OPENING
	9.214	BRIDGE SECTION N S.B. GRATIOT AVE. DOWNSTREAM FACE SECTION SKEWED FOR PERPENDICULARITY TO MASS OF FLOW
N	9.225	BRIDGE SECTION N S.B GRATIOT AVE. UPSTREAM FACE SECTION SKEWED FOR PERPENDICULARITY TO MASS OF FLOW
	9.226	BRIDGE SECTION N RELOCATED GROUND POINTS ONLY SECTION SKEWED FOR PERPENDICULARITY TO MASS OF FLOW ENCROACHMENTS DUE TO BRIDGE OPENING
	9.250	VALLEY SECTION O RELOCATED INVERT ADJUSTED ADDED SECTION DUE TO VELOCITY CHANGE RIGHT ENCROACHMENT DUE TO FLOW CONTRACTION
	9.371	VALLEY SECTION O RELOCATED INVERT ADJUSTED RIGHT ENCROACHMENT DUE TO HOUSE LINE ADDED SECTION DUE TO VELOCITY CHANGE

O	9.493	VALLEY SECTION O RIGHT ENCROACHMENT DUE TO HOUSE LINE
	9.629	VALLEY SECTION INTERPOLATED DUE TO LARGE VELOCITY CHANGE RIGHT ENCROACHMENT DUE TO HOUSE LINE
P	9.765	VALLEY SECTION P RIGHT ENCROACHMENT DUE TO HOUSE LINE
	9.856	VALLEY SECTION INTERPOLATED DUE TO LARGE VELOCITY CHAN RIGHT ENCROACHMENT DUE TO HOUSES
	9.937	VALLEY SECTION INTERPOLATED DUE TO LARGE VELOCITY CHANGE
	10.068	VALLEY SECTION INTERPOLATED DUE TO LARGE VELOCITY CHANGE LEFT ENCROACHMENT DUE TO FLOW EXPANSION
Q	10.089	VALLEY SECTION Q RIGHT ENCROACHMENT DUE TO FLOW EXPANSION
	10.122	VALLEY SECTION INTERPOLATED DUE TO LARGE VELOCITY CHANGE LEFT ENCROACHMENT DUE TO EXPANSION
	10.132	BRIDGE SECTION R RELOCATED GROUND POINTS ONLY
	10.133	BRIDGE SECTION R GRAND TRUNK AND WESTERN R.R. DOWNSTREAM FACE
R	10.139	BRIDGE SECTION R GRAND TRUNK AND WESTERN R.R. UPSTREAM FACE
	10.140	BRIDGE SECTION R RELOCATED GROUND POINTS ONLY
	10.153	VALLEY SECTION INTERPOLATED DUE TO LARGE VELOCITY CHANGE
	10.166	VALLEY SECTION INTERPOLATED DUE TO LARGE VELOCITY CHANGE
	10.192	VALLEY SECTION INTERPOLATED DUE TO LARGE VELOCITY CHANGE
	10.245	BRIDGE SECTION S RELOCATED GROUND POINTS ONLY SECTION SKEWED FOR PERPENDICULARITY TO MASS OF FLOW
	10.246	BRIDGE SECTION S GROESBECK HIGHWAY DOWNSTREAM FACE SECTION SKEWED FOR PERPENDICULARITY TO MASS OF FLOW
S	10.261	BRIDGE SECTION S GROESBECK HIGHWAY UPSTREAM FACE SECTION SKEWED FOR PERPENDICULARITY TO MASS OF FLOW
	10.262	BRIDGE SECTION S RELOCATED GROUND POINTS ONLY SECTION SKEWED FOR PERPENDICULARITY TO MASS OF FLOW
	10.317	VALLEY SECTION T RELOCATED INVERT ADJUSTED DISTANCE EQUAL TO BRIDGE CONTRACTION
T	10.381	VALLEY SECTION T RIGHT ENCROACHMENT DUE TO HOUSE LINE

U	10.695	VALLEY SECTION U LEFT ENCROACHMENT DUE TO EXPANSION OF FLOW
V	10.818	VALLEY SECTION V (@ USGS gage) LEFT ENCROACHMENT DUE TO EXPANSION OF FLOW
	10.846	BRIDGE SECTION MORAVIAN DRIVE DOWNSTREAM FACE GROUND POINTS ONLY BLEND OF SECTIONS V AND W SECTION SKEWED FOR PERPENDICULARITY TO MASS OF FLOW RIGHT ENCROACHMENT AT BRIDGE OPENING DUE TO PROMINENCE OF PRESSURE FLOW LEFT ENCROACHMENT AT BRIDGE OPENING DUE TO PROMINENCE OF PRESSURE FLOW
W	10.853	BRIDGE SECTION W MORAVIAN DRIVE UPSTREAM FACE BLEND OF SECTIONS V AND W SECTION SKEWED FOR PERPENDICULARITY TO MASS OF FLOW RIGHT ENCROACHMENT AT BRIDGE OPENING DUE TO PROMINENCE OF PRESSURE FLOW LEFT ENCROACHMENT AT BRIDGE OPENING DUE TO PROMINENCE OF PRESSURE FLOW
X	11.292	VALLEY SECTION X
	11.393	VALLEY SECTION INTERPOLATED DUE TO LARGE VELOCITY CHANGE
	11.695	VALLEY SECTION INTERPOLATED DUE TO LARGE VELOCITY CHANGE
Y	11.845	VALLEY SECTION Y
	11.860	VALLEY SECTION INTERPOLATED DUE TO LARGE VELOCITY CHANGE
	11.875	VALLEY SECTION INTERPOLATED DUE TO LARGE VELOCITY CHANGE
	11.929	VALLEY SECTION INTERPOLATED DUE TO LARGE VELOCITY CHANGE
Z	12.023	VALLEY SECTION Z
AA	12.339	VALLEY SECTION AA
AB	12.544	VALLEY SECTION AB RIGHT ENCROACHMENT DUE TO HOUSES
AC	12.799	VALLEY SECTION AC RIGHT ENCROACHMENT DUE TO HOUSES
AD	13.144	VALLEY SECTION AD RIGHT ENCROACHMENT DUE TO HOUSES LEFT ENCROACHMENT DUE TO HIGH GROUND
	13.163	VALLEY SECTION INTERPOLATED DUE TO LARGE VELOCITY CHANGE RIGHT ENCROACHMENT DUE TO HIGH GROUND
	13.191	VALLEY SECTION INTERPOLATED DUE TO LARGE VELOCITY CHANGE RIGHT ENCROACHMENT DUE TO HIGH GROUND
	13.220	VALLEY SECTION INTERPOLATED DUE TO LARGE VELOCITY CHANGE RIGHT ENCROACHMENT DUE TO HIGH GROUND
AE	13.481	VALLEY SECTION AE RIGHT ENCROACHMENT DUE TO HOUSES

AF	13.799	VALLEY SECTION AF RIGHT ENCROACHMENT DUE TO HIGH GROUND
AG	14.061	VALLEY SECTION AG RIGHT ENCROACHMENT DUE TO FLOW EXPANSION LEFT ENCROACHMENT DUE TO HIGH GROUND
AH	14.258	VALLEY SECTION AH LEFT ENCROACHMENT DUE TO HIGH GROUND
AI	14.523	VALLEY SECTION AI RIGHT ENCROACHMENT DUE TO HOUSES > 15733
AJ	15.057	VALLEY SECTION AJ LEFT ENCROACHMENT DUE TO APARTMENTS
AK	15.722	VALLEY SECTION AK RIGHT ENCROACHMENT DUE TO HOUSES LEFT ENCROACHMENT DUE TO HOUSES
	15.733	BRIDGE SECTION AL GARFIELD ROAD DOWNSTREAM FACE GROUND POINTS ONLY BLEND OF SECTIONS AK AND AL RIGHT ENCROACHMENT DUE TO HOUSES LEFT ENCROACHMENT DUE TO HOUSES
AL	15.740	BRIDGE SECTION AL GARFIELD ROAD UPSTREAM FACE BLEND OF SECTIONS AK AND AL RIGHT ENCROACHMENT DUE TO HOUSES LEFT ENCROACHMENT DUE TO HOUSES
AM	16.063	VALLEY SECTION AM
AN	16.396	VALLEY SECTION AN RIGHT ENCROACHMENT DUE TO HOUSES LEFT ENCROACHMENT DUE TO HOUSES
AO	16.866	VALLEY SECTION AO RIGHT ENCROACHMENT DUE TO HOUSES LEFT ENCROACHMENT DUE TO FLOW CONTRACTION
AP	17.089	VALLEY SECTION AP RIGHT ENCROACHMENT DUE TO HOUSES LEFT ENCROACHMENT DUE TO HOUSES
	17.102	BRIDGE SECTION AQ HAYES ROAD DOWNSTREAM FACE GROUND POINTS ONLY BLEND OF SECTIONS AP AND AQ RIGHT ENCROACHMENT DUE TO HOUSES LEFT ENCROACHMENT DUE TO HOUSES
AQ	17.109	BRIDGE SECTION AQ HAYES ROAD UPSTREAM FACE BLEND OF SECTIONS AP AND AQ RIGHT ENCROACHMENT DUE TO HOUSES LEFT ENCROACHMENT DUE TO HOUSES

JOB NAME: CLINTON TOWNSHIP FIS

JOB NO. 5670 | 02 | 39

WATERCOURSE: CLINTON RIVER MAIN BRANCH

CULVERT LOCATION: GARFIELD ROAD BRIDGE

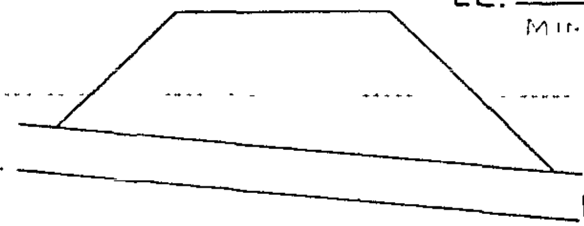
CULVERT DESCRIPTION: CONCRETE HIGHWAY BRIDGE WITH ONE HEADWALL EXTENDED PERPENDICULAR

BY BEH DATE 12/30/76

WEIR DESCRIPTION: PAVED ROADWAY WITH 32 FOOT BREADTH

MAX U/S ELEV 596.2

EL. 595.9 MIN ELTRD



EL. 573.0

EL. 578.0

So = [illegible]

L = 32

Sta. 15740

Sta. 15733

A = 1477.5	D = 18.2
WP = 275.7	Ke = 0.6
$\frac{29.1}{R^{4/3}}$ = 3.1110	n = .0214

CALCULATIONS AND COMMENTS:

— MANNING'S n —

$$n = \left(\frac{.015^2 \times 180 + .03^2 \times 957}{275.7} \right)^{1/2}$$

n = .0214

— XKOR —

$$XKOR = 1 + K_e + \frac{29.1\, n^2 L}{R^{4/3}}$$

$$XKOR = 1 + 0.6 + (.0214)^2 (3.1110)(32)$$

XKOR = 1.646

— COFQ —

ASSUME H = 1.0 FOR INITIAL RUN

$\frac{H}{L} = \frac{1}{32} = < .15$

∴ USE H = 1.0

COFQ - 3.04

Johnson & Anderson, Inc.
Consulting Engineers
P O. Box 1166 2300 Dixie Highway Pontiac, Michigan 48056

HYDRAULIC STRUCTURAL DATA

CODED 9-14-76 WCR

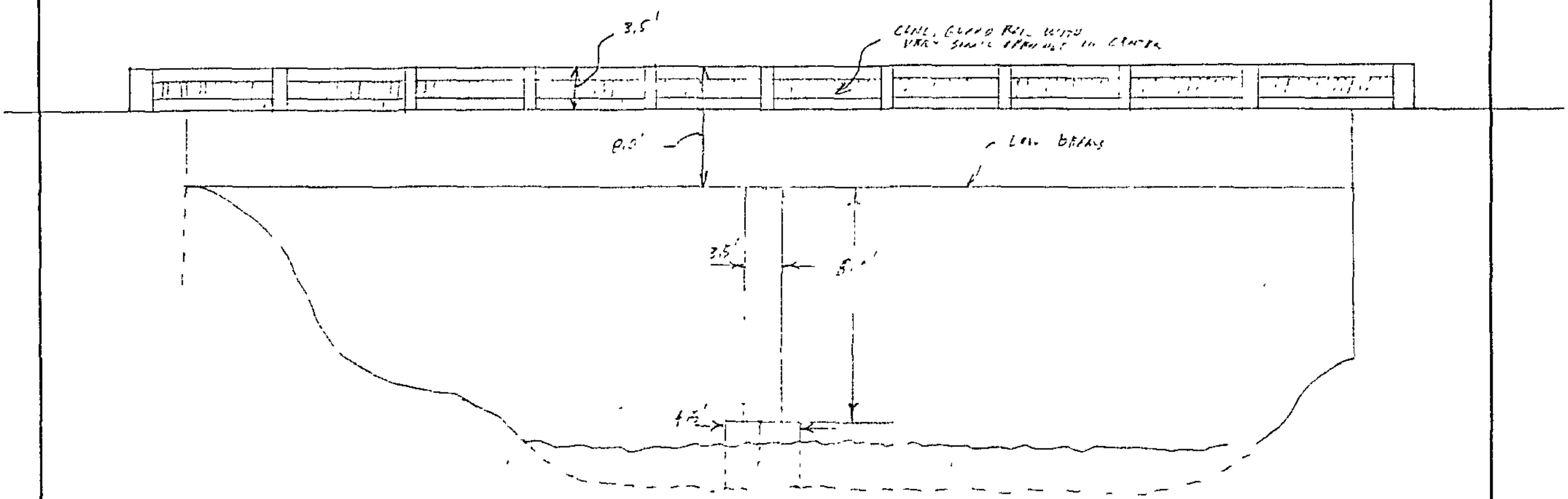
Code No. 02-39

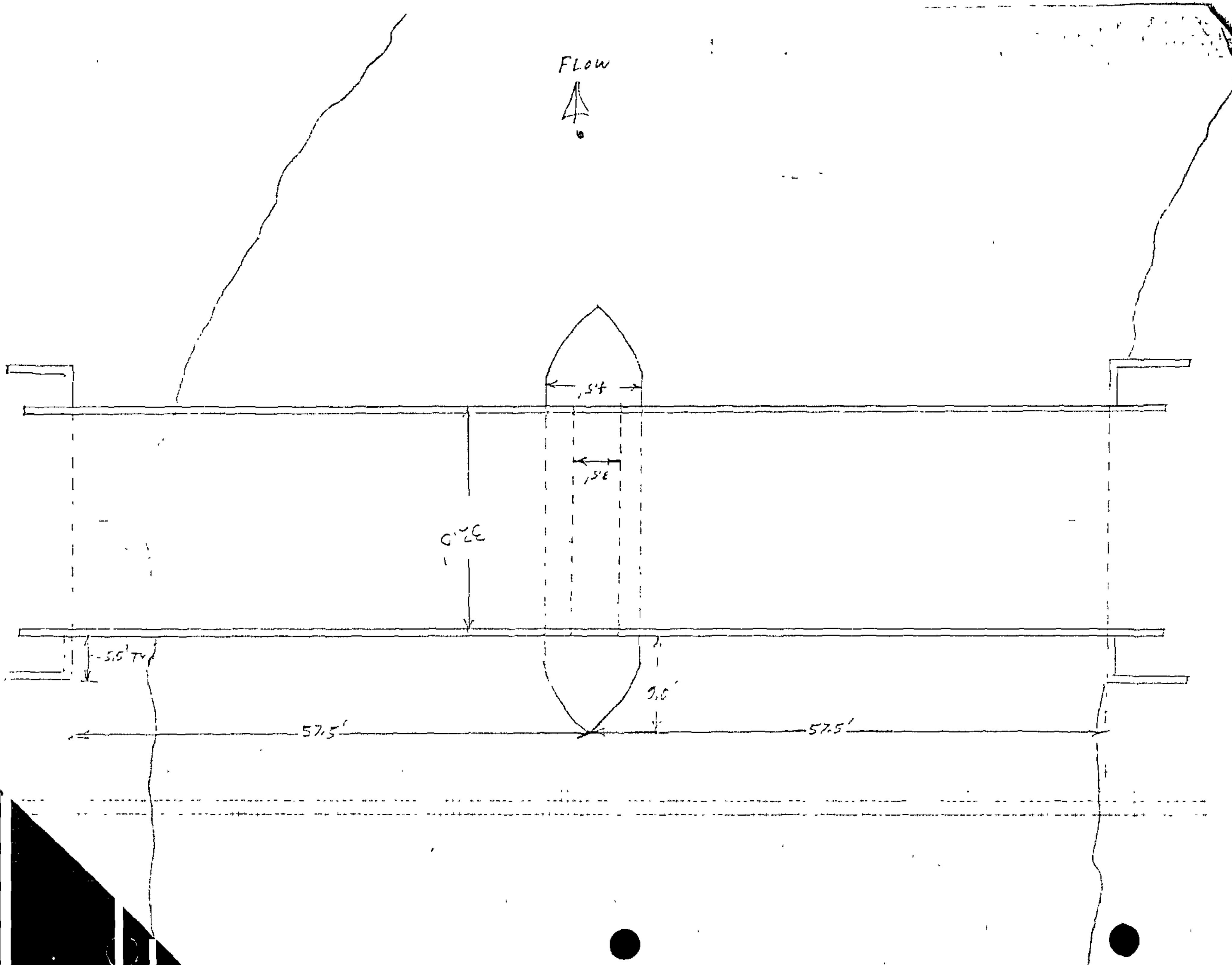
Job Name: CLINTON TWP. F.I.S.			By: P. SHUNCK
Date: 9 SEPTEMBER 1976	Feature: GARFIELD ROAD BRIDGE		Water Course: CLINTON RIVER
Remarks: BOTTOM: MUCK w/ SOME SAND			
Width of Piers: UPPER = 3.5' [illegible] = 4.5'	Pier Shape: FLAT UPPER PEINTED FOUNDATION	No. of Piers: 1	Area:
Water Elevation: 583.2	Length: 115'	Width of Deck: 32'	Skew: 90°

FIELD SKETCH

Profile View

Plan View





FLOW
4.5'
3.5'
32.0'
5.5'
9.0'
57.5'
57.5'

```
X1     15.73        49   1087.00   1202.00     34.00     34.00     34.00     1.000

BT     24.00      0.00    601.50      0.00    100.00    600.10      0.00    200.00    600.30      0.00

BT    300.00    597.90      0.00    400.00    596.20      0.00    500.00    597.80      0.00    600.00
BT    598.90      0.00    700.00    599.60      0.00    776.00    599.50      0.00    800.00    599.30
BT      0.00    900.00    600.20      0.00   1000.00    601.40      0.00   1079.00    600.70      0.00
BT   1087.00    600.60    595.90   1143.00    600.10    595.90   1146.50    600.10    595.90   1202.00
BT    600.20    593.90   1202.00    600.20    594.10   1300.00    600.00      0.00   1400.00    600.00
BT      0.00   1500.00    599.70      0.00   2200.00    598.10      0.00   2300.00    599.40      0.00
BT   2400.00    600.10      0.00

GR    601.50      0.00    600.10    100.00    600.30    200.00    597.90    300.00    596.50    368.00
GR    589.20    383.00    589.20    385.00    596.20    400.00    597.80    500.00    598.90    600.00
GR    599.60    700.00    599.50    776.00    599.30    800.00    600.20    900.00    601.40   1000.00
GR    600.70   1079.00    595.90   1087.00    590.40   1097.00    587.90   1119.00    583.30   1122.00
GR    581.00   1127.00    578.90   1137.00    578.90   1143.00    595.90   1143.00    595.90   1146.50
GR    578.60   1146.50    578.40   1157.00    578.70   1167.00    578.50   1177.00    578.00   1187.00
GR    580.80   1197.00    583.10   1202.00    594.10   1202.00    592.60   1300.00    591.20   1400.00
GR    591.60   1500.00    589.20   1600.00    590.20   1700.00    590.20   1800.00    591.30   1900.00
GR    593.40   2000.00    593.40   2030.00    596.60   2075.00    596.80   2100.00    598.10   2200.00
GR    599.40   2300.00    600.10   2410.00    598.10   2500.00    598.70   2565.00
*******************LISTING OF TOP AND BOTTOM SECTIONS OF ORIFICE******************

1067.00  595.90 1143.00  595.90 1146.50  595.90 1202.00  595.90 1202.00  594.10

1087.00  595.90 1097.00  590.40 1119.00  587.90 1122.00  583.30 1127.00  581.00
1137.00  578.90 1143.00  578.90 1143.00  595.90 1146.50  595.90 1146.50  578.60
1157.00  578.40 1167.00  578.70 1177.00  578.50 1187.00  578.00 1197.00  580.60
1202.00  583.10 1202.00  594.10
************** LISTING OF COORDINATES OF ORIFICE*********************

1067.00  595.90 1143.00  595.90 1146.50  595.90 1202.00  595.90 1202.00  594.10
1202.00  583.10 1197.00  580.80 1187.00  578.00 1177.00  578.50 1167.00  578.70
1157.00  578.40 1146.50  578.60 1146.50  595.90 1143.00  595.90 1143.00  578.90
```

'.00 578.90 1127.00 581.00 1122.00 583.30 1119.00 587.90 1097.00 590.40
7.00 595.9

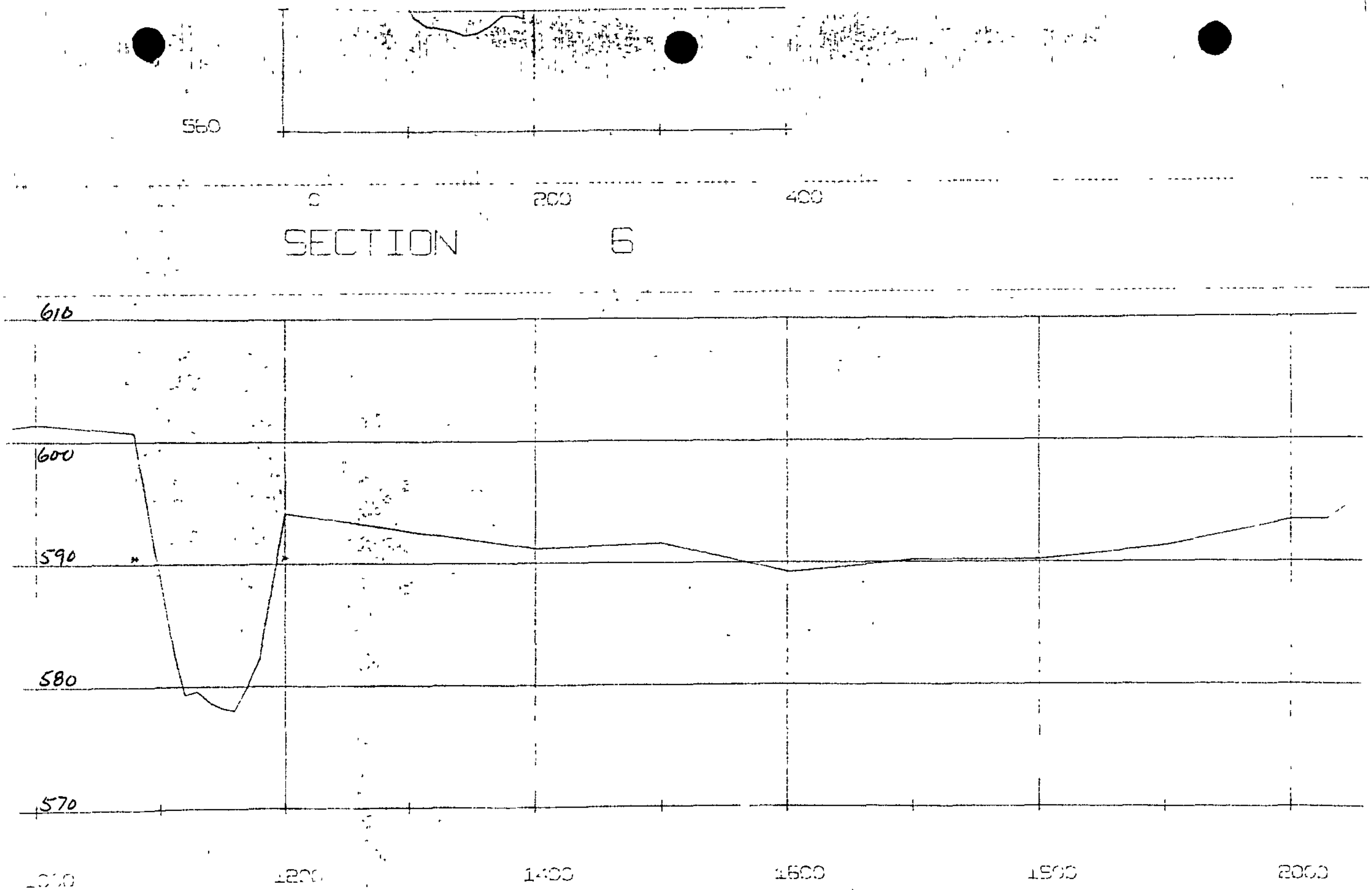
FIEL AREA 1477.5 WETTED PERIMETER 275.7 29.1/R**1.333 3.1110

n - .022

K_s = (.022² 34 (3.1101

K_s = .0512

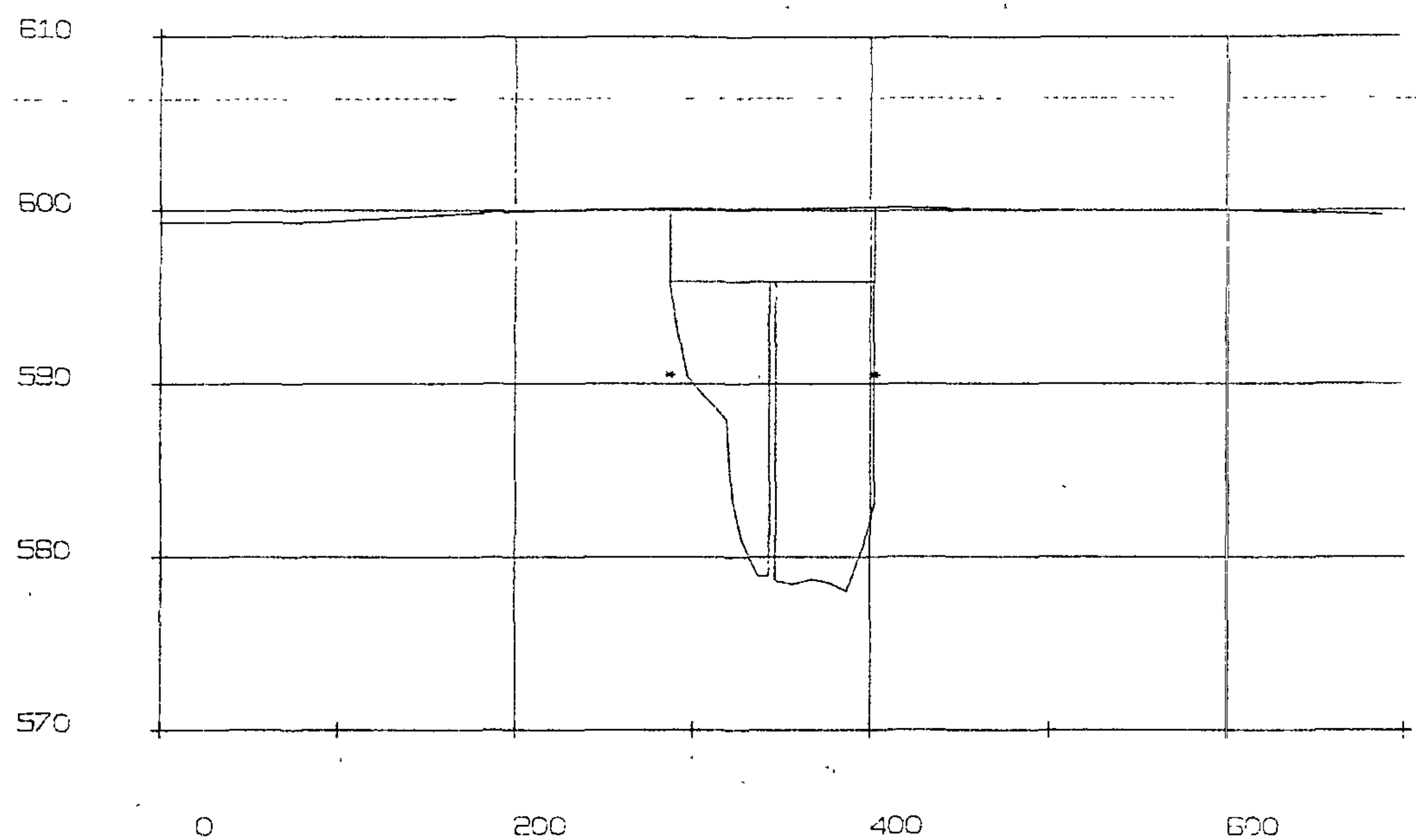
K_e


560
0
200
400
SECTION 6
610
600
590
580
570
1200
1400
1600
1800
2000

SECTION 38

0 200 400 600

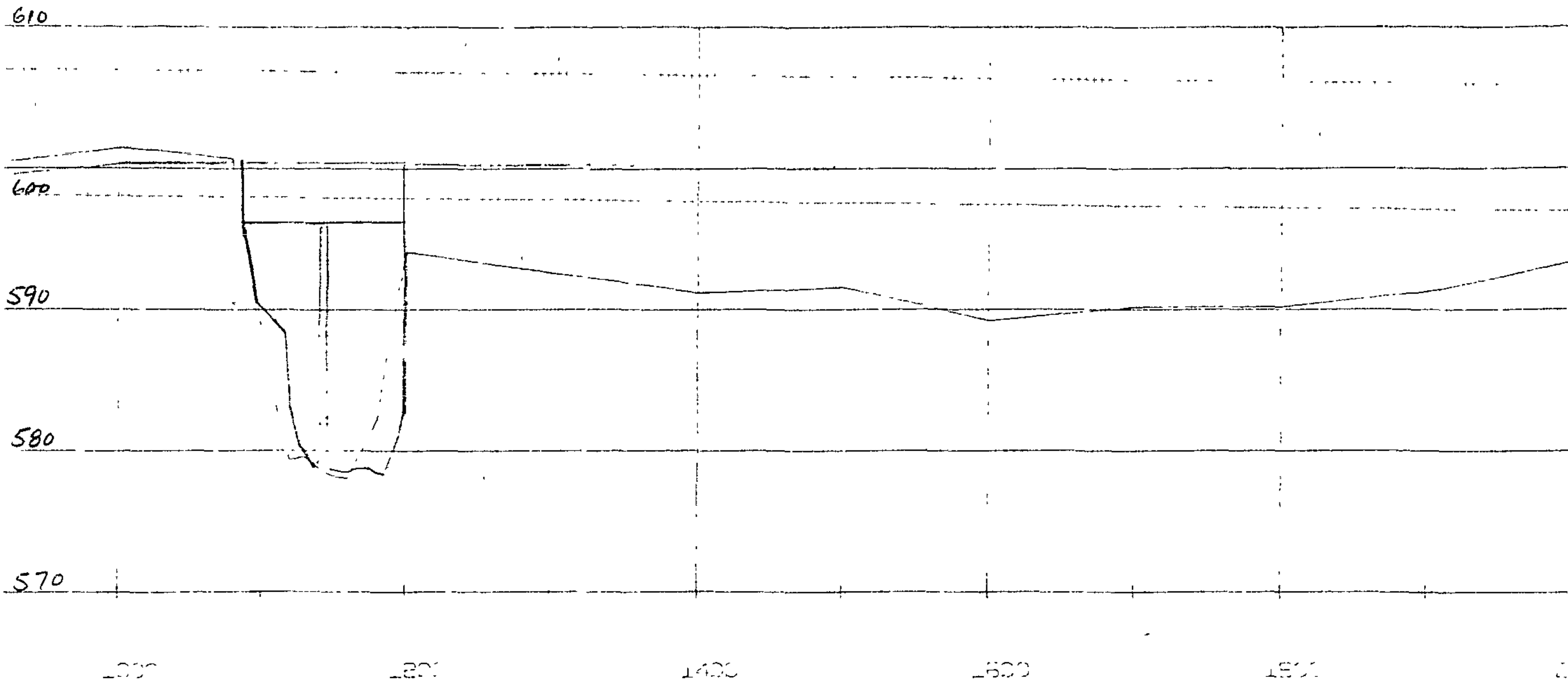
SECTION 95



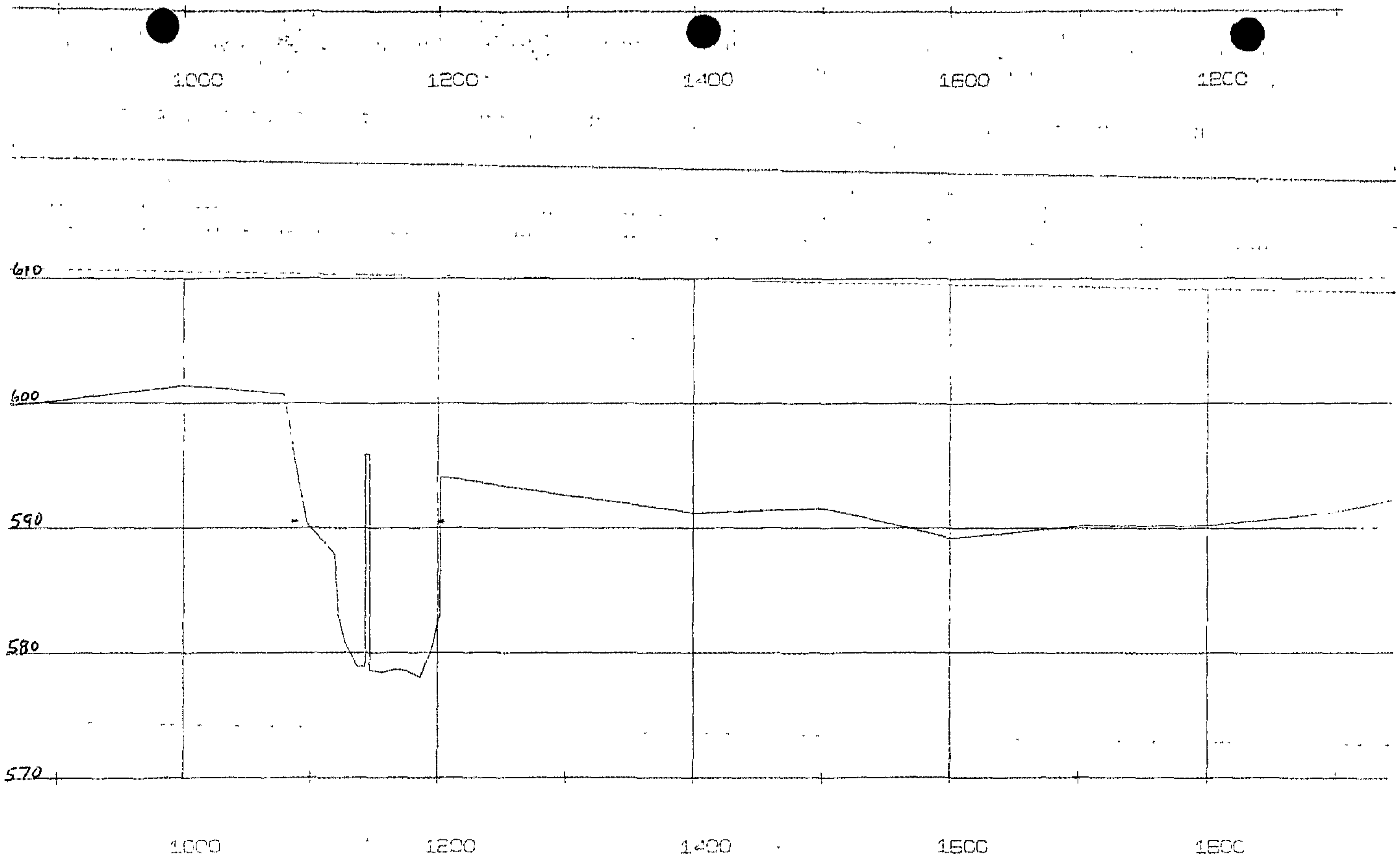
SECTION 39

610

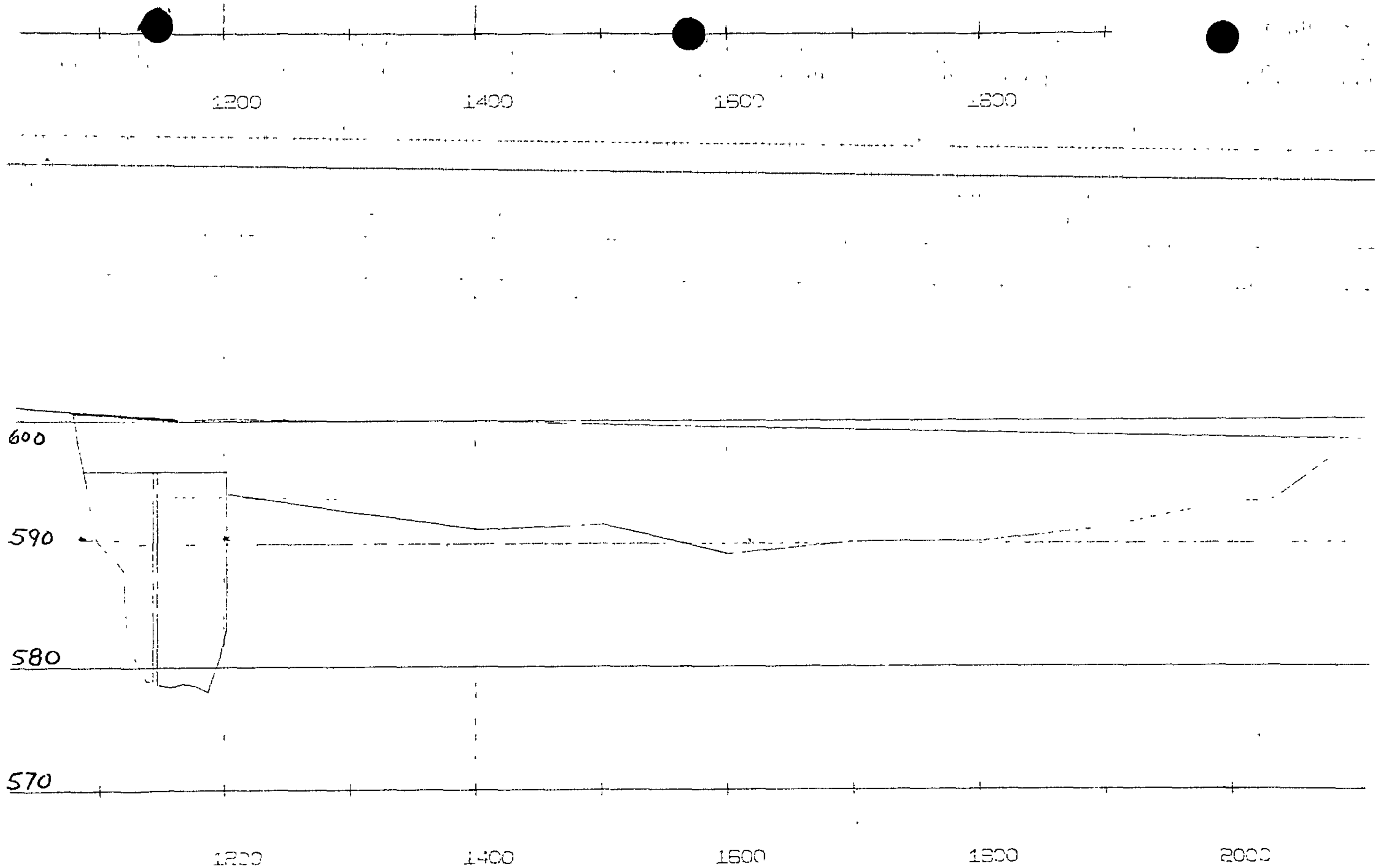
SECTION



SECTION 39



SECTION 15.733



SECTION 15.740

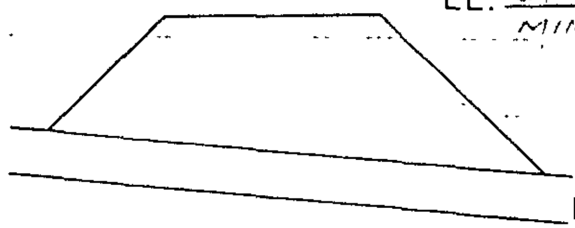
JOB NAME: CLINTON TOWNSHIP, FIS — JOB NO. 5670 | 02 | 23

WATERCOURSE: CLINTON RIVER, MAIN BRANCH — CULVERT LOCATION: MORAVIAN DRIVE BRIDGE

CULVERT DESCRIPTION: CONCRETE HIGHWAY BRIDGE WITH NO WINGWALLS — BY BEH — DATE 12/30/76

WEIR DESCRIPTION: PAVED ROADWAY WITH 30 FOOT BREADTH

MAX U/S ELEV 599.9



A = 34239 — D = 249

WP = 498.0 — Ke = 0.5

$\frac{29.1}{R^{4/3}}$ = 22314 — n = .0252

Sta. 10853 — Sta. 10846

CALCULATIONS AND COMMENTS:

— MANNING'S n —

$$n = \left(\frac{.015^2 \times 350 + .04^2 \times 148}{498.0}\right)^{\frac{1}{2}}$$

n = .0252

— XKOR —

$$XKOR = 1 + K_e + \frac{29.1 n^2 L}{R^{4/3}}$$

$$XKOR = 1 + 0.5 + (.0252)^2 (2.2314) 32$$

XKOR = 1.545

— COEQ —

ASSUME FOR INITIAL RUN H = 1.0

$\frac{H}{L} = \frac{1}{30} = .0333 < .15$

∴ USE H = 1.0

COEQ = 3.04

CODED 4-CE 10

Johnson & Anderson, Inc.
Consulting Engineers
P O Box 1166 2300 Dixie Highway Pontiac, Michigan 48056

HYDRAULIC STRUCTURAL DATA

Code No. 02-23

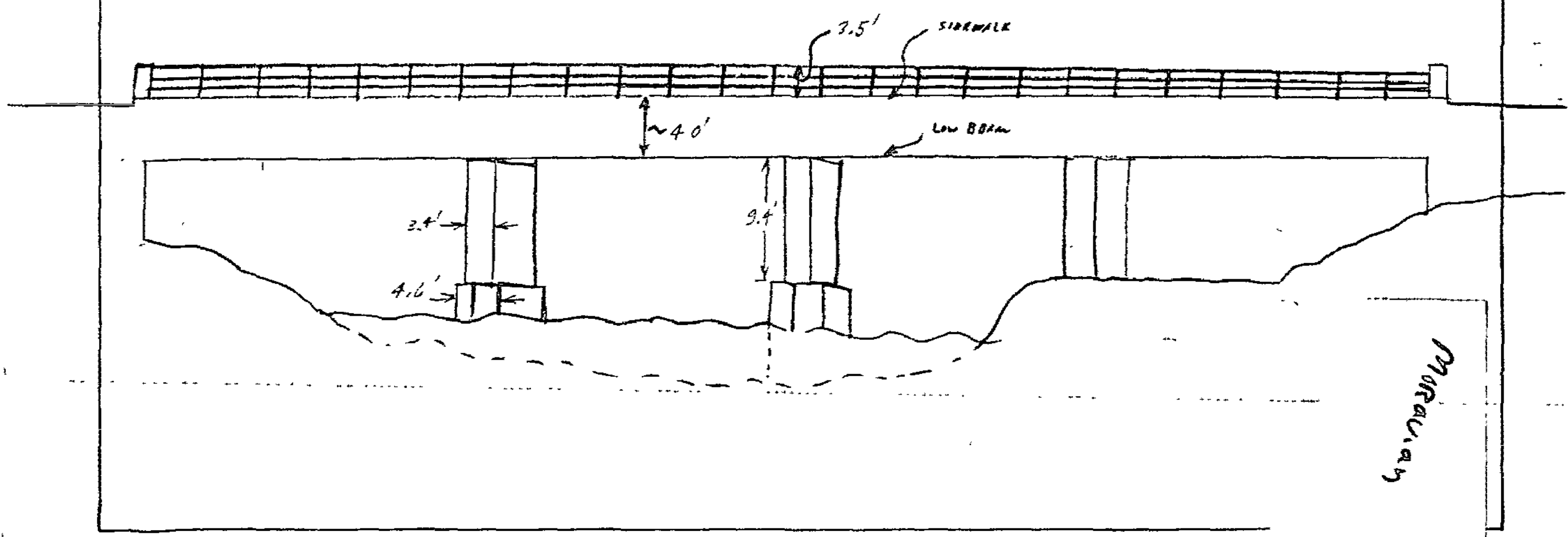
Job Name: CLINTON TWP F.I.S.		By: P. SHUNCK
Date: 7 SEPTEMBER 1976	Feature: MORAVIAN DRIVE BRIDGE	Water Course: CLINTON RIVER

Remarks: BOTTOM: MUCK W/ SHALES

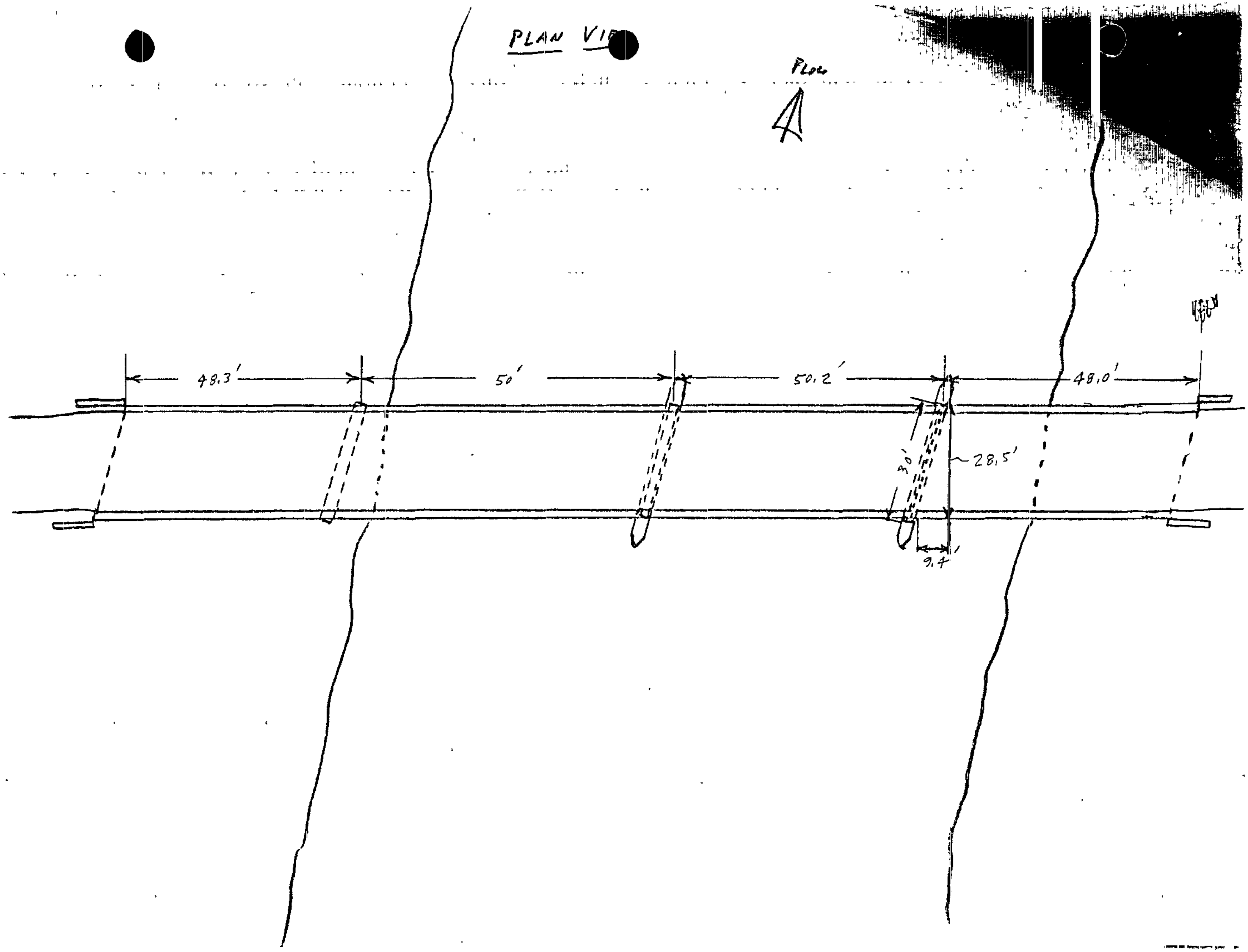
Width of Piers: FOUNDATION = 4.5 UPPER PIER = 3.4'	Pier Shape: FOUNDATION - POINTED UPPER PIER - FLAT	No. of Piers: 3	Area:
Water Elevation: 576.6	Length: 196.5'	Width of Deck: SEE PLAN VIEW	Skew: SEE PLAN VIEW

FIELD SKETCH

Profile View ~~Plan View~~



PLAN VI



X1	10.64	64	586.00	762.50	150.00	150.00	150.00	0.950	

BT	34.00	133.00	599.20	0.00	186.00	596.80	0.00	286.00	593.60	0.00
BT	366.00	593.00	0.00	428.00	593.10	0.00	486.00	593.50	0.00	586.00
BT	593.10	565.70	586.00	593.70	589.70	593.00	593.70	589.70	595.00	593.70
BT	589.70	601.00	593.70	589.70	606.00	593.80	589.80	616.00	593.80	589.80
BT	626.00	593.90	589.90	632.00	593.90	589.90	636.60	593.90	589.90	682.00
BT	593.90	589.90	686.60	593.90	589.90	732.70	593.90	589.90	736.00	593.90
BT	589.90	746.00	593.80	589.90	761.00	593.80	589.80	771.00	593.70	589.70
BT	762.50	593.70	589.70	832.50	593.40	0.00	886.00	593.70	0.00	986.00
BT	592.30	0.00	1032.50	592.00	0.00	1086.00	591.60	0.00	1132.50	591.40
BT	0.00	1143.00	591.10	0.00	1232.50	595.10	0.00	1332.50	600.00	0.00
BT	1432.50	600.00	0.00							

GR	612.50	0.00	603.60	33.00	593.90	77.00	592.60	133.00	592.00	186.00
GR	591.50	233.00	590.00	286.00	588.40	333.00	588.70	386.00	589.00	413.00
GR	588.10	428.00	587.70	486.00	587.70	533.00	587.70	576.00	585.70	586.00
GR	575.20	586.00	575.30	593.00	572.20	595.00	570.40	601.00	569.50	606.00
GR	567.10	616.00	565.80	626.00	568.10	632.00	589.90	632.00	589.90	636.60
GR	567.00	636.60	565.90	641.00	565.60	646.00	565.40	656.00	565.70	666.00
GR	565.00	676.00	566.50	682.00	589.90	682.00	589.90	686.60	566.60	686.60
GR	566.50	691.00	566.10	696.00	566.30	706.00	568.60	716.00	571.30	722.00
GR	574.20	726.00	574.20	731.00	576.00	732.70	589.90	732.70	589.90	736.00
GR	575.80	736.00	575.10	746.00	574.50	756.00	575.20	761.00	578.50	771.00
GR	579.80	776.00	582.30	782.50	583.00	782.50	583.80	832.50	586.80	866.00
GR	589.30	932.50	589.10	986.00	588.30	1032.50	589.50	1066.00	590.70	1132.50
GR	591.10	1143.00	595.10	1232.50	600.00	1332.50	600.60	1432.50		

*******************LISTING OF TOP AND BOTTOM SECTIONS OF ORIFICE*******************

586.00	585.70	586.00	589.70	593.00	589.70	595.00	589.70	601.00	589.70
606.00	589.80	616.00	589.80	626.00	589.90	632.00	589.90	636.60	589.90
682.00	589.90	686.60	589.90	732.70	589.90	736.00	589.90	746.00	589.80
761.00	589.80	771.00	589.70	782.50	589.70				

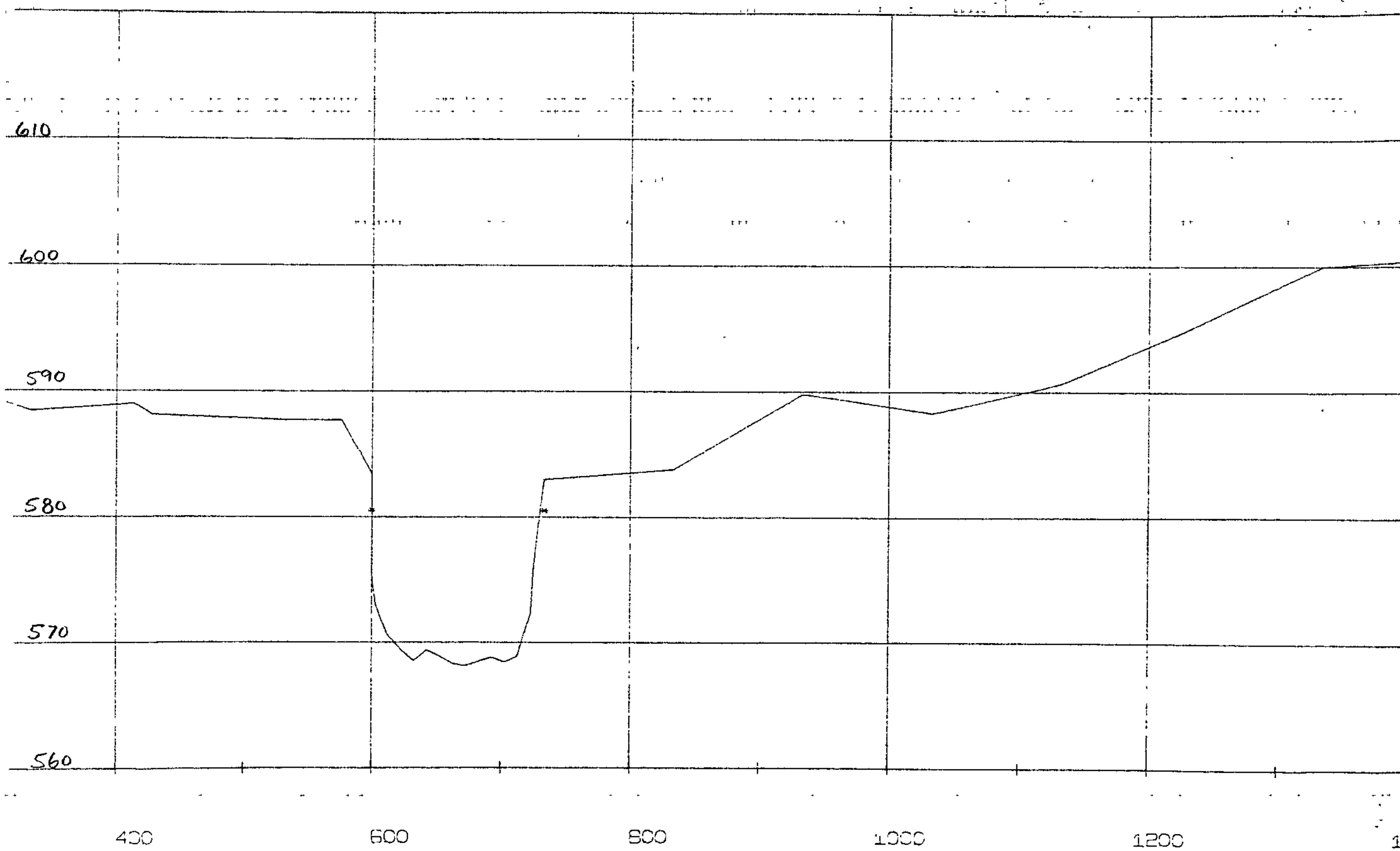
586.00	585.70	586.00	575.20	593.00	575.30	595.00	572.20	601.00	570.40
606.00	569.50	616.00	567.10	626.00	565.80	632.00	568.10	632.00	589.90
636.60	589.90	636.60	567.00	641.00	565.90	646.00	565.60	656.00	565.40

666.00	565.70	676.00	565.00	682.00	566.50	682.00	589.90	686.60	589.90
[illegible]56.6[illegible]	566.60	691.00	566.50	696.00	56[illegible]10	[illegible]06.00	566.80	716.00	568.60
[illegible]22.0[illegible]	571.80	726.00	574.20	731.00	57[illegible]20	[illegible]2.70	576.00	732.70	589.90
736.00	569.90	736.00	575.80	746.00	575.10	756.00	574.50	761.00	575.20
771.00	578.50	776.00	579.80	782.50	582.30	782.50	583.00		

************** LISTING OF COORDINATES OF ORIFICE**********************

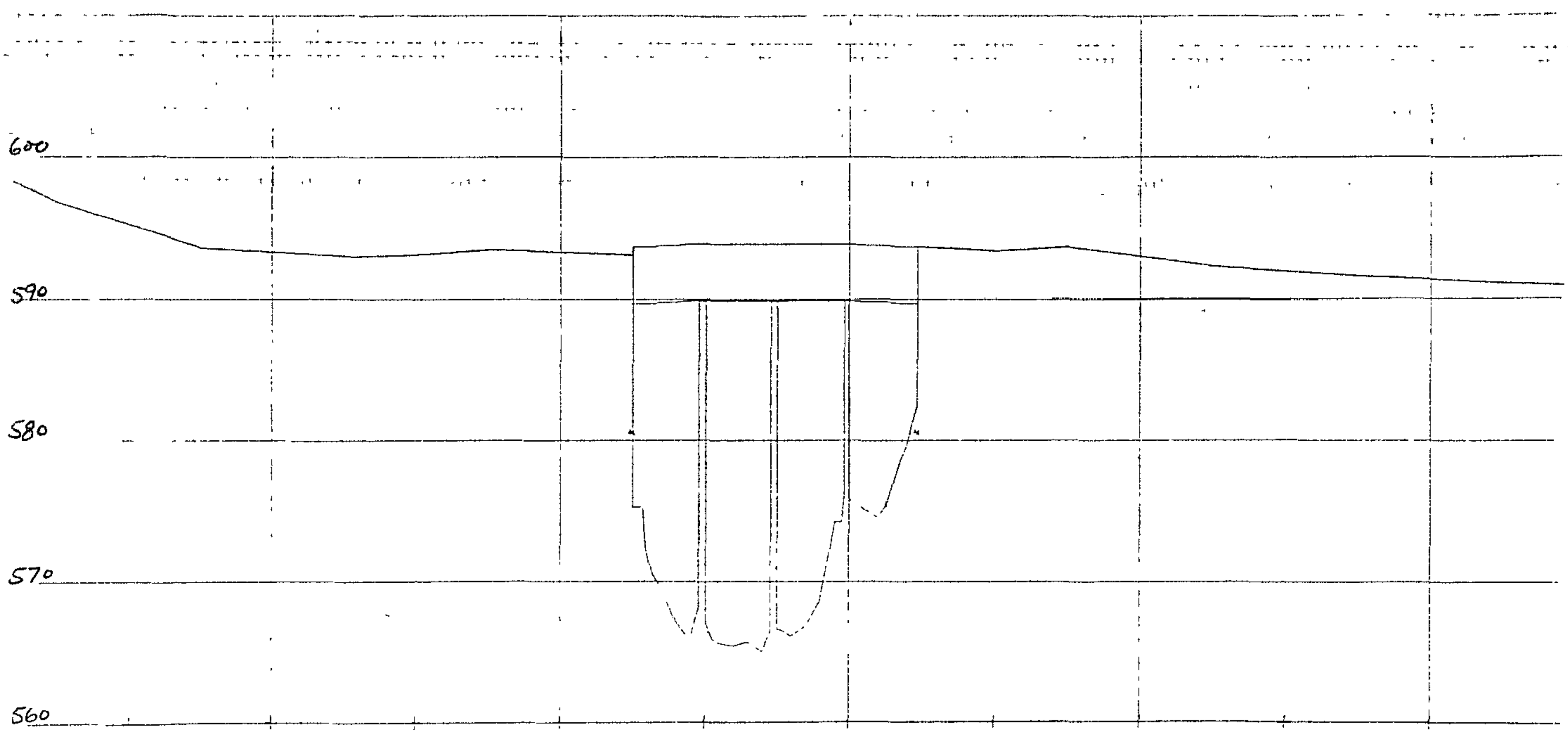
586.00	585.70	586.00	589.70	593.00	589.70	595.00	589.70	601.00	589.70
606.00	589.80	616.00	589.80	626.00	589.90	632.00	589.90	636.60	589.90
682.00	589.90	686.60	589.90	732.70	589.90	736.00	589.90	746.00	589.80
761.00	589.80	771.00	589.70	782.50	589.70	782.50	582.30	776.00	579.80
771.00	578.50	761.00	575.20	756.00	574.50	746.00	575.10	736.00	575.80
736.00	589.90	732.70	589.90	732.70	576.00	731.00	574.20	726.00	574.20
722.00	571.80	716.00	568.60	706.00	566.80	696.00	566.10	691.00	566.50
686.60	566.60	686.60	589.90	682.00	589.90	692.00	566.50	676.00	565.00
666.00	565.70	656.00	565.40	646.00	565.60	641.00	565.90	636.60	567.00
636.60	589.90	632.00	589.90	632.00	568.10	626.00	565.80	616.00	567.10
606.00	569.50	601.00	570.40	595.00	572.20	593.00	575.30	586.00	575.20
586.00	585.70								

ORIFICE AREA 3423.9 WETTED PERIMETER 498.0 29.1/R**1.333 2.2314

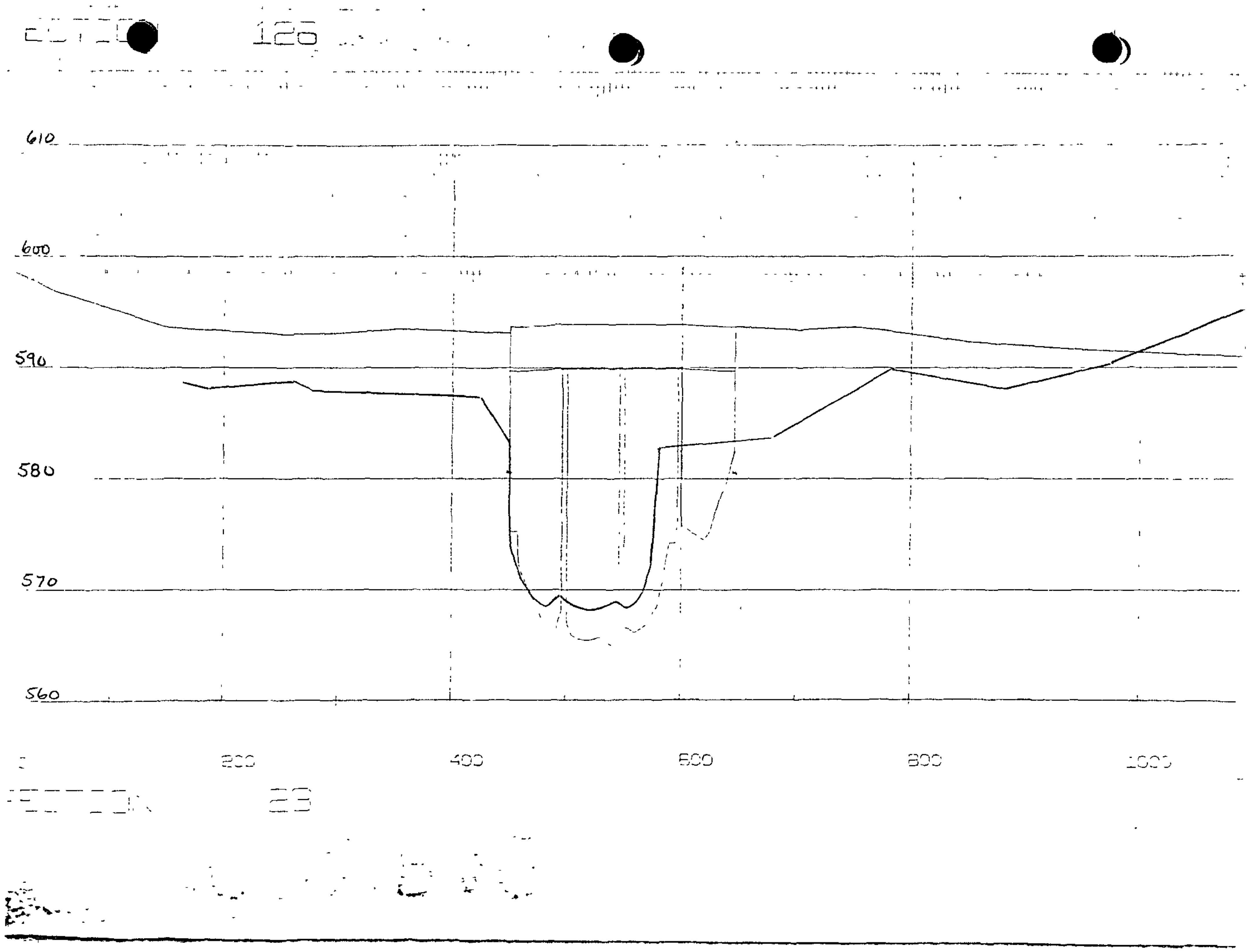


SECTION 22

ECTIO 126



ECTION 23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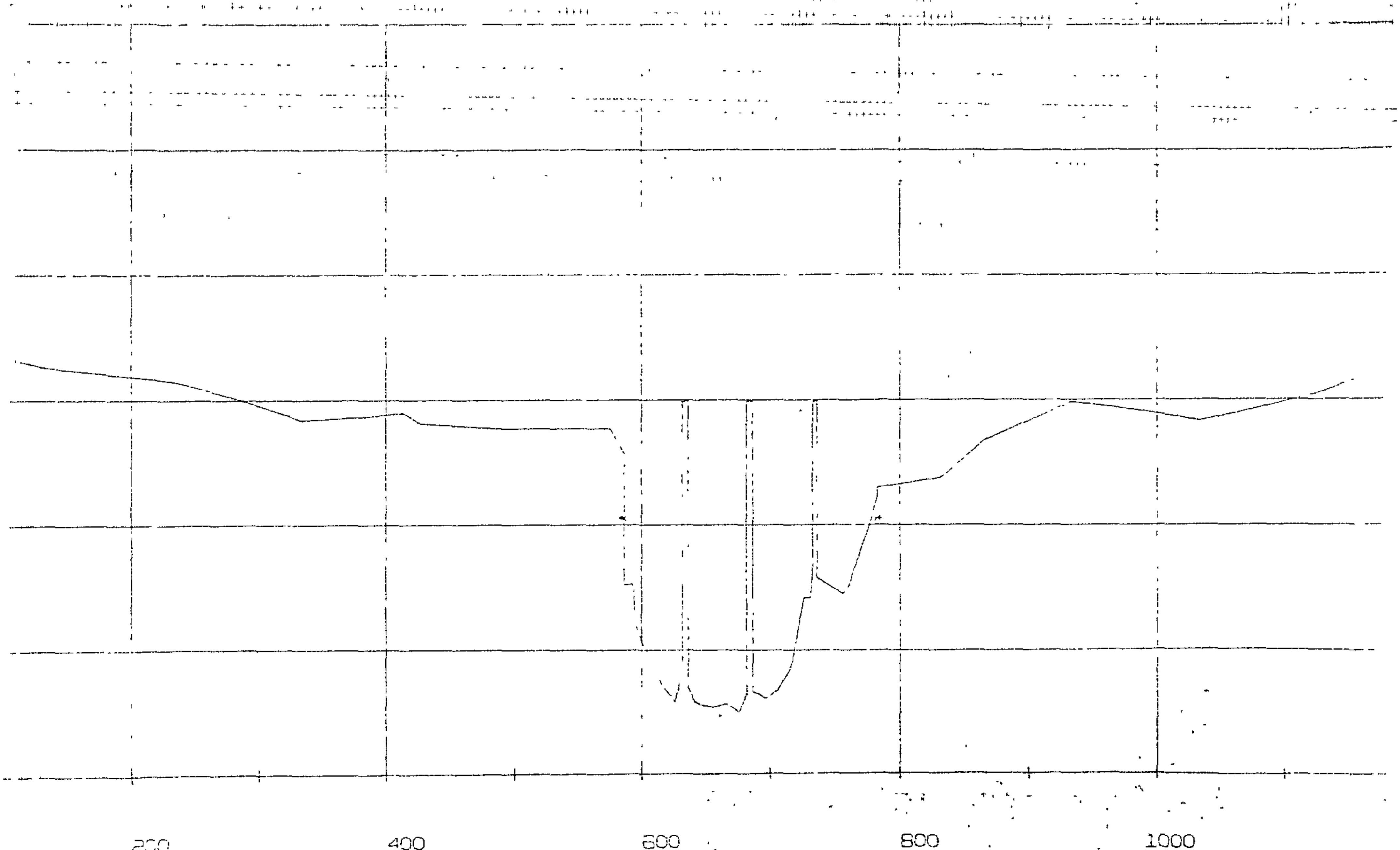
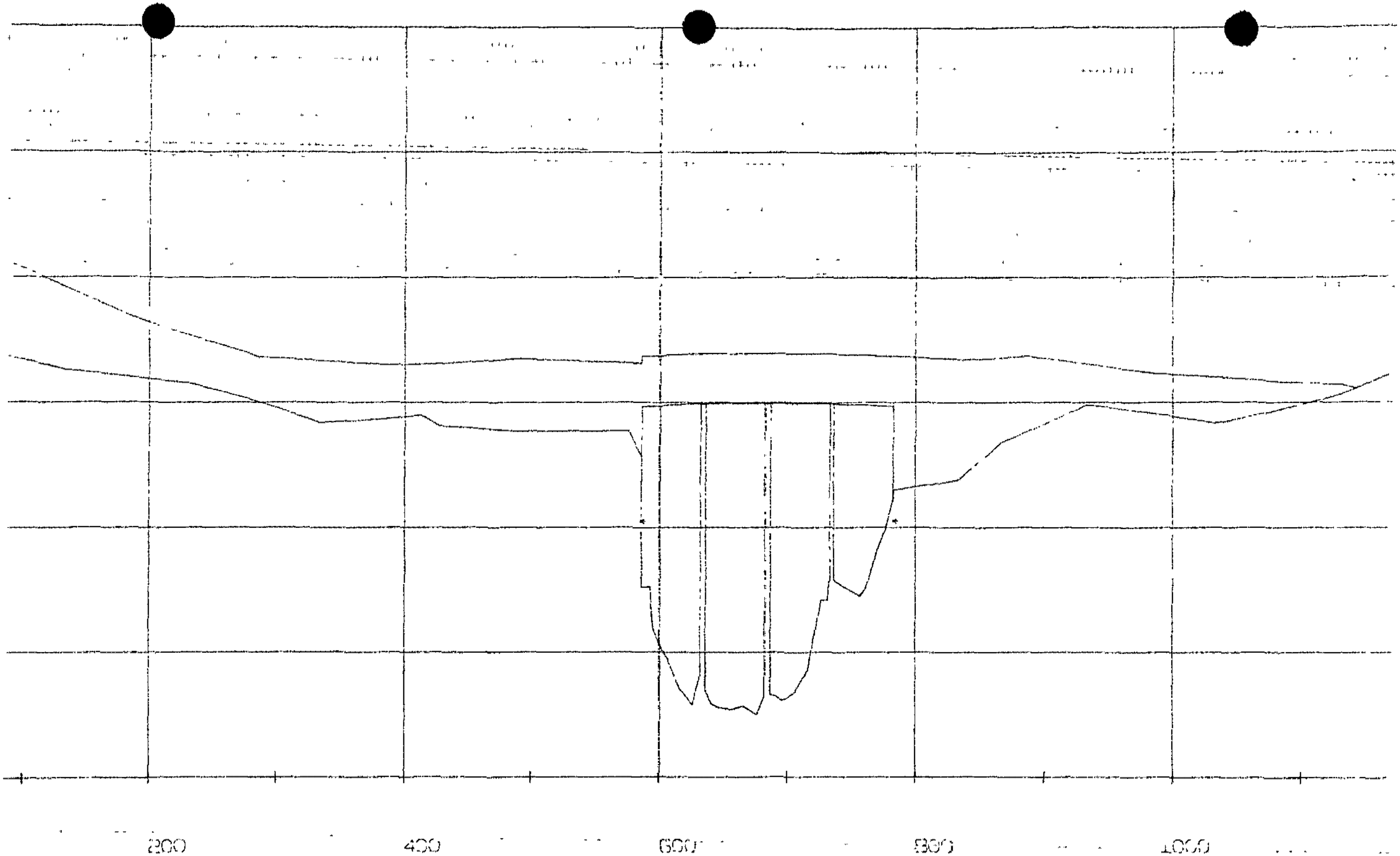


~~10.853~~
SECTION 10.846



ION ~~10.845~~

SECTION 10.853

CITY OF STERLING HEIGHTS FLOOD INSURANCE STUDY
CLINTON RIVER MAIN JWA NO. 5670-10
PROJECT MANAGER WILLIAM ROSSOW (U/S confluence with Red Run)

FIELD SECTION	SECNO	DESCRIPTION
A	17.260	VALLEY SECTION A LEFT SIDE EXTENDED 100 FEET USING TOPOGRAPHIC MAP RIGHT ENCROACHMENT DUE TO HOUSES LEFT ENCROACHMENT DUE TO HOUSES
B	17.593	VALLEY SECTION B RIGHT ENCROACHMENT DUE TO HIGH GROUND
C	18.286	VALLEY SECTION C
D	18.470	VALLEY SECTION D BLEND OF SECTIONS C AND D
	18.485	BRIDGE SECTION E RELOCATED GROUND POINTS ONLY BLEND OF SECTIONS C AND E
E	18.488	BRIDGE SECTION E GOLF COURSE BRIDGE UPSTREAM FACE BLEND OF SECTIONS C AND E
F	18.718	VALLEY SECTION F
G	19.233	VALLEY SECTION G
H	19.646	VALLEY SECTION H RIGHT ENCROACHMENT DUE TO EXPANSION LEFT ENCROACHMENT DUE TO EXPANSION
	19.705	VALLEY SECTION H RELOCATED INVERT ADJUSTED ENCROACHMENTS DUE TO EXPANSION
	19.745	VALLEY SECTION H RELOCATED INVERT ADJUSTED ENCROACHMENTS DUE TO EXPANSION
I	19.784	VALLEY SECTION I RIGHT ENCROACHMENT DUE TO EXPANSION
	19.803	BRIDGE SECTION J RELOCATED GROUND POINTS ONLY LEFT ENCROACHMENT DUE TO LOW FLOW CONTROL
	19.804	BRIDGE SECTION J KLEINO ROAD DOWNSTREAM FACE LEFT ENCROACHMENT DUE TO LOW FLOW CONTROL
J	19.805	BRIDGE SECTION J KLEINO ROAD UPSTREAM FACE LEFT ENCROACHMENT DUE TO LOW FLOW CONTROL
	19.806	BRIDGE SECTION J RELOCATED GROUND POINTS ONLY LEFT ENCROACHMENT DUE TO LOW FLOW CONTROL
	19.844	VALLEY SECTION I RELOCATED INVERT ADJUSTED DISTANCE EQUAL TO BRIDGE CONTRACTION LEFT ENCROACHMENT DUE TO HIGH GROUND
K	20.116	VALLEY SECTION K

L	21.013	VALLEY SECTION L
M	21.375	VALLEY SECTION M
N	21.754	VALLEY SECTION N LEFT ENCROACHMENT DUE TO FLOW EXPANSION
O	21.824	VALLEY SECTION O BLEND OF SECTIONS N AND O LEFT ENCROACHMENT DUE TO FLOW EXPANSION
	21.843 d/s Face	BRIDGE SECTION P RELOCATED GROUND POINTS ONLY BLEND OF SECTIONS N AND P LEFT ENCROACHMENT DUE TO FLOW EXPANSION 20 Ft long
P	21.846 U/s Face	BRIDGE SECTION P ABANDON BRIDGE UPSTREAM FACE BLEND OF SECTIONS N AND P LEFT ENCROACHMENT DUE TO FLOW EXPANSION
Q	22.099	VALLEY SECTION Q
R	22.405	VALLEY SECTION R RIGHT ENCROACHMENT DUE TO EXPANSION LEFT ENCROACHMENT DUE TO EXPANSION
	22.426	BRIDGE SECTION S RELOCATED GROUND POINTS ONLY SECTION SKEWED FOR PERPENDICULARITY TO MASS OF FLOW
	22.427	BRIDGE SECTION S N.B. M-53 DOWNSTREAM FACE SECTION SKEWED FOR PERPENDICULARITY TO MASS OF FLOW
S	22.434	BRIDGE SECTION S N.B. M-53 UPSTREAM FACE SECTION SKEWED FOR PERPENDICULARITY TO MASS OF FLOW
	22.445	BRIDGE SECTION T RELOCATED GROUND POINTS ONLY SECTION SKEWED FOR PERPENDICULARITY TO MASS OF FLOW
	22.446	BRIDGE SECTION T S.B. M-53 DOWNSTREAM FACE SECTION SKEWED FOR PERPENDICULARITY TO MASS OF FLOW
T	22.453	BRIDGE SECTION T S.B. M-53 UPSTREAM FACE SECTION SKEWED FOR PERPENDICULARITY TO MASS OF FLOW
	22.454	BRIDGE SECTION T RELOCATED GROUND POINTS ONLY SECTION SKEWED FOR PERPENDICULARITY TO MASS OF FLOW
	22.508	VALLEY SECTION U RELOCATED INVERT ADJUSTED DISTANCE EQUAL TO BRIDGE CONTRACTION
U	22.589	VALLEY SECTION U
V	22.970	VALLEY SECTION V LEFT ENCROACHMENT DUE TO FLOW EXPANSION

	23.185	VALLEY SECTION INTERPOLATED DUE TO RAPID VELOCITY CHANG
W	23.500	VALLEY SECTION W RIGHT ENCROACHMENT DUE TO EXPANSION
	23.538	BRIDGE SECTION X RELOCATED GROUND POINTS ONLY
	23.539	BRIDGE SECTION X RIVERLAND DRIVE DOWNSTREAM FACE
X	23.545	BRIDGE SECTION X RIVERLAND DRIVE UPSTREAM FACE
	23.546	BRIDGE SECTION X RELOCATED GROUND POINTS ONLY
	23.590	VALLEY SECTION W RELOCATED INVERT ADJUSTED RIGHT ENCROACHMENT DUE TO CONTRACTION SECTION ADDED DUE TO RAPID VELOCITY CHANGE
	23.707	VALLEY SECTION W RELOCATED INVERT ADJUSTED RIGHT ENCROACHMENT DUE TO CONTRACTION SECTION ADDED DUE TO RAPID VELOCITY CHANGE
	23.793	VALLEY SECTION Y RELOCATED INVERT ADJUSTED RIGHT ENCROACHMENT DUE TO CONTRACTION SECTION ADDED DUE TO RAPID VELOCITY CHANGE
Y	24.059	VALLEY SECTION Y RIGHT ENCROACHMENT DUE TO CONTRACTION
Z	24.477	VALLEY SECTION Z RIGHT ENCROACHMENT DUE TO EXPANSION LEFT ENCROACHMENT DUE TO EXPANSION
	24.490	BRIDGE SECTION AA RELOCATED GROUND POINTS ONLY BLEND OF SECTIONS Z AND AA RIGHT ENCROACHMENT DUE TO BUILDINGS LEFT ENCROACHMENT DUE TO FLOW CONTRACTION
AA	24.514	BRIDGE SECTION AA VAN DYKE UPSTREAM FACE BLEND OF SECTIONS Z AND AA RIGHT ENCROACHMENT DUE TO BUILDINGS LEFT ENCROACHMENT DUE TO EXPANSION
	24.739	VALLEY SECTION AB RELOCATED INVERT ADJUSTED FULL EXPANSION OF AB BEFORE CONTRACTION INTO AA
AB	24.845	VALLEY SECTION AB RIGHT ENCROACHMENT DUE TO EXPANSION LEFT ENCROACHMENT DUE TO EXPANSION
	24.913	VALLEY SECTION AB RELOCATED INVERT ADJUSTED ADDED SECTION DUE TO RAPID VELOCITY CHANGE RIGHT ENCROACHMENT DUE TO EXPANSION LEFT ENCROACHMENT DUE TO EXPANSION
AC	24.981	VALLEY SECTION AC RIGHT ENCROACHMENT DUE TO HOUSE LINE LEFT ENCROACHMENT DUE TO EXPANSION

	25.118	VALLEY SECTION AC RELOCATED INVERT ADJUSTED ADDED SECTION DUE TO RAPID VELOCITY CHANGE RIGHT ENCROACHMENT DUE TO EXPANSION LEFT ENCROACHMENT DUE TO EXPANSION
AD	25.165	VALLEY SECTION AD RIGHT ENCROACHMENT DUE TO EXPANSION LEFT ENCROACHMENT DUE TO EXPANSION
	25.177	BRIDGE SECTION AE RELOCATED GROUND POINTS ONLY SECTION SKEWED FOR PERPENDICULARITY TO MASS OF FLOW
	25.178	BRIDGE SECTION AE HALL ROAD (M-59) DOWNSTREAM FACE SECTION SKEWED FOR PERPENDICULARITY TO MASS OF FLOW
AE	25.190	BRIDGE SECTION AE HALL ROAD (M-59) UPSTREAM FACE SECTION SKEWED FOR PERPENDICULARITY TO MASS OF FLOW
	25.191	BRIDGE SECTION AE RELOCATED GROUND POINTS ONLY SECTION SKEWED FOR PERPENDICULARITY TO MASS OF FLOW

JOB NAME: STERLING HEIGHTS, FIS | JOB NO. 5670 | 10 | 37

WATERCOURSE: CLINTON RIVER, MAIN BRANCH | CULVERT LOCATION: Van Dyke Road Bridge

CULVERT DESCRIPTION: Box culvert with one pier — no wingwalls at [illegible] | BY BEH | DATE 12-29-76

WEIR DESCRIPTION: Roadway with 72 foot breadth

MAX [illegible] 620.2

EL. 618.1 MIN ELT[illegible]

EL. 608.3

EL. 608.3

So = [illegible]

L = 74

Sta. 24.514 | Sta. 27.490

A = 740.3 D = 11.9

WP = 211.0 Ke = 0.5

$\frac{29.1}{R^{4/3}}$ = 5.4711 n = 0.02491

CALCULATIONS AND COMMENTS:

- Manning's n -

$$n = \left(\frac{(.03^2 \times 46.5 \times 2) + (.02^2 \times [illegible].5 \times 2) + (.03^2 \times 25)}{211} \right)^{1/2}$$

$n = 0.02491$

- XKOR -

$XKOR = 1 + K_e + \frac{29.1}{R^{4/3}} n^2 L$

$XKOR = 1 + 0.5 + (5.4711)(.02491)^2 74$

$XKOR = 1.751$

- COFQ -

Assume initial H=1.0 then

$\frac{H}{L} = \frac{1}{72} = .0134 < .15$

so use

$H = 1.0 \Rightarrow COFQ = 3.03$

Johnson & Anderson, Inc.
Consulting Engineers
P. O. Box 1166 2300 Dixie Highway Pontiac, Michigan 48056

HYDRAULIC STRUCTURAL DATA

CODED 9-15-76 WLR

Code No. 10-67

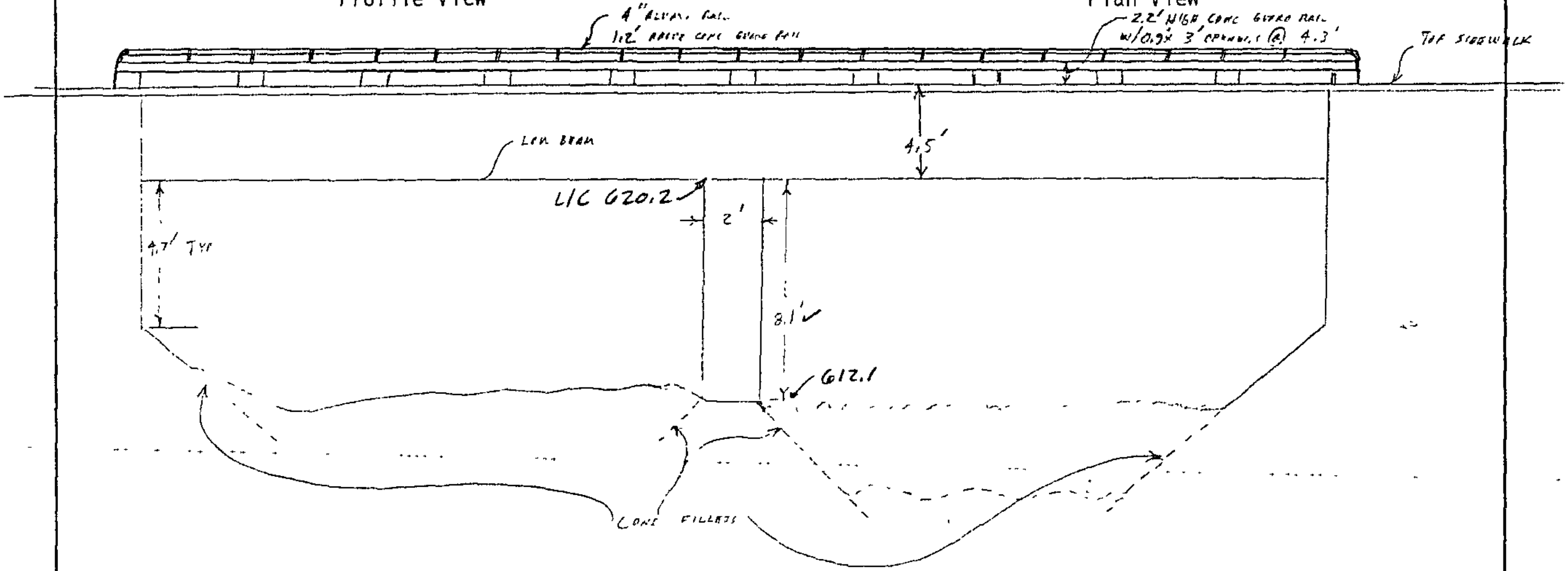
Job Name: Sterling Heights F.J.S.		By: P. Shunck
Date: 10 September 1976	Feature: Van Dyke Road Bridge	Water Course: Clinton River

Remarks:
A. Bottom - Clay
B. Photos: B-19 U/S Face Right; B-20 U/S Face Left; B-21 U/S; B-22 Below; B-23 Left; B-24 Down/S; B-25 Down/S Face Right; B-26 Down/S Face Left
C. Bridge Dedication Plate: "Macomb Co Rd. Comm. 1971"

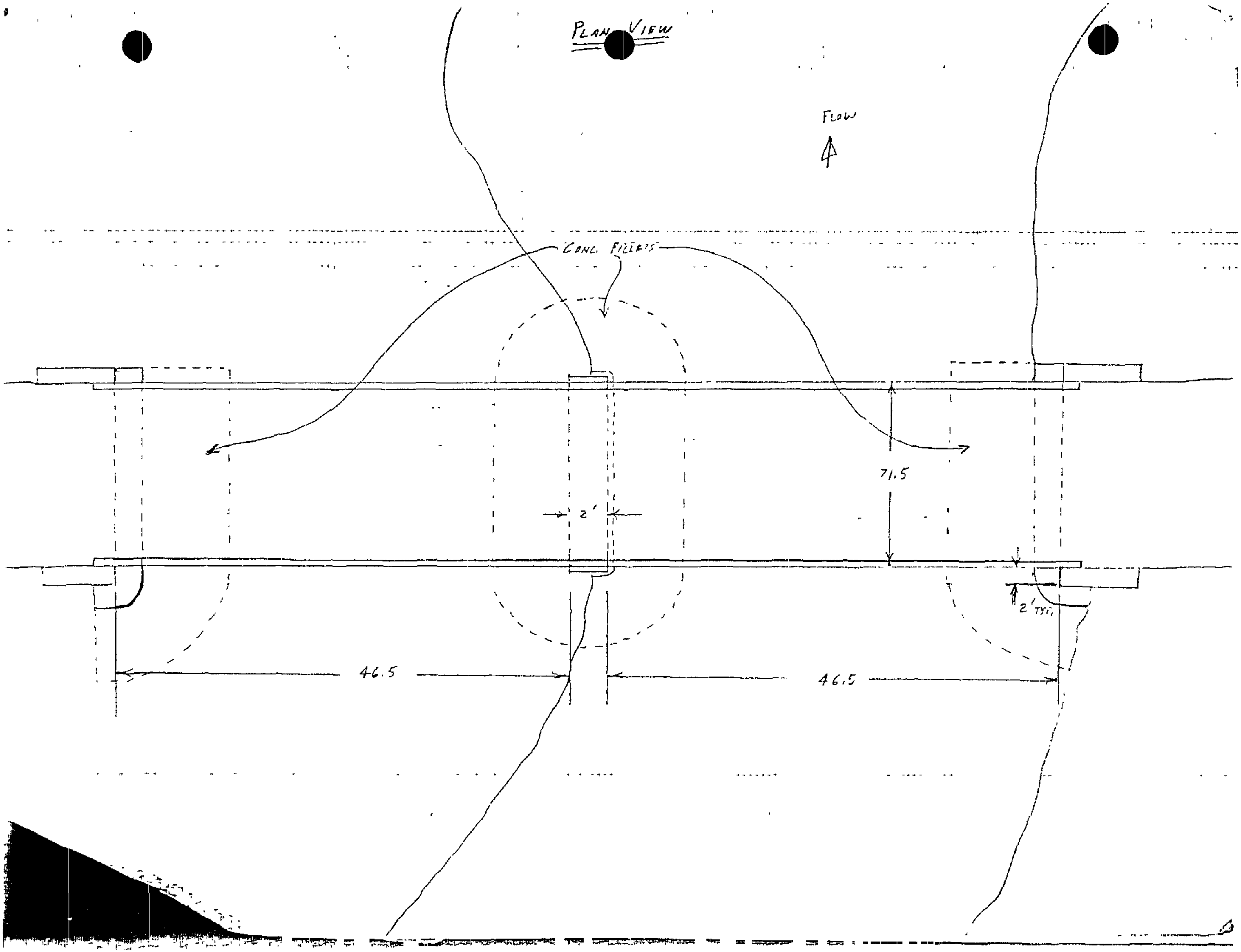
Width of Piers: 2'	Pier Shape: Rounded below fillet, Flat above	No. of Piers: 1	Area:
Water Elevation: 609.9	Length: 95'	Width of Deck: 71.5' & 72'	Skew: 90°

FIELD SKETCH

Profile View ~~Plan View~~



PLAN VIEW



X1	[illegible].49	48	1000.00	1095.00	73.[illegible]	73.00	73.00	1.000		

BT	33.00	0.00	626.80	0.00	100.00	624.10	0.00	200.00	622.80	0.00

BT	300.00	622.40	0.00	400.00	622.80	0.00	500.00	622.90	0.00	600.00
BT	622.90	0.00	700.00	623.10	0.00	800.00	623.70	0.00	900.00	623.90
BT	0.00	1000.00	624.50	620.00	1046.50	624.60	620.20	1048.50	624.60	620.20
BT	1095.00	624.50	620.00	1200.00	623.20	0.00	1300.00	623.40	0.00	1400.00
BT	623.00	0.00	1500.00	622.60	0.00	1600.00	621.50	0.00	1700.00	621.40
BT	0.00	1800.00	620.70	0.00	1900.00	620.90	0.00	2000.00	620.80	0.00
BT	2100.00	620.80	0.00	2200.00	620.40	0.00	2300.00	620.20	0.00	2400.00
BT	620.00	0.00	2500.00	619.50	0.00	2600.00	619.30	0.00	2700.00	619.30
BT	0.00	2800.00	619.00	0.00	2900.00	618.70	0.00	2935.00	618.10	0.00

GR	626.80	0.00	619.50	20.00	618.60	100.00	617.60	200.00	618.20	300.00
GR	617.60	400.00	615.80	500.00	616.70	530.00	622.00	540.00	622.80	600.00
GR	623.10	700.00	623.60	800.00	623.00	900.00	620.00	1000.00	615.30	1000.00
GR	613.80	1003.00	614.20	1012.00	615.50	1046.50	620.20	1046.50	620.20	1048.50
GR	612.10	1048.50	608.30	1056.00	608.30	1060.00	608.30	1070.00	608.30	1080.00
GR	608.30	1083.00	616.10	1095.00	620.00	1095.00	616.10	1095.00	620.90	1114.00
GR	622.30	1200.00	620.00	1300.00	619.70	1400.00	619.00	1500.00	619.00	1600.00
GR	617.60	1700.00	618.20	1800.00	618.00	1900.00	619.80	2000.00	618.50	2100.00
GR	620.20	2200.00	619.50	2300.00	619.10	2400.00	620.00	2500.00	619.60	2600.00
GR	619.70	2700.00	619.20	2800.00	618.10	2935.00				

*****************LISTING OF TOP AND BOTTOM SECTIONS OF ORIFICE******************

1000.00 620.00 1046.50 620.20 1048.50 620.20 1095.00 620.00

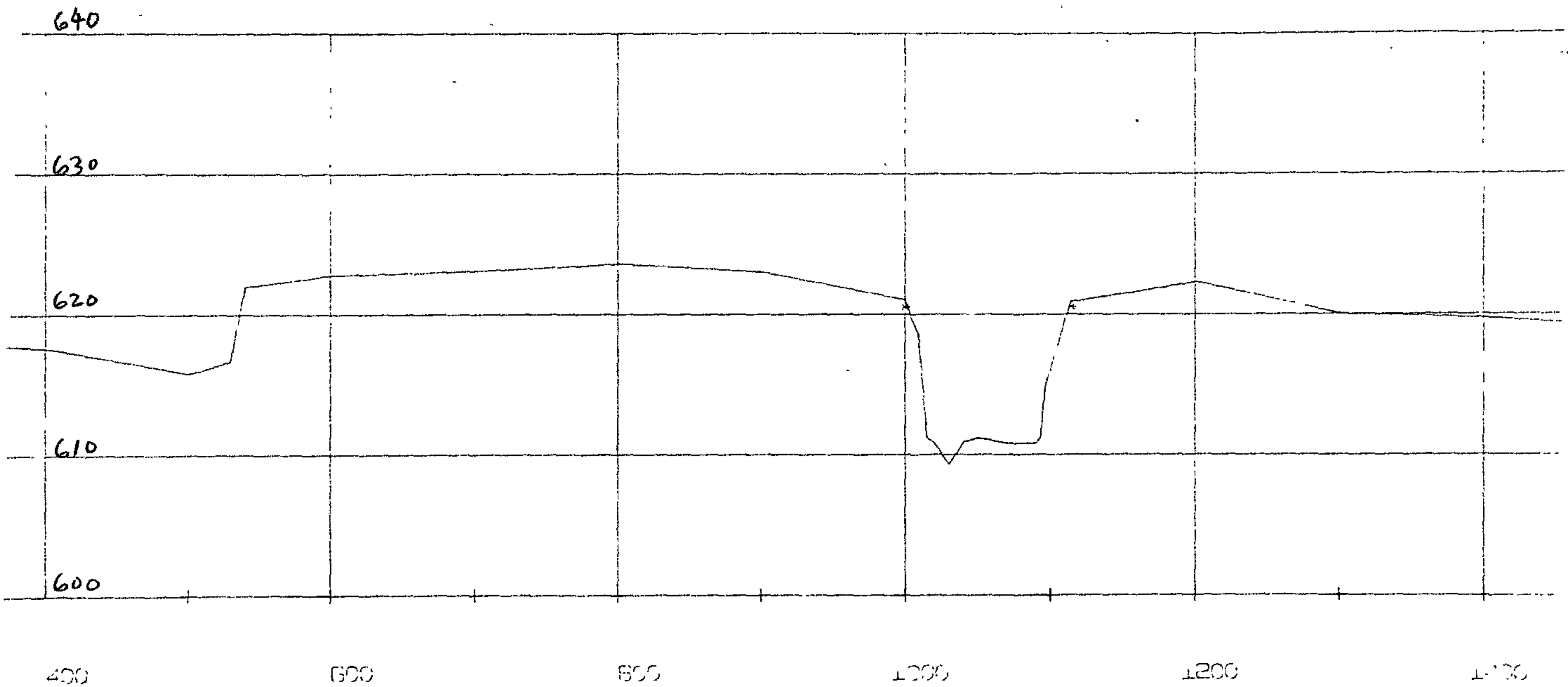
1000.00 620.00 1000.00 615.30 1003.00 613.80 1012.00 614.20 1046.50 615.50
1046.50 620.20 1048.50 620.20 1048.50 612.10 1056.00 608.30 1060.00 608.30
1070.00 608.30 1080.00 608.30 1083.00 608.30 1095.00 616.10 1095.00 620.00
1095.00 616.10

************** LISTING OF COORDINATES OF ORIFICE*********************

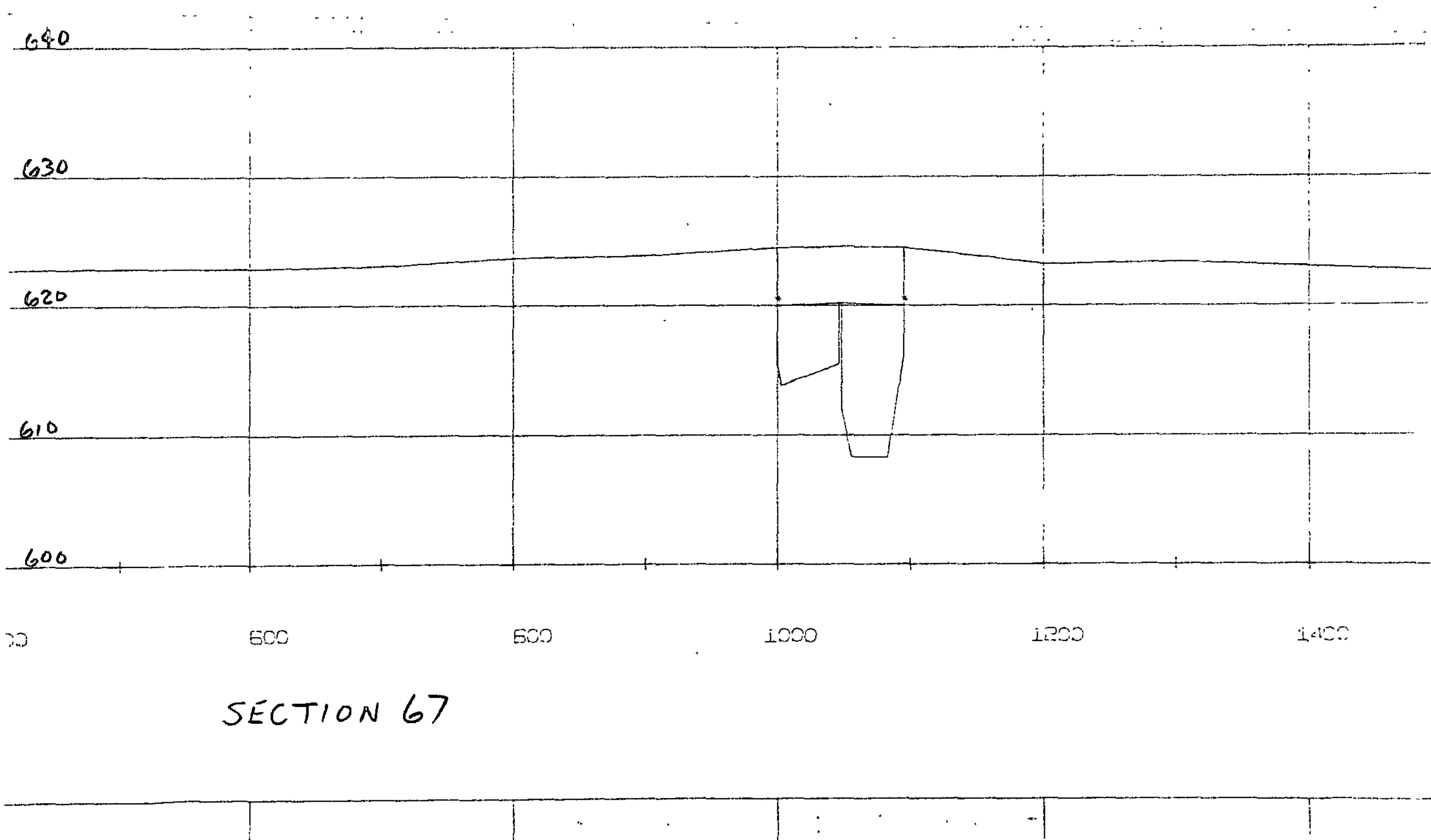
1000.00 620.00 1046.50 620.20 1048.50 620.20 1095.00 620.00 1095.00 620.00

1095.00	616.10	1083.00	608.30	1060.00	608.30	1070.00	608.30	1060.00	608.30
1056.00	608.30	1048.50	612.10	1048.50	620.20	1[illegible].50	620.20	1046.50	615.50
1012.00	614.20	1003.00	613.80	1000.00	615.30	1000.00	620.00		

ORIFICE AREA 740.3 WETTED PERIMETER 211.0 29.1/P**1.333 5.4711



SECTION 66



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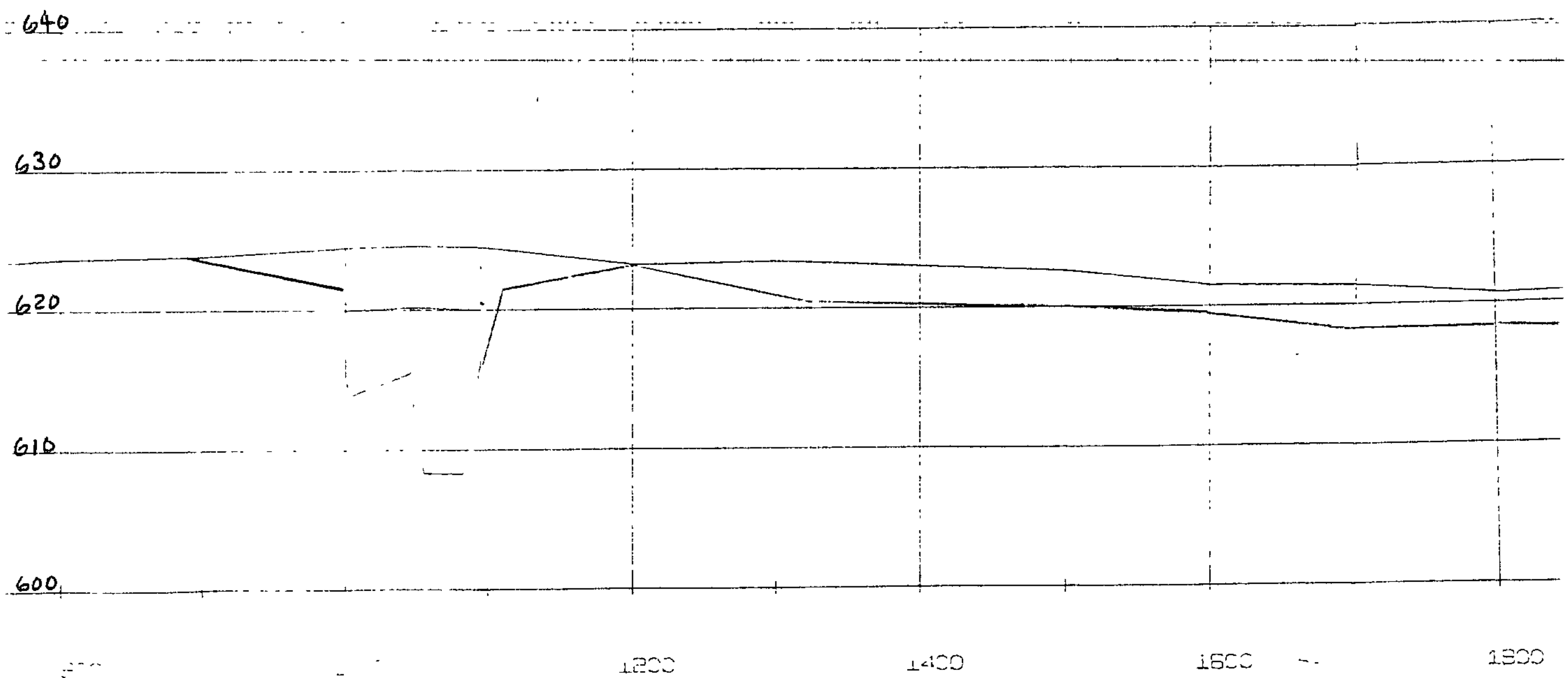

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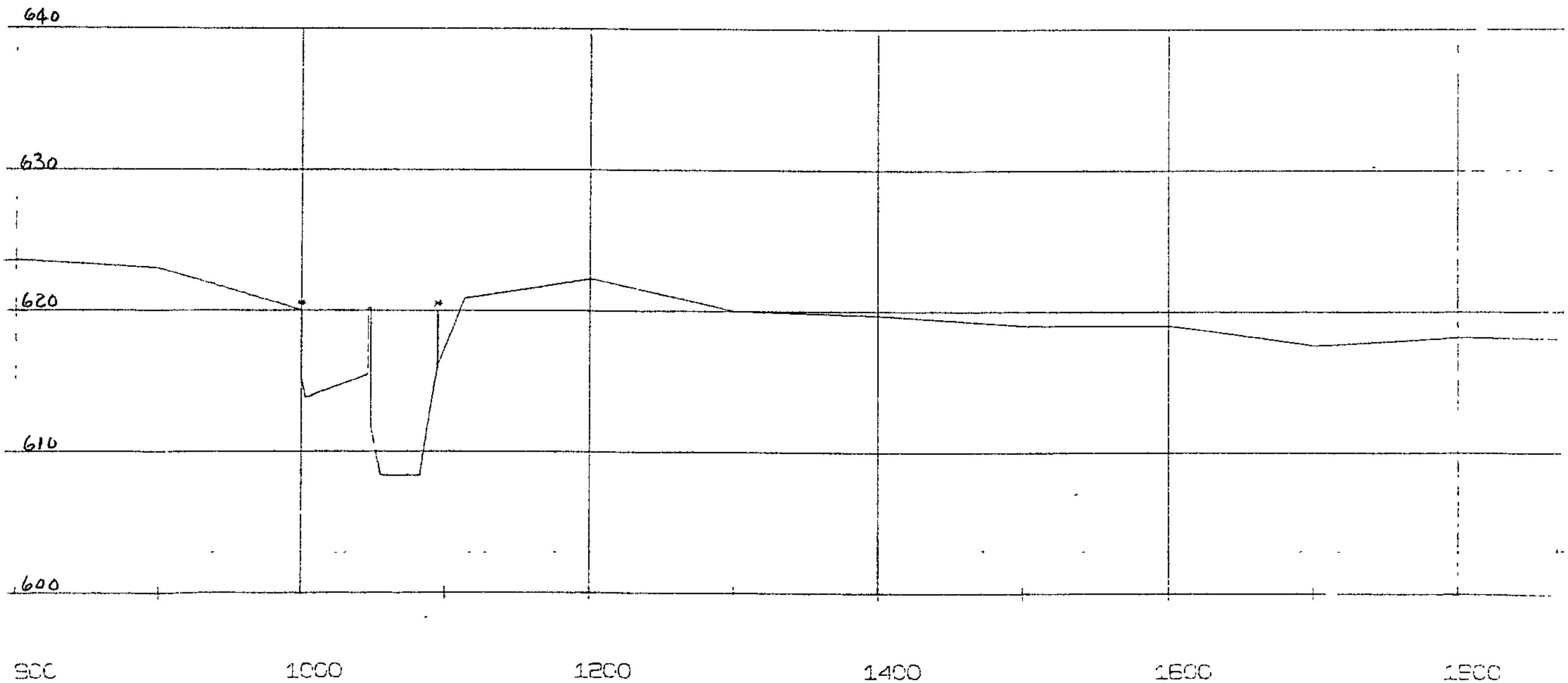

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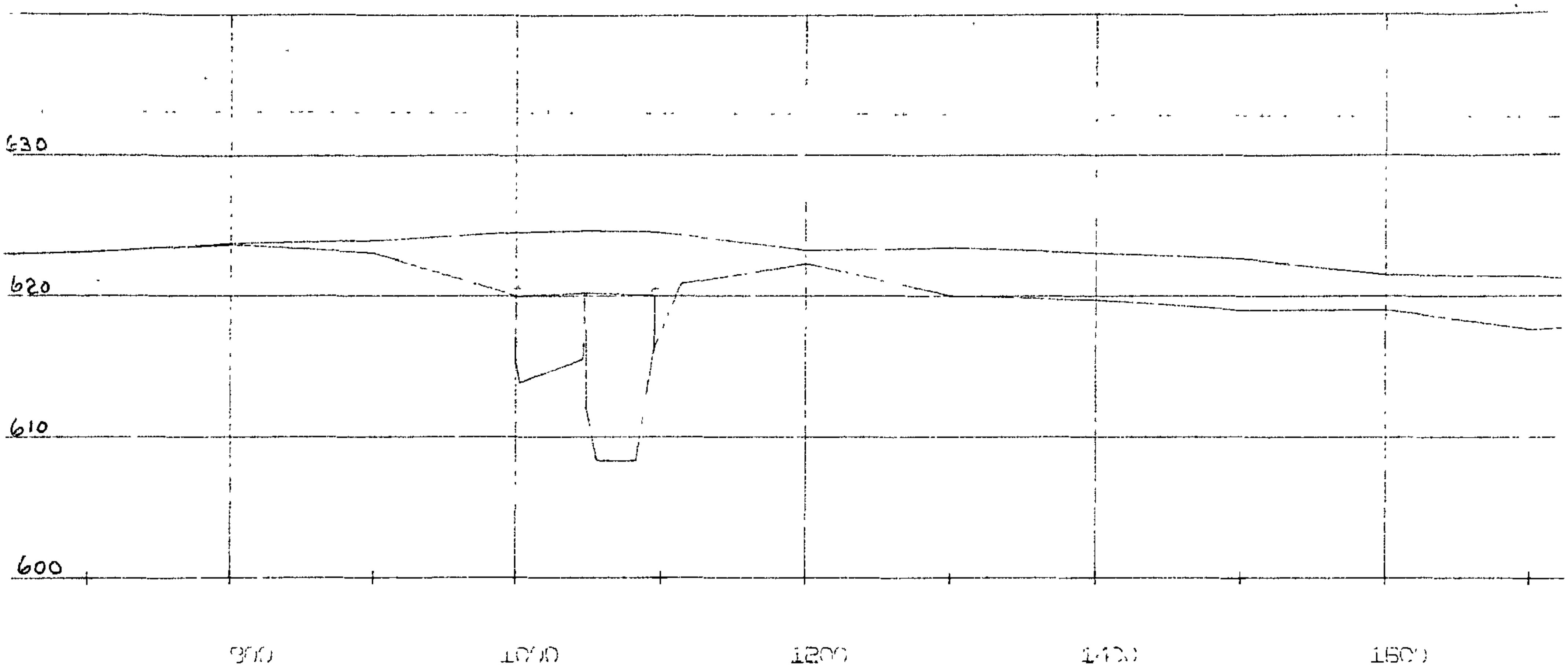


SECTION 24.514

CLINTON TOWNSHIP FLOOD INSURANCE STUDY
CLINTON RIVER SPILLWAY JWA NO. 5670-02
PROJECT MANAGER WILLIAM ROSSOW

FIELD SECTION	SECNO	DESCRIPTION
A	1.155	VALLEY SECTION A
B	1.579	VALLEY SECTION B
	1.695	BRIDGE SECTION C RELOCATED GROUND POINTS ONLY SECTION SKEWED FOR PERPENDICULARITY TO MASS OF FLOW
	1.696	BRIDGE SECTION C HARPER AVE. DOWNSTREAM FACE SECTION SKEWED FOR PERPENDICULARITY TO MASS OF FLOW
C	1.706	BRIDGE SECTION C HARPER AVE. UPSTREAM FACE SECTION SKEWED FOR PERPENDICULARITY TO MASS OF FLOW
	1.707	BRIDGE SECTION C RELOCATED GROUND POINTS ONLY SECTION SKEWED FOR PERPENDICULARITY TO MASS OF FLOW
D	1.988	VALLEY SECTION D LEFT ENCROACHMENT DUE TO HIGH GROUND
	2.026	VALLEY SECTION D RELOCATED INVERT ADJUSTED SECTION SKEWED IN PROPORTION TO DISTANCE BETWEEN SECTION 1.988 AND 2.063 LEFT ENCROACHMENT DUE TO HIGH GROUND RIGHT ENCROACHMENT USED FOR DIVISION OF FLOW RUNS
	2.063	VALLEY SECTION D RELOCATED INVERT ADJUSTED SECTION SKEWED TO GIVE APPROXIMATE TOP WIDTH FOR MODELING EXPANSION OF FLOW THROW WEIR RIGHT ENCROACHMENT USED FOR DIVISION OF FLOW RUNS LEFT ENCROACHMENT DUE TO HIGH GROUND
	2.064	EXISTING CONTROL WEIR LEFT ENCROACHMENT DUE TO HIGH GROUND
	8.717	VALLEY SECTION MANUFACTURED FROM CLINTON RIVER SECTION K AND CLINTON RIVER SPILLWAY SECTION D ENCROACHMENTS FOR FLOW CONTRACTION

JOB NAME: STERLING HEIGHTS, FIS JOB NO. 5670 | 10 | 56B

WATERCOURSE: CLINTON RIVER, MAIN BRANCH CULVERT LOCATION:

CULVERT DESCRIPTION: Box culvert with piers but no wingwalls nor headwalls

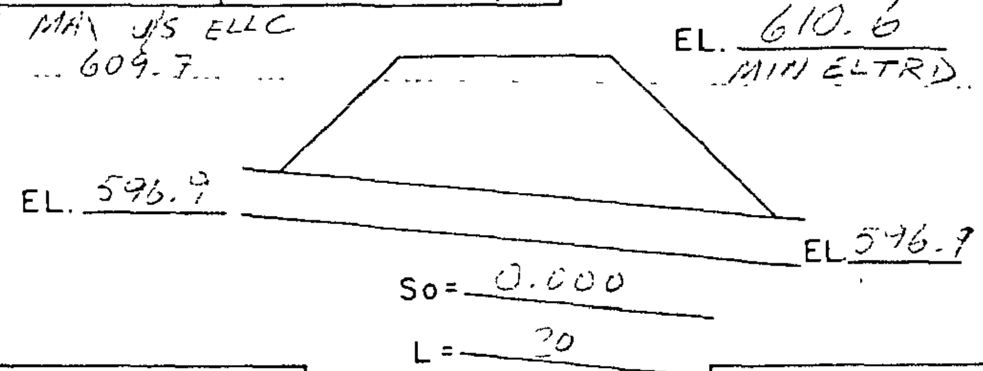
BY BEH DATE 12-29-76

WEIR DESCRIPTION: Broken slants - huge holes in girder back - 18' breadth

A = 486.4 D = 12.8

WP = 189.5 Ke = 0.5

$\frac{29.1}{R^{4/3}}$ = 8.3046 n = .02841



Sta. 21.846 Sta. 21.843

CALCULATIONS AND COMMENTS:

- Manning's n -

$$n = \left(\frac{(.035^2 \times 57)+(.025^2 \times 9.5 \times 6)+(.025^2 \times 9.5 \times 2)+.025^2(57)}{189.5}\right)^{1/2}$$

$n = .02841$

- XKOR -

$XKOR = 1 + Ke + \frac{29.1}{R^{4/3}} n^2 L$

$XKOR = 1 + 0.5 + (8.3046)(.02841)^2 20$

$XKOR = 1.6341$

- COFQ -

Assume initial H = 1.0

then $\frac{H}{L} = \frac{1}{18} = .055 < .15$

therefore use

H = 1.0 => COFQ = 3.03

Johnson & Anderson, Inc.
Consulting Engineers
P O Box 1166 2300 Dixie Highway Pontiac, Michigan 48056

HYDRAULIC STRUCTURAL DATA

EXTRA BRIDGE

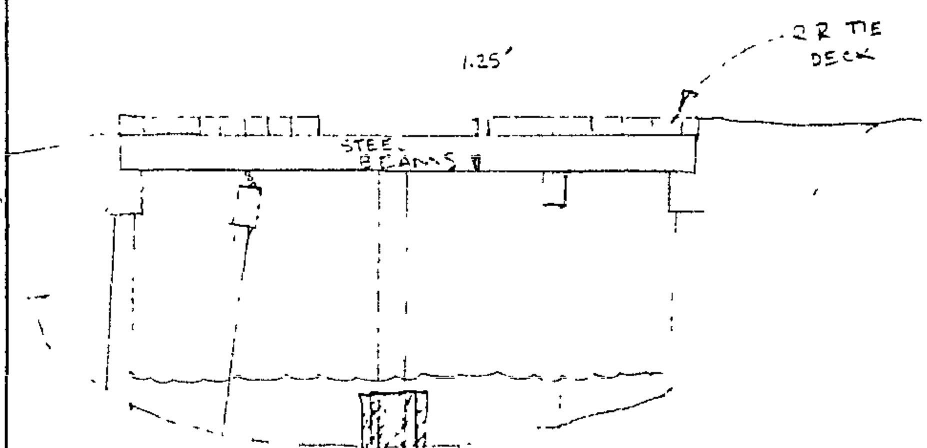
CODED 11/10/76
BEH

Code No. [illegible]

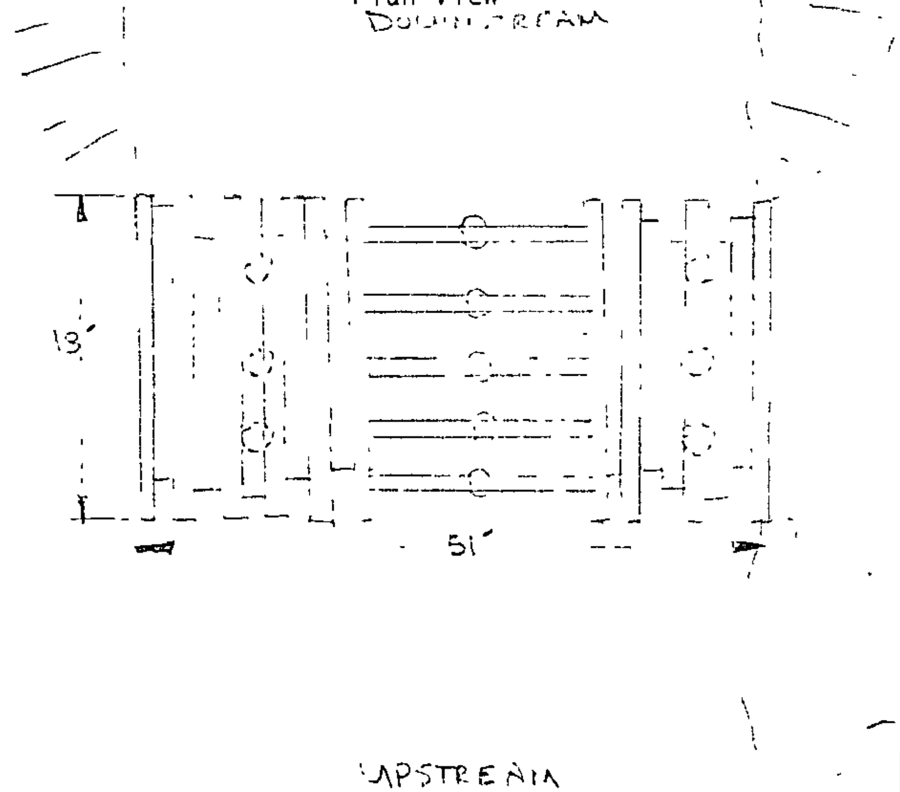
Job Name: STERLING HEIGHTS F.I.S.			By: [illegible]
Date: 11-9-76	Feature: [illegible]		Water Course: CLINTON RIVER
Remarks: PIERS: [illegible]			
[illegible]			
Width of Piers: [illegible]	Pier Shape: ROUND	No. of Piers: 11	Area:
Water Elevation: UPSTREAM [illegible]	Length: 51'	Width of Deck: 13'	Skew: 90°

FIELD SKETCH

Profile View



Plan View



X1	21.82	38	100.00	151.00	100.00	100.00	100.00	1.000		

BT	21.00	0.00	606.20	0.00	23.00	606.20	0.00	74.00	610.60	0.00

BT	100.00	611.80	609.70	106.00	611.90	609.70	122.00	611.90	609.70	122.00
BT	611.00	609.70	130.00	611.00	609.70	135.00	611.00	609.70	135.00	611.90
BT	609.70	142.00	611.90	609.70	146.00	612.40	609.70	151.00	612.20	609.70
BT	200.00	612.20	0.00	200.00	610.60	0.00	250.00	610.40	0.00	300.00
BT	611.10	0.00	400.00	613.50	0.00	480.00	615.20	0.00	482.00	615.90
BT	0.00	600.00	617.30	0.00						

GR	606.10	0.00	606.10	23.00	606.00	74.00	605.00	100.00	609.70	100.00
GR	598.60	100.00	597.50	106.00	598.80	112.00	609.70	112.00	609.70	114.00
GR	597.90	114.00	596.90	118.00	597.10	122.00	601.10	122.00	601.30	125.00
GR	609.70	125.00	609.70	127.00	601.40	127.00	601.10	130.00	598.50	130.00
GR	598.90	135.00	599.60	140.00	609.70	140.00	609.70	142.00	599.00	142.00
GR	599.70	146.00	600.60	151.00	609.70	151.00	603.20	151.00	607.20	170.00
GR	606.80	200.00	606.10	250.00	605.30	300.00	604.50	400.00	605.30	422.00
GR	615.20	480.00	615.90	482.00	617.30	600.00				

******************LISTING OF TOP AND BOTTOM SECTIONS OF ORIFICE******************

100.00	609.70	106.00	609.70	122.00	609.70	122.00	609.70	130.00	609.70
135.00	609.70	135.00	609.70	142.00	609.70	146.00	609.70	151.00	609.70

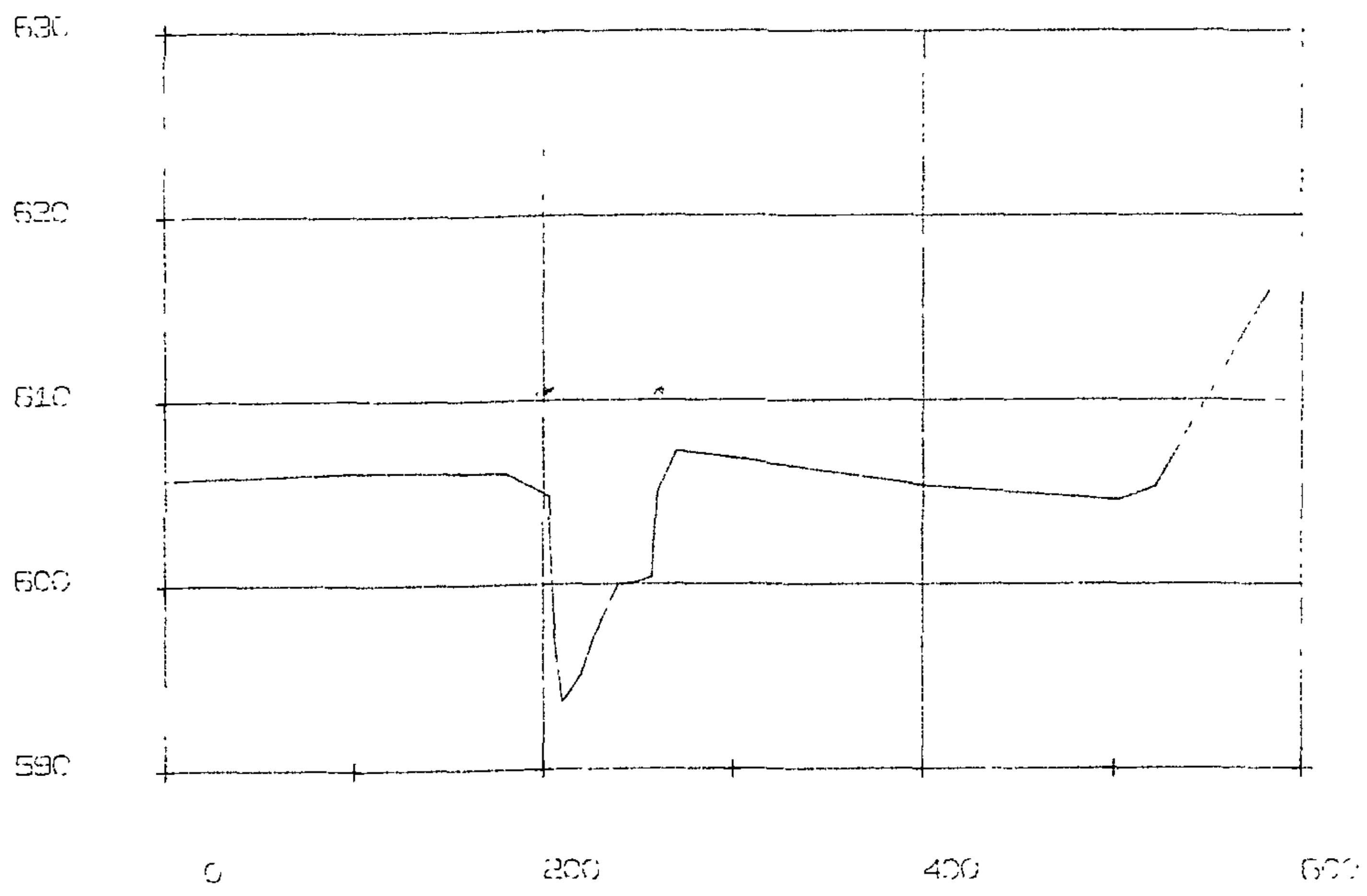
100.00	605.00	100.00	609.70	100.00	598.60	106.00	597.50	112.00	598.60
112.00	609.70	114.00	609.70	114.00	597.90	118.00	596.90	122.00	597.10
122.00	601.10	125.00	601.30	125.00	609.70	127.00	609.70	127.00	601.40
130.00	601.10	130.00	598.50	135.00	598.90	140.00	599.60	140.00	609.70
142.00	609.70	142.00	599.00	146.00	599.70	151.00	600.60	151.00	609.70
151.00	603.20								

************** LISTING OF COORDINATES OF ORIFICE*********************

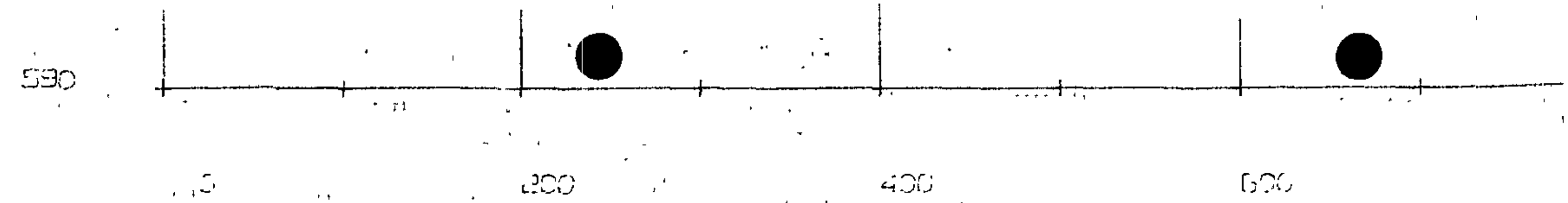
100.00	609.70	106.00	609.70	122.00	609.70	122.00	609.70	130.00	609.70
135.00	609.70	135.00	609.70	142.00	609.70	146.00	609.70	151.00	609.70
151.00	609.70	151.00	600.60	146.00	599.70	142.00	599.00	142.00	609.70

140.00	609.70	140.00	599.60	135.00	598.90	130.00	598.50	130.00	601.10
127.00	601.40	127.00	609.70	125.00	609.70	[illegible]	601.30	122.00	601.10
122.00	597.10	118.00	596.90	114.00	597.90	114.00	609.70	112.00	609.70
112.00	598.80	106.00	597.50	100.00	598.60	100.00	609.70	100.00	609.70

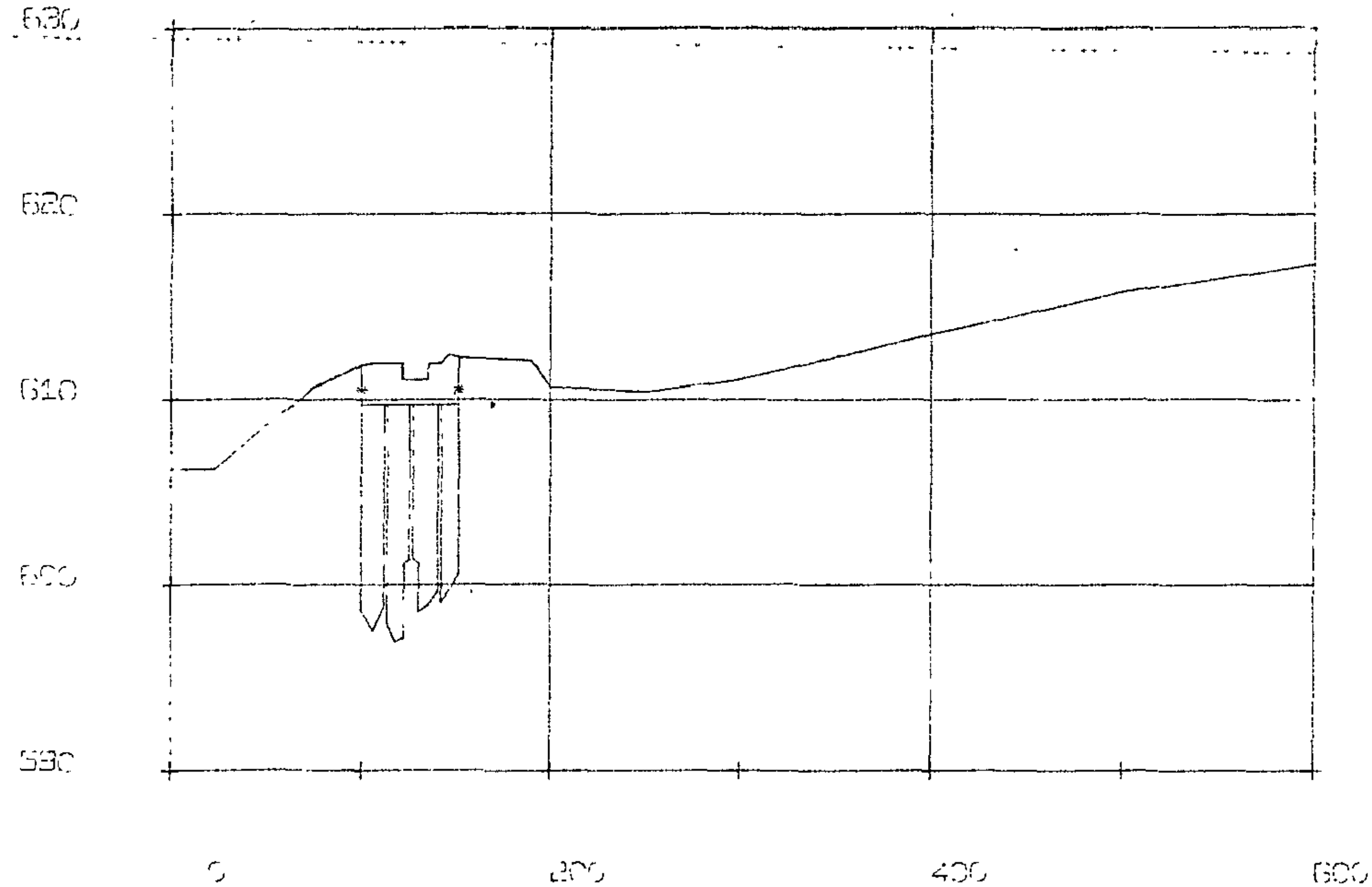
ORIFICE AREA 486.4 WETTED PERIMETER 189.5 29.1/R**1.333 8.3046



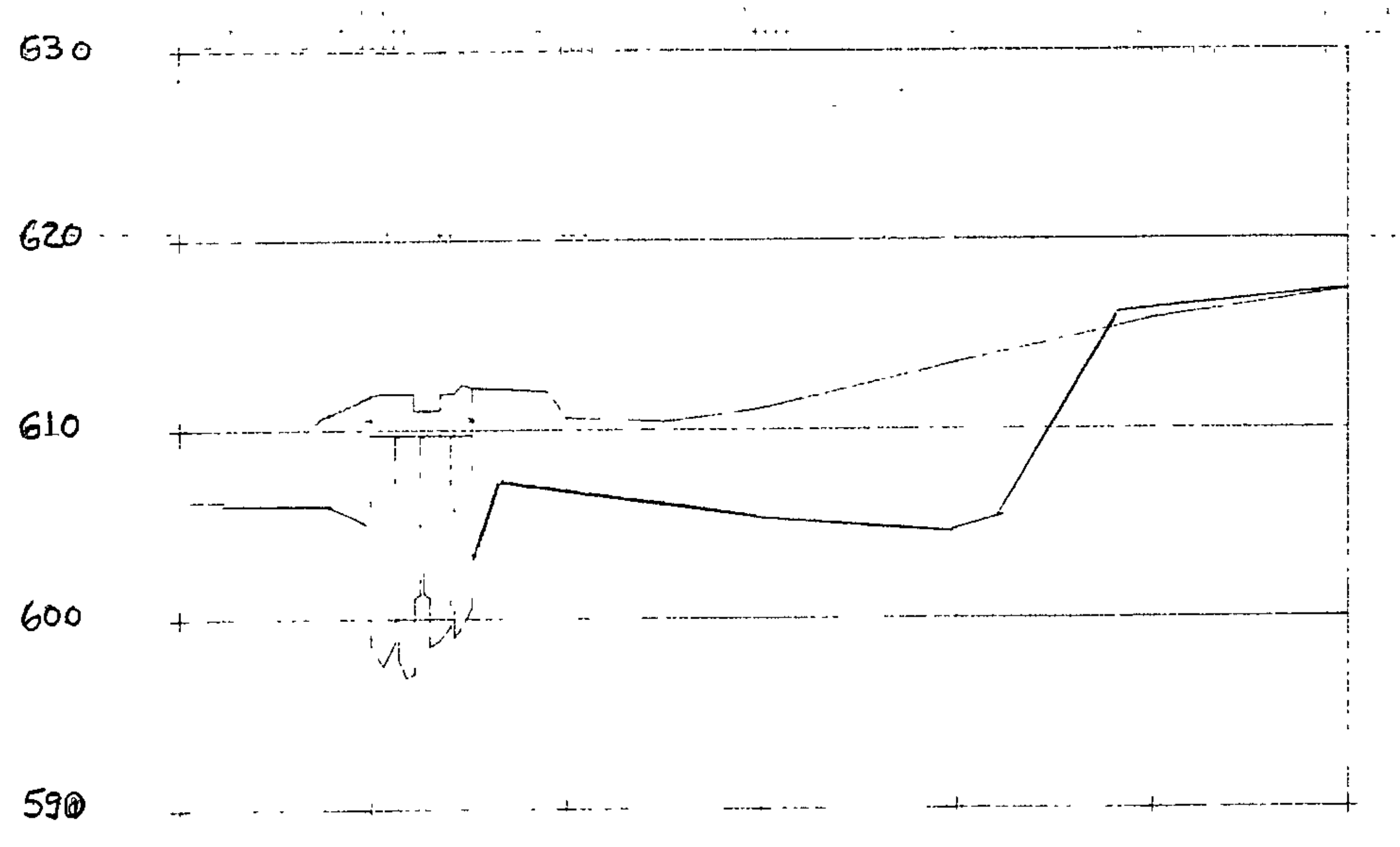
SECTION 56.1



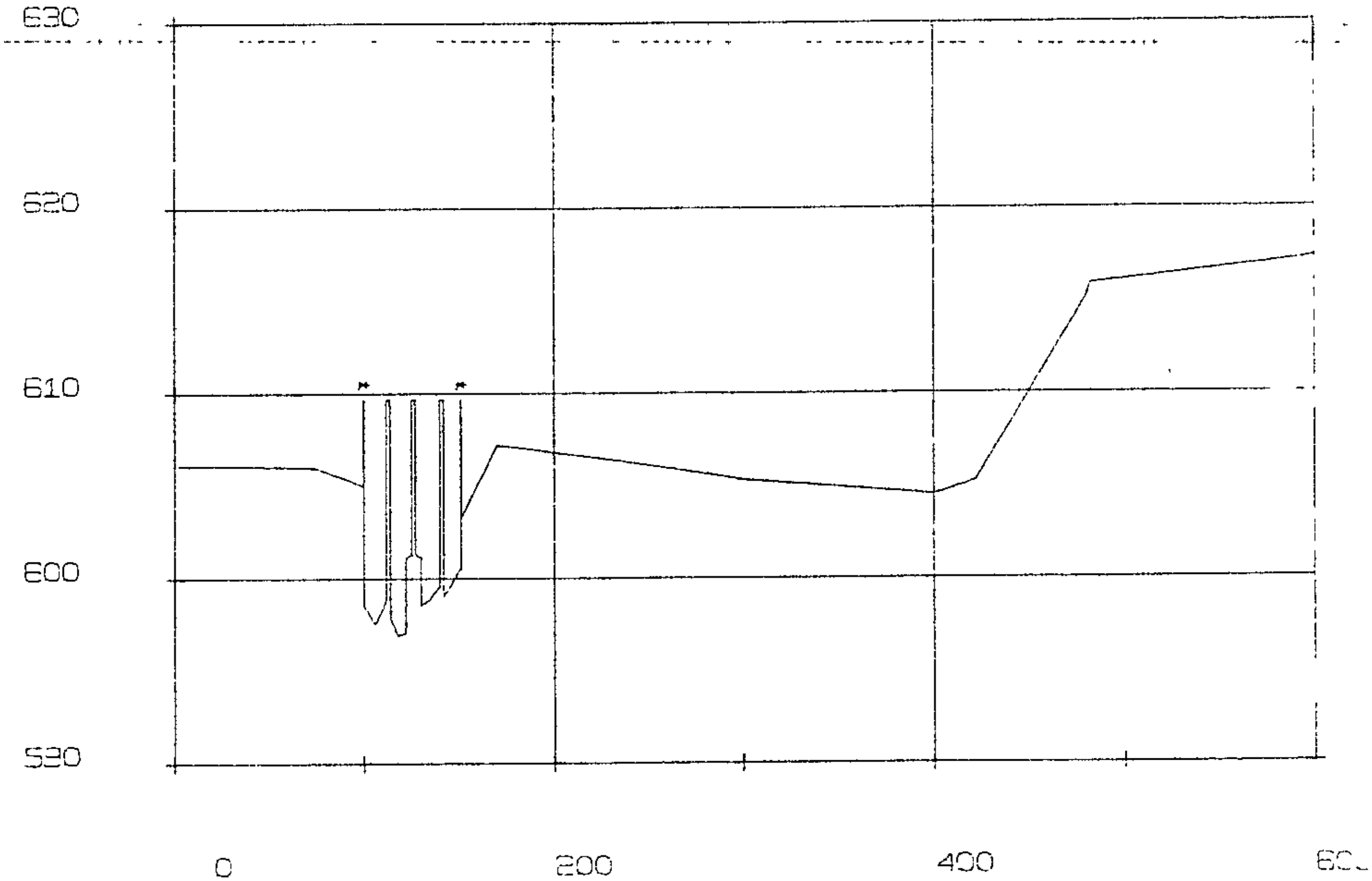
SECTION 57



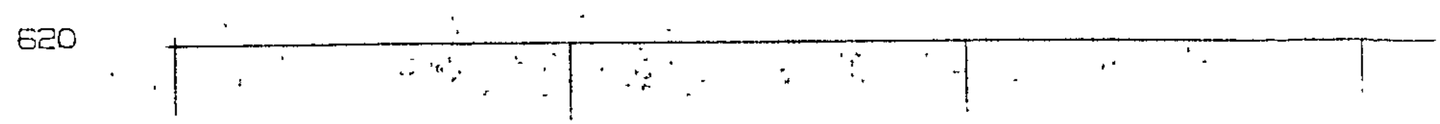
SECTION 56.5

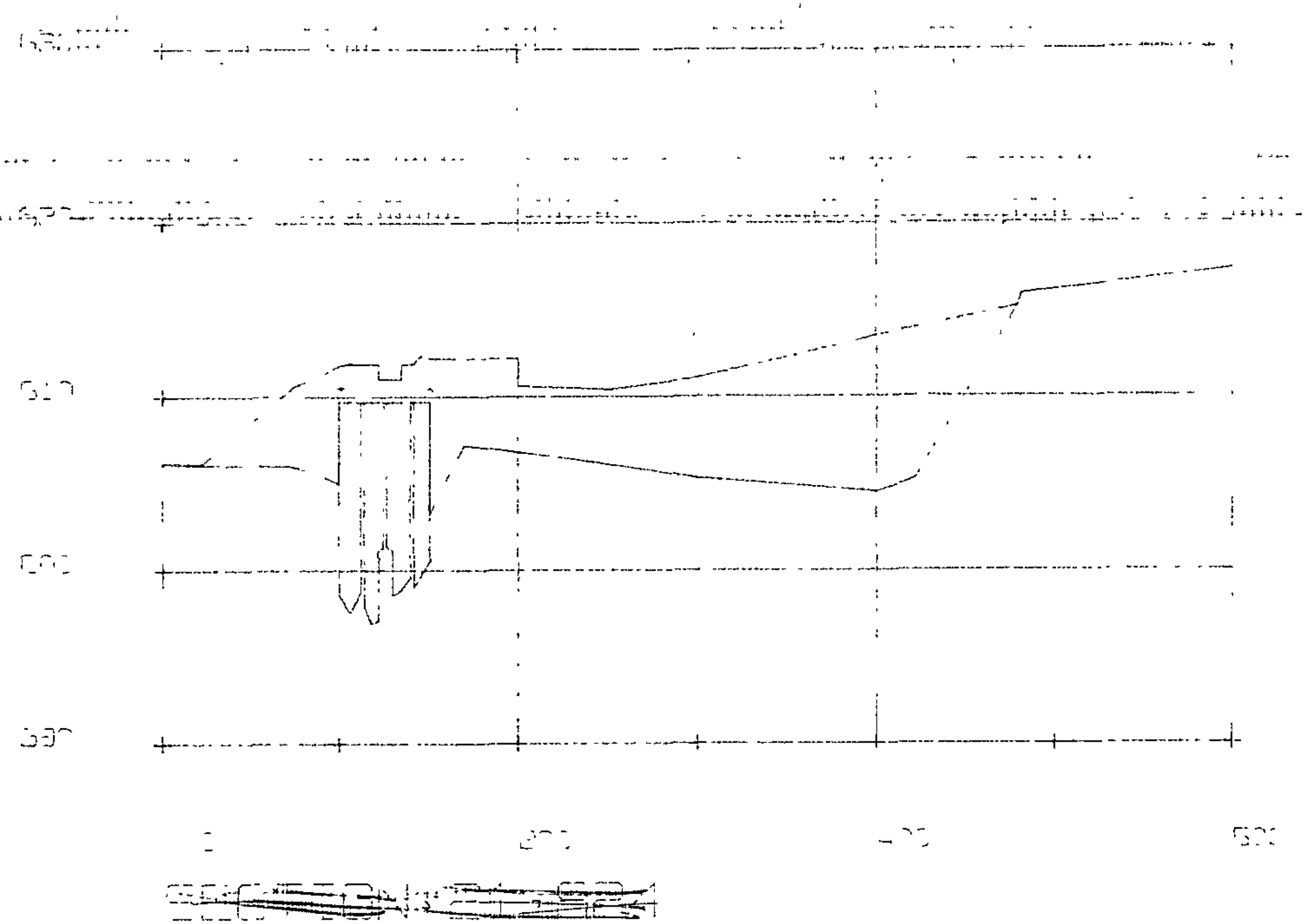


SECTION 56.5



SECTION 21.843





SECTION 21.846

JOB NAME: STERLING HEIGHTS, FIS — JOB NO. 5570 | 10 | 47B

WATERCOURSE: CLINTON RIVER, MAIN BRANCH — CULVERT LOCATION: Golf course bridge

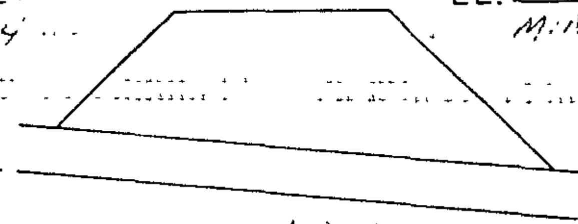
CULVERT DESCRIPTION: Box culvert with 2 square piers — no wingwalls or headwalls

BY BEH — DATE 12-29-76

WEIR DESCRIPTION: Planks with 14 foot breadth

MAX U/S ELEV 598.4

EL. 598.7
MIN. EL. 7??



EL. 586.0

EL. 586.

So = 0.0000

L = 16

Sta. 18.488 — Sta. 18.455

A = 726.6 — D = 12.4

WP = 211.4 — Ke = 0.5

$\frac{29.1}{R^{4/3}}$ = 5.6240 — n = .02545

CALCULATIONS AND COMMENTS:

- Manning's n -

$$n = \left(\frac{(.03^2 \times 65) + (.02^2 \times 78) + .02^2 \times 7 \times 4) + (.03^2 \times 40)}{211.4} \right)^{1/2}$$

$n = .02545$

- XKOR -

$$XKOR = 1 + K_e + \frac{29.1}{R^{4/3}} n^2 L$$

$$XKOR = 1 + 0.5 + (5.6240)(.02545)^2 16$$

XKOR = 1.5583

- COFQ -

Assume initial H = 1.0

then $\frac{H}{L} = \frac{1}{14} = .0714 < .15$

therefore use

H = 1.0 => COFQ = 3.07

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P O Box 1166 2300 Dixie Highway Pontiac, Michigan 48056

HYDRAU[illegible]C STRUCTURAL DATA

CODED 11/16/76 BEH

Code No. 10-47B

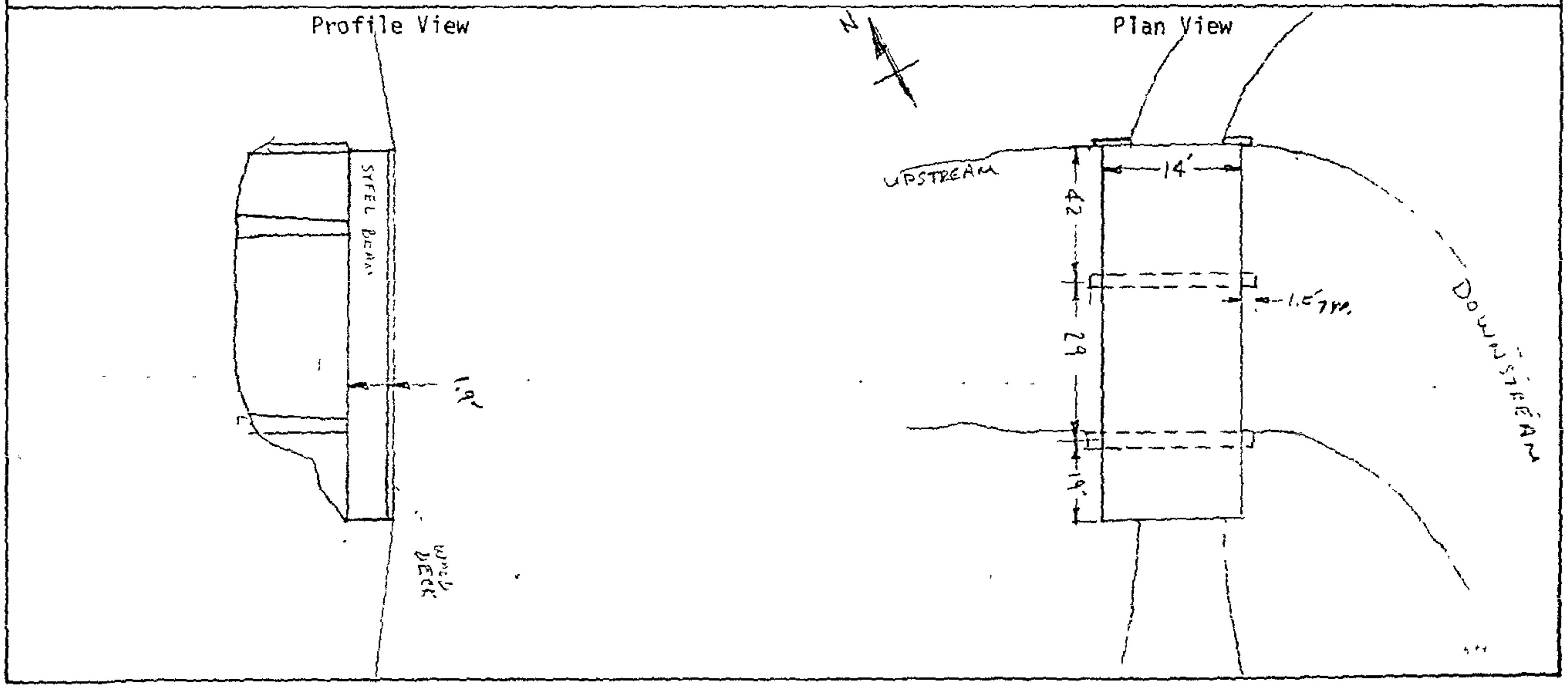
Job Name: STERLING HEIGHTS F.I.S.		By: T.R. Pruyt
Date: 11-15-76	Feature: Golf Course Bridge	Water Course: Clinton River

Remarks: Bottom: CLAY & SAND Broken concrete on slopes 0' to 3'

PHOTOS: CRC-29 up/s face CRC-31 Right CRC-33 down/stream
CRC-30 up/stream CRC-32 Left CRC-34 down/s face

Width of Piers: 2' at top 3' at btm.	Pier Shape: SQUARE	No. of Piers: 2	Area:
Water Elevation: 590.6	Length: 90'	Width of Deck: 14'	Skew: —

FIELD SKETCH



```
X1     16.47        39    500.00    590.00     82.00     82.00     82.00     1.000

BT     17.00      0.00    603.40      0.00    100.00    603.50      0.00    200.00    601.80      0.00

BT    300.00    600.90      0.00    400.00    599.40      0.00    486.00    599.80      0.00    500.00
BT    599.90    598.40    540.50    600.30    598.40    543.50    600.30    598.40    569.00    600.30
BT    598.40    572.50    600.30    598.40    590.00    599.70    598.20    623.00    598.70      0.00
BT    700.00    598.80      0.00    800.00    598.80      0.00    900.00    598.50      0.00   1000.00
BT    598.40      0.00

GR    603.40      0.00    603.50    100.00    601.80    200.00    600.90    300.00    599.40    400.00
GR    599.20    486.00    591.90    500.00    598.40    500.00    591.90    500.00    588.40    509.00
GR    586.20    515.00    586.00    520.00    586.30    525.00    587.10    530.00    587.60    535.00
GR    589.20    540.50    598.40    540.50    598.40    543.50    587.30    543.50    588.70    550.00
GR    589.20    555.00    589.50    560.00    589.70    565.00    589.70    569.00    598.40    569.00
GR    598.40    572.50    592.40    572.50    594.30    578.00    597.60    590.00    598.20    590.00
GR    596.80    590.00    596.70    600.00    596.90    623.00    597.00    663.00    596.40    700.00
GR    595.00    600.00    594.00    669.00    594.40    900.00    595.40   1000.00
******************LISTING OF TOP AND BOTTOM SECTIONS OF ORIFICE******************

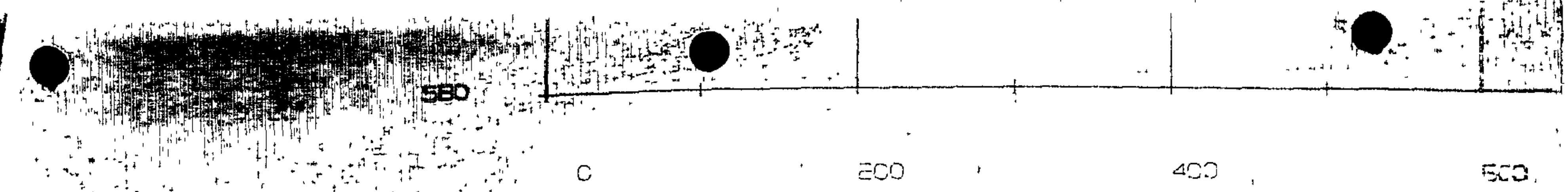
 500.00  598.40  540.50  598.40  543.50  598.40  569.00  598.40  572.50  596.40
 590.00  598.20

 500.00  591.90  500.00  598.40  500.00  591.90  509.00  588.40  515.00  586.20
 520.00  586.00  525.00  586.30  530.00  587.10  535.00  587.60  540.50  589.20
 540.50  598.40  543.50  599.40  543.50  587.30  550.00  588.70  555.00  589.20
 560.00  589.50  565.00  589.70  569.00  589.70  569.00  598.40  572.50  598.40
 572.50  592.40  578.00  594.30  590.00  597.60  590.00  598.20  590.00  596.80
************* LISTING OF COORDINATES OF ORIFICE*********************

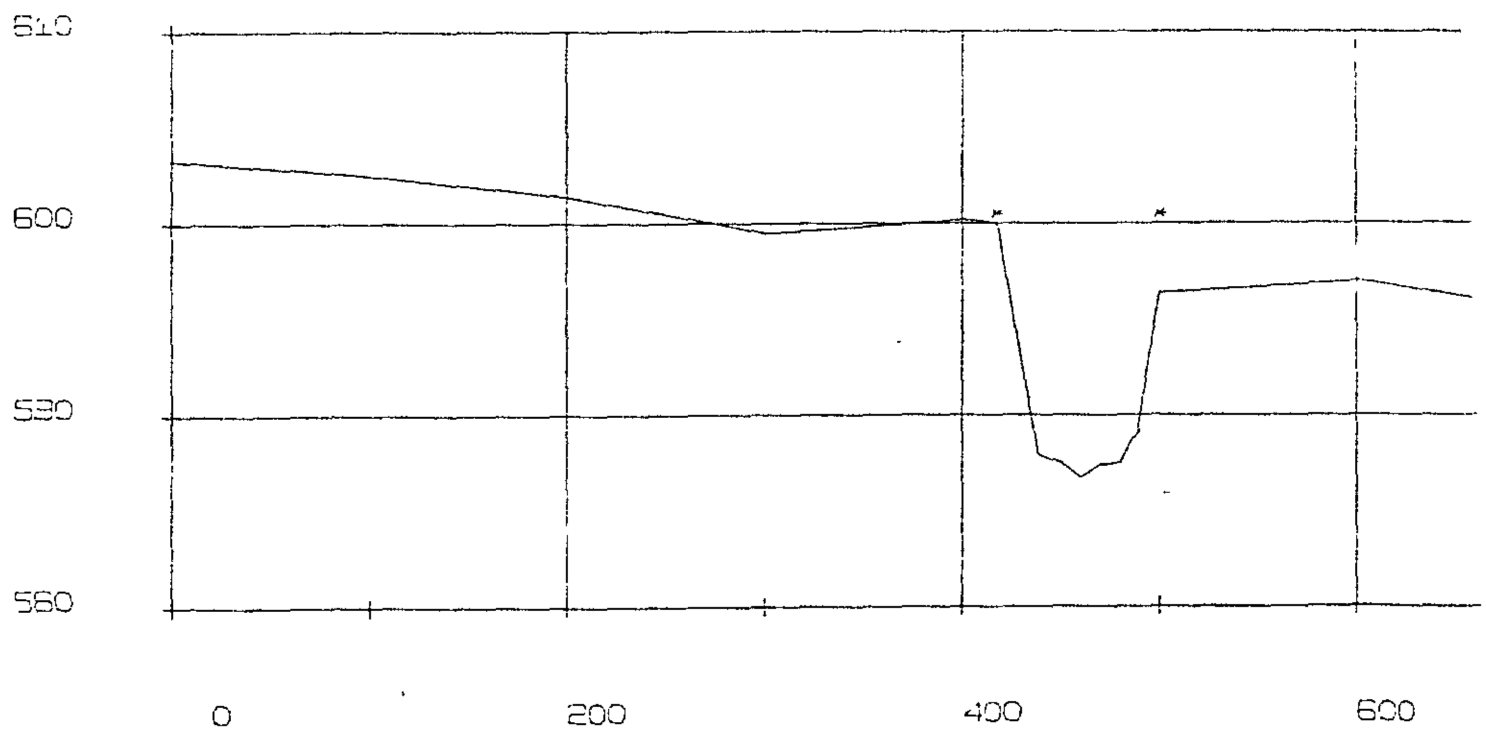
 500.00  598.40  540.50  598.40  543.50  598.40  569.00  598.40  572.50  598.40
 590.00  598.20  590.00  598.20  590.00  597.60  578.00  594.30  572.50  592.40
 572.50  598.40  569.00  598.40  569.00  589.70  565.00  589.70  560.00  589.50
 555.00  589.20  550.00  589.70  543.50  587.30  543.50  598.40  540.50  598.40
 540.50  589.20  535.00  587.60  530.00  587.10  525.00  586.30  520.00  586.00
```

515.00 586.20 509.00 588.40 500.00 591.90 500.00 598.40 500.00 598.40

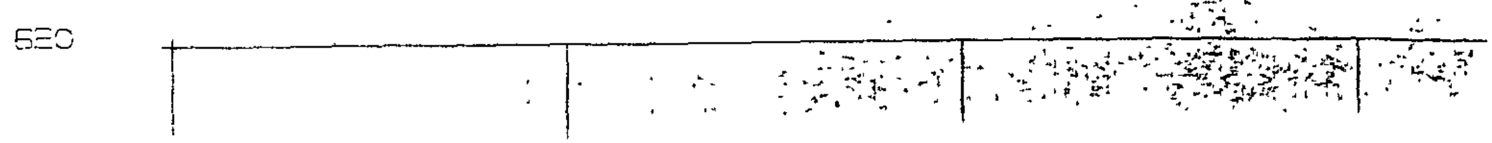
ORIFICE AREA 726.6 WETTED PERIMETER 211.4 29.1/R**1.333 5.6240

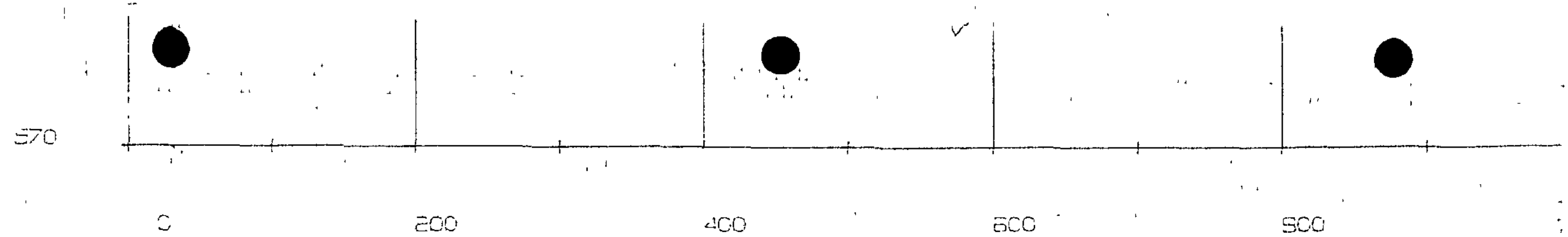


SECTION 47.5

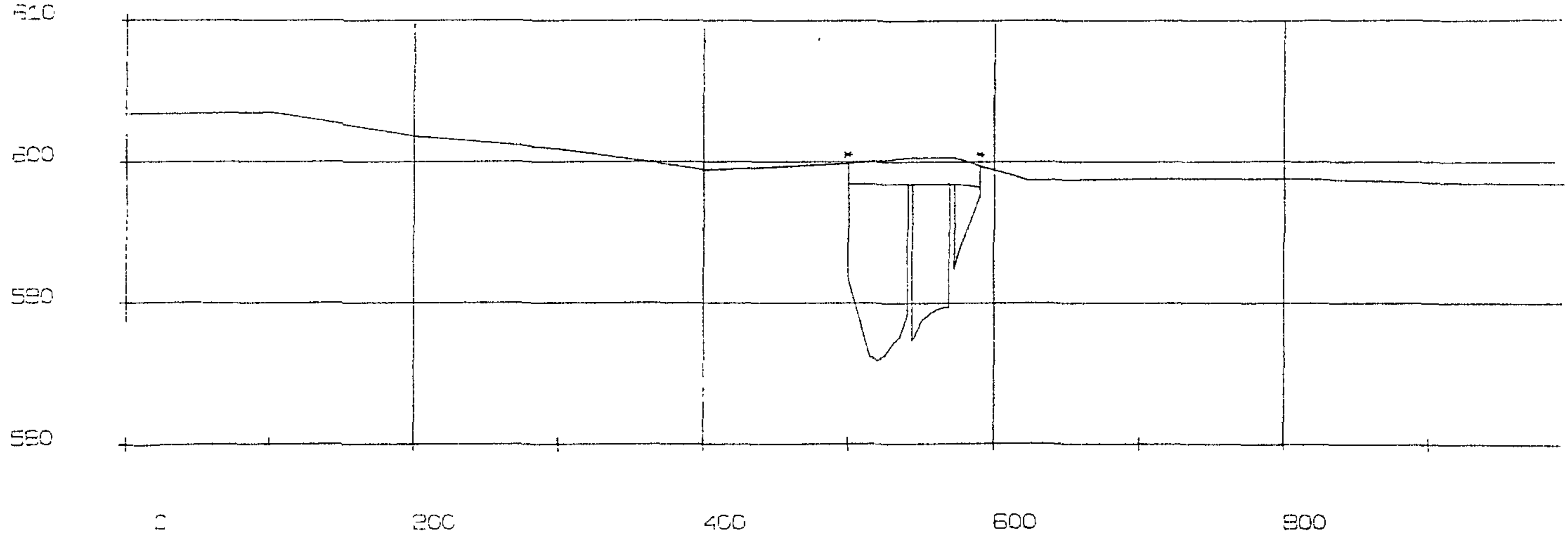


SECTION 47.3



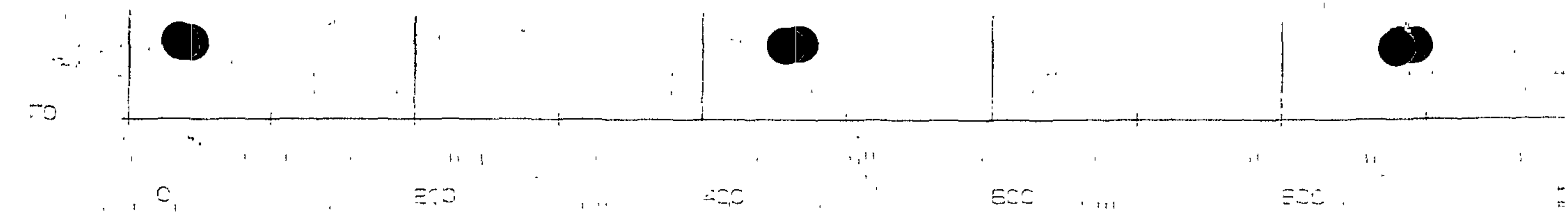


SECTION 11275

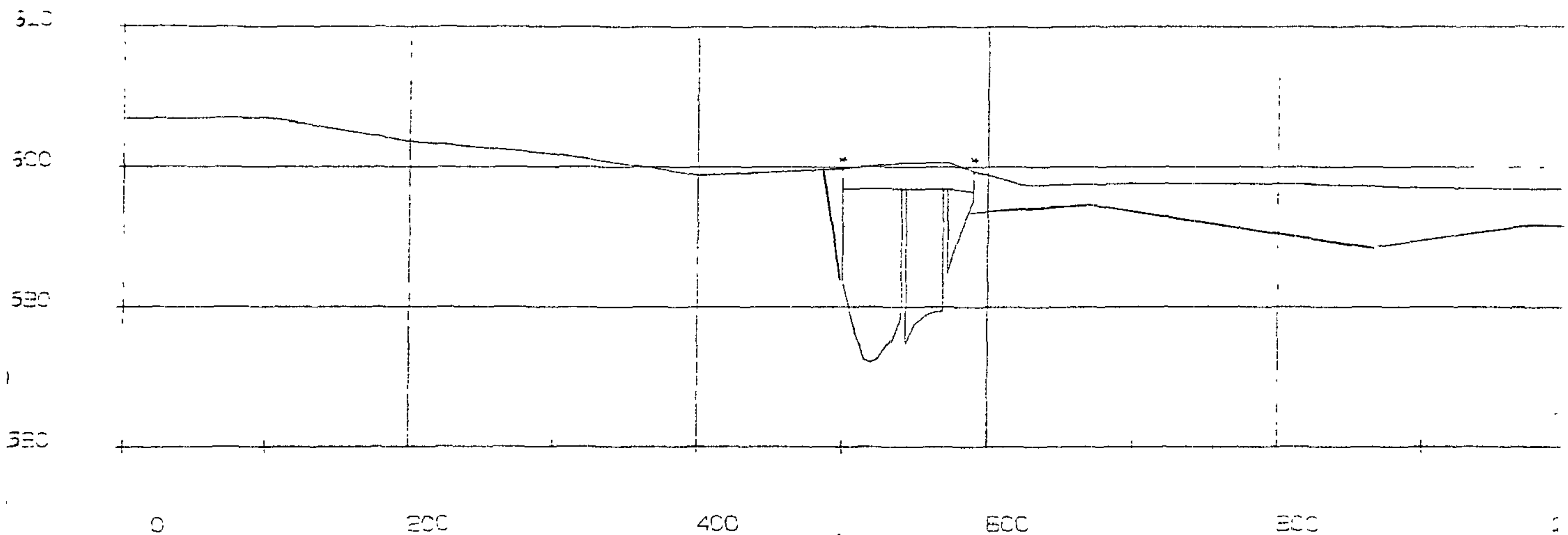


~~SECTION 16.465~~

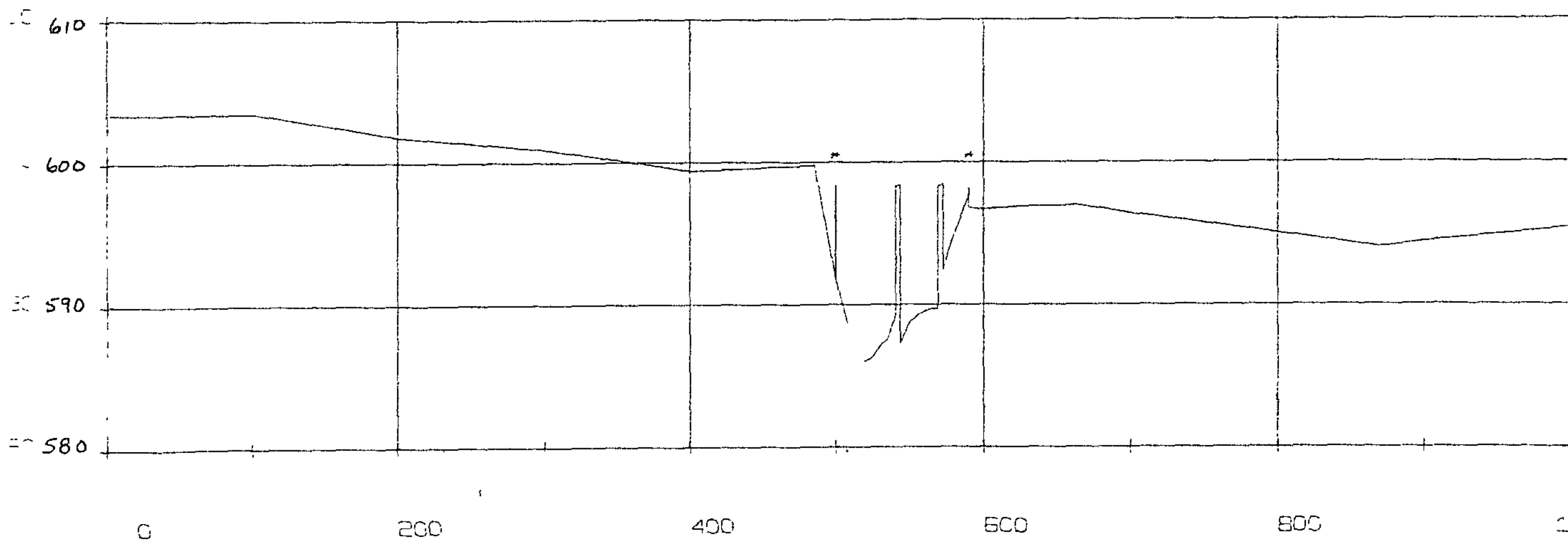
SECTION 47.5



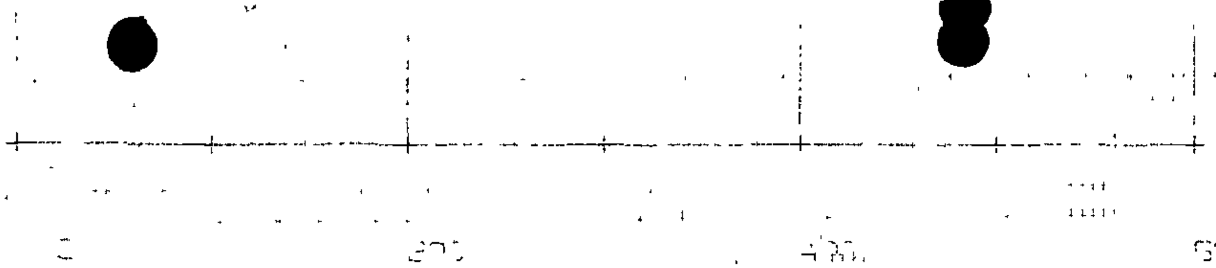
SECTION 11275



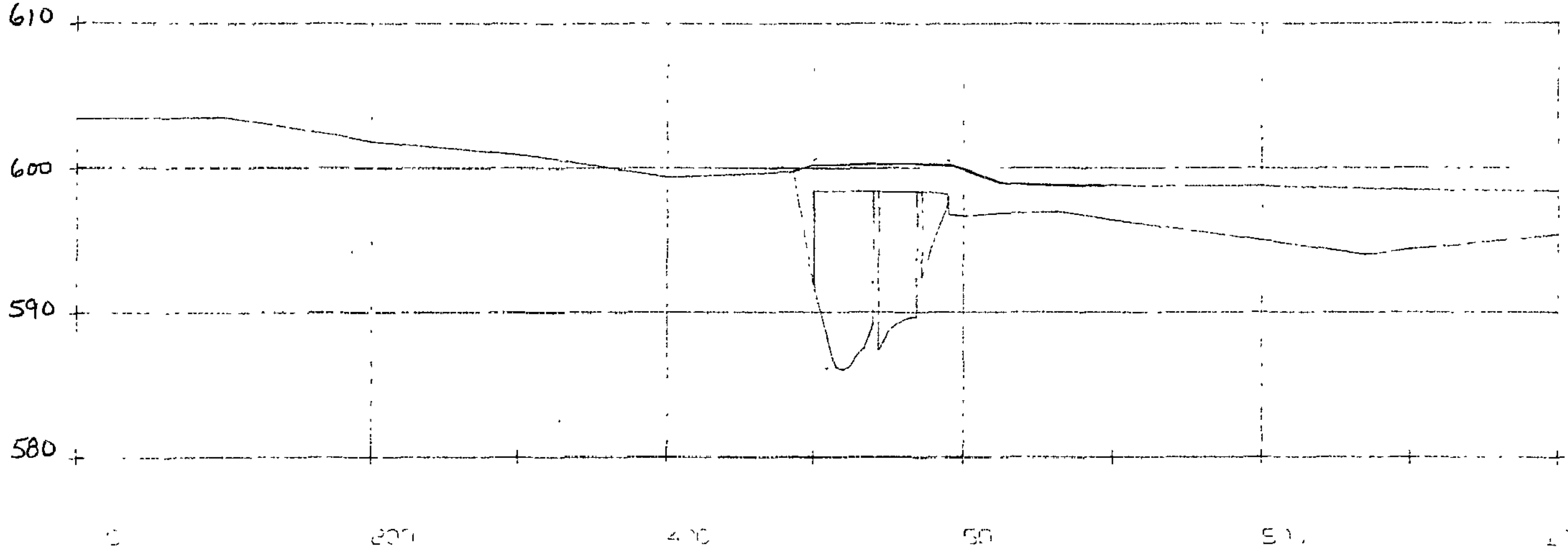
~~SECTION 48.485~~
SECTION 47.5



SECTION 18+485



SECTION 21.924



~~SECTION 15.470~~

SECTION 18.488

JOB NAME: CLINTON TOWNSHIP, FIS	JOB NO.	5670	02	44

WATERCOURSE: CLINTON RIVER, MAIN BRANCH

CULVERT LOCATION: HAYES ROAD BRIDGE

CULVERT DESCRIPTION: CONCRETE HIGHWAY BRIDGE

W/ TH HEADWALLS EXTENDED PERPENDICULAR TO EMBANKMENT

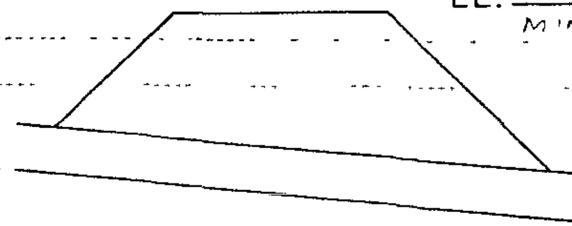
BY BEH

DATE 12/30/76

WEIR DESCRIPTION: PAVED ROADWAY WITH 28 FOOT BREADTH

MAX U/S ELEV 597.0

EL. 597.5 MIN ELEV



EL. 583.5

EL. 583.5

A = 908.7

D = 13.5

WP = 234.2

Ke = 0.7

$\frac{29.1}{R^{4/3}}$ = 4.7858

n = .0346

So = 0.0000

L = 30

Sta. 17109

Sta. 17,102

CALCULATIONS AND COMMENTS:

– MANNING'S n –

$n = \left(\frac{.015^2 \times 134.2 + .05^2 \times 100}{234.2}\right)^{\frac{1}{2}}$

n = .0346

– XKOR –

$XKOR = 1 + Ke + \frac{29.1\, n^2 L}{R^{4/3}}$

$XKOR = 1 + 0.7 + (.0346)^2 (4.7858) 30$

XKOR = 1.872

– COFQ –

ASSUME H = 1.0 FOR INITIAL RUN

$\frac{H}{L} = \frac{1}{28} = .036 < .15$

∴ USE H = 1.0

C = 3.04

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P. O. Box 1166 2300 Dixie Highway Pontiac, Michigan 48056

HYDRA[illegible]C STRUCTURAL DATA

CODED 9-16-76 WCR

Code No. 02-44

Job Name: CLINTON TWP. F.I.S.		By: P. SHUNCK
Date: 9 SEPTEMBER 1976	Feature: HAYES ROAD BRIDGE	Water Course: CLINTON RIVER

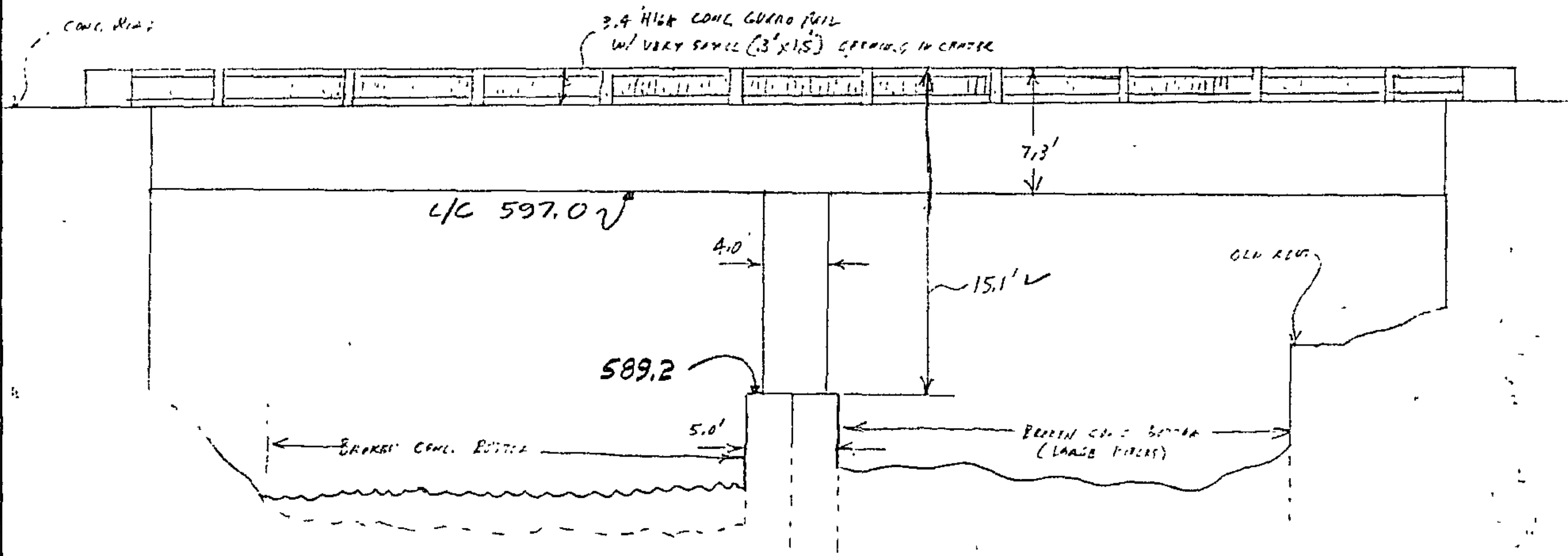
Remarks: BOTTOM: BROKEN CONC. (1' DIA)

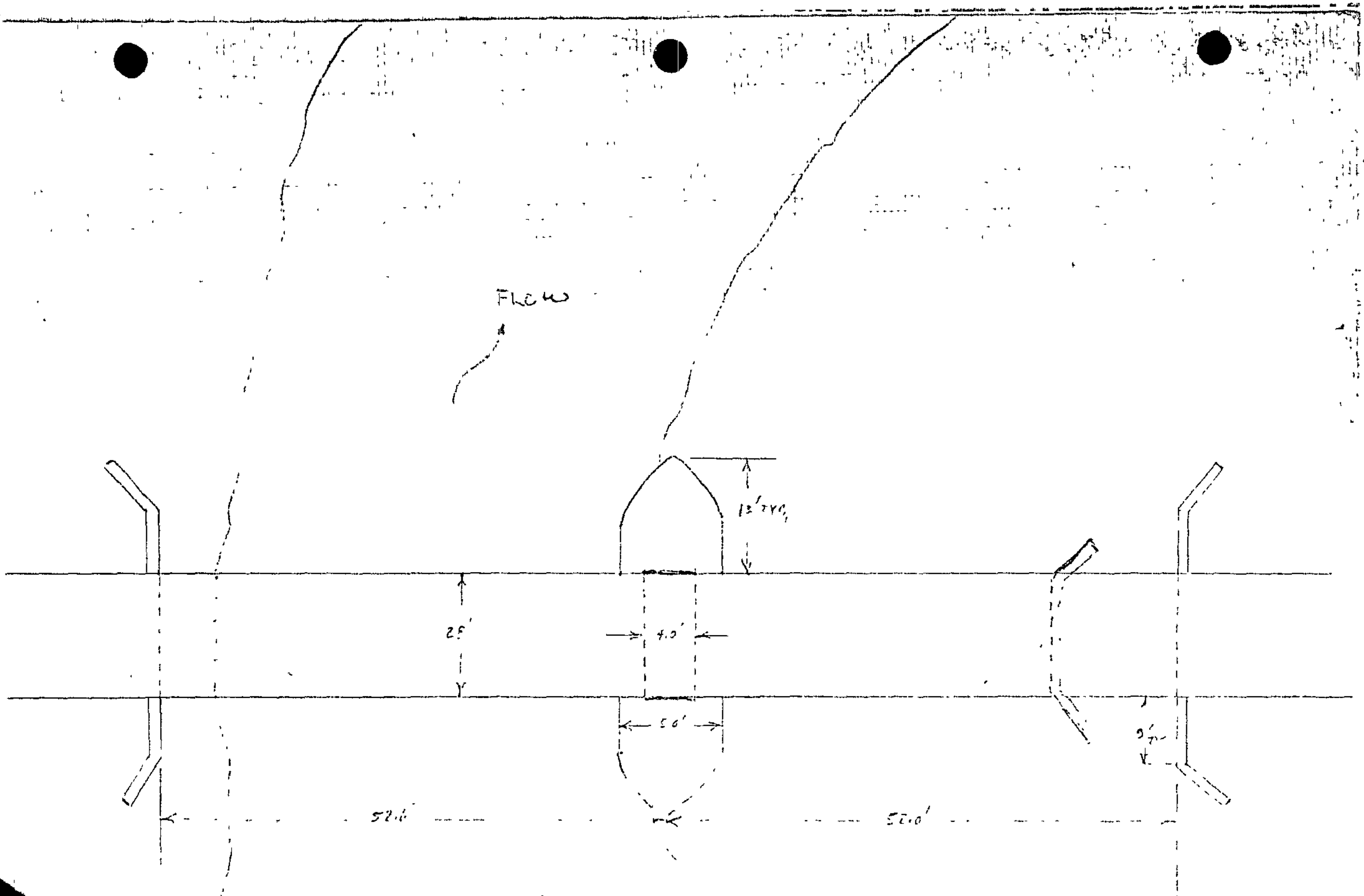
Width of Piers: UPPER = 4.0', FOUNDATION = 5.0'	Pier Shape: UPPER – FLAT, FOUNDATION – POINTED	No. of Piers: 1	Area:
Water Elevation: 585.7	Length: 104	Width of Deck: 28'	Skew: 90°

FIELD SKETCH

Profile View

Plan View




FLOW
13' TYP.
25'
4.0'
5.0'
52.0'
52.0'

```
X1    1[illegible].10      44  1496.00  1600.00    30.00    30.00    30.00    1.000

BT    27.00     0.00   602.70     0.00   188.00   601.80     0.00   288.00   601.30     0.00

BT   388.00   599.30     0.00   488.00   598.90     0.00   588.00   598.90     0.00   688.00
BT   598.50     0.00   788.00   598.40     0.00   888.00   598.00     0.00   988.00   598.10
BT     0.00  1010.00   597.60     0.00  1100.00   597.50     0.00  1200.00   598.10     0.00
BT  1300.00   59[illegible].70     0.00  1400.00   599.80     0.00  1493.00   600.80     0.00  1493.00
BT   604.30     0.00  1496.00   604.30   591.00  1496.00   604.30   597.00  1546.00   604.30
BT   597.00  1550.00   604.30   597.00  1600.00   604.30   597.00  1603.00   604.30     0.00
BT  1603.00   600.90     0.00  1700.00   600.80     0.00  1788.00   601.40     0.00  1813.00
BT   601.30     0.00

GR   602.70     0.00   601.80   188.00   601.30   288.00   599.30   388.00   598.90   488.00
GR   598.90   588.00   598.50   688.00   598.40   788.00   598.00   888.00   598.10   988.00
GR   597.60  1010.00   593.40  1088.00   593.20  1100.00   591.90  1188.00   591.90  1200.00
GR   592.00  1288.00   592.00  1300.00   592.40  1388.00   592.50  1400.00   593.20  1488.00
GR   593.40  1493.00   593.40  1496.00   591.00  1496.00   585.60  1507.00   585.00  1510.00
GR   583.50  1520.00   584.60  1530.00   585.60  1540.00   585.60  1546.00   597.00  1546.00
GR   597.00  1550.00   586.70  1550.00   587.00  1560.00   588.30  1570.00   589.10  1576.00
GR   591.70  1576.00   594.90  1600.00   597.00  1600.00   598.00  1603.00   598.90  1613.00
GR   599.80  1688.00   599.90  1700.00   601.00  1788.00   601.30  1813.00
*******************LISTING OF TOP AND BOTTOM SECTIONS OF ORIFICE******************

1496.00  591.00 1496.00  597.00 1546.00  597.00 1550.00  597.00 1600.00  597.00

1496.00  593.40 1496.00  591.00 1507.00  585.60 1510.00  585.00 1520.00  583.50
1530.00  584.60 1540.00  585.60 1546.00  585.60 1546.00  597.00 1550.00  597.00
1550.00  586.70 1560.00  587.00 1570.00  588.30 1576.00  589.10 1576.00  591.70
1600.00  594.90 1600.00  597.00
************** LISTING OF COORDINATES OF ORIFICE*********************

1496.00  591.00 1496.00  597.00 1546.00  597.00 1550.00  597.00 1600.00  597.00
1600.00  594.90 1576.00  591.70 1576.00  589.10 1570.00  588.30 1560.00  587.00
1550.00  586.70 1550.00  597.00 1546.00  597.00 1546.00  585.60 1540.00  585.60
```

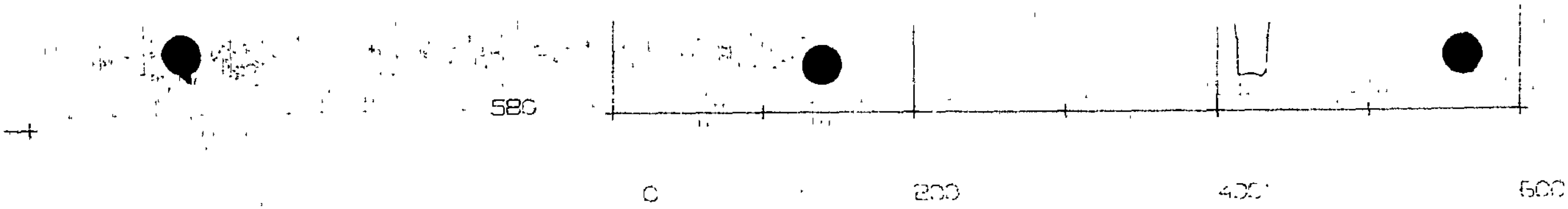
1.00 584.60 1520.00 583.50 1510.00 585.00 1507.00 585.60 1496.00 591.00
5.00 591.0

IFICE AREA 908.7 WETTED PERIMETER 234.2 29.1/R**1.333 4.7858

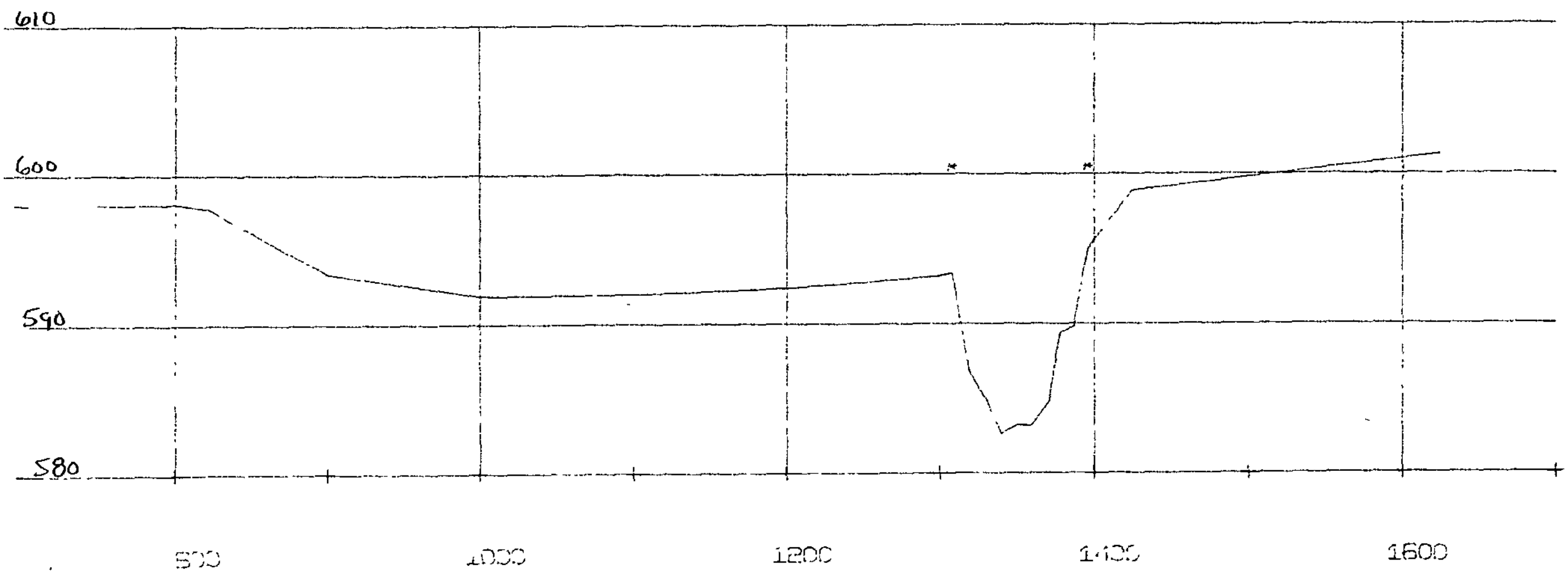
.025

= .0897

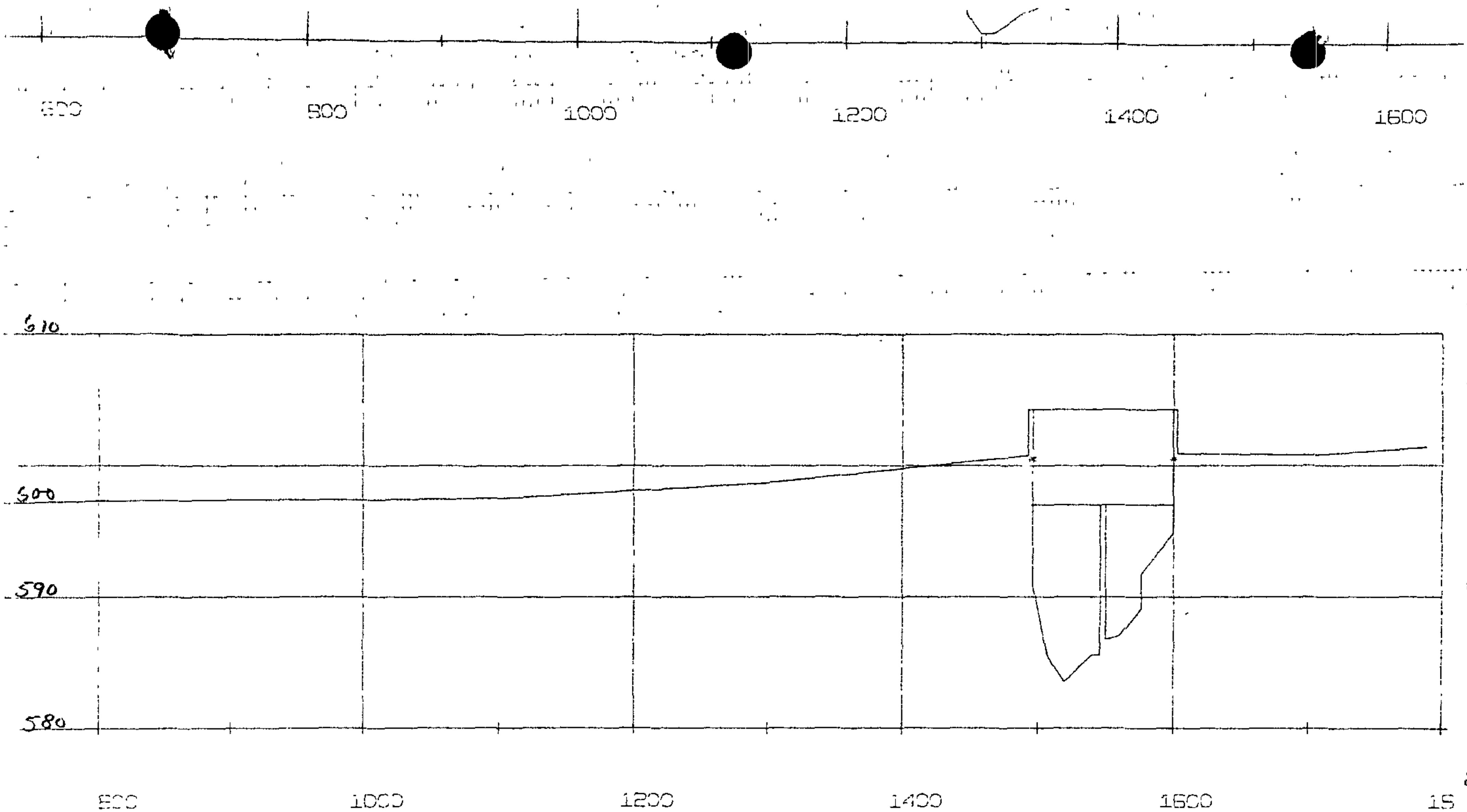
XKC = 1 + .09
.6



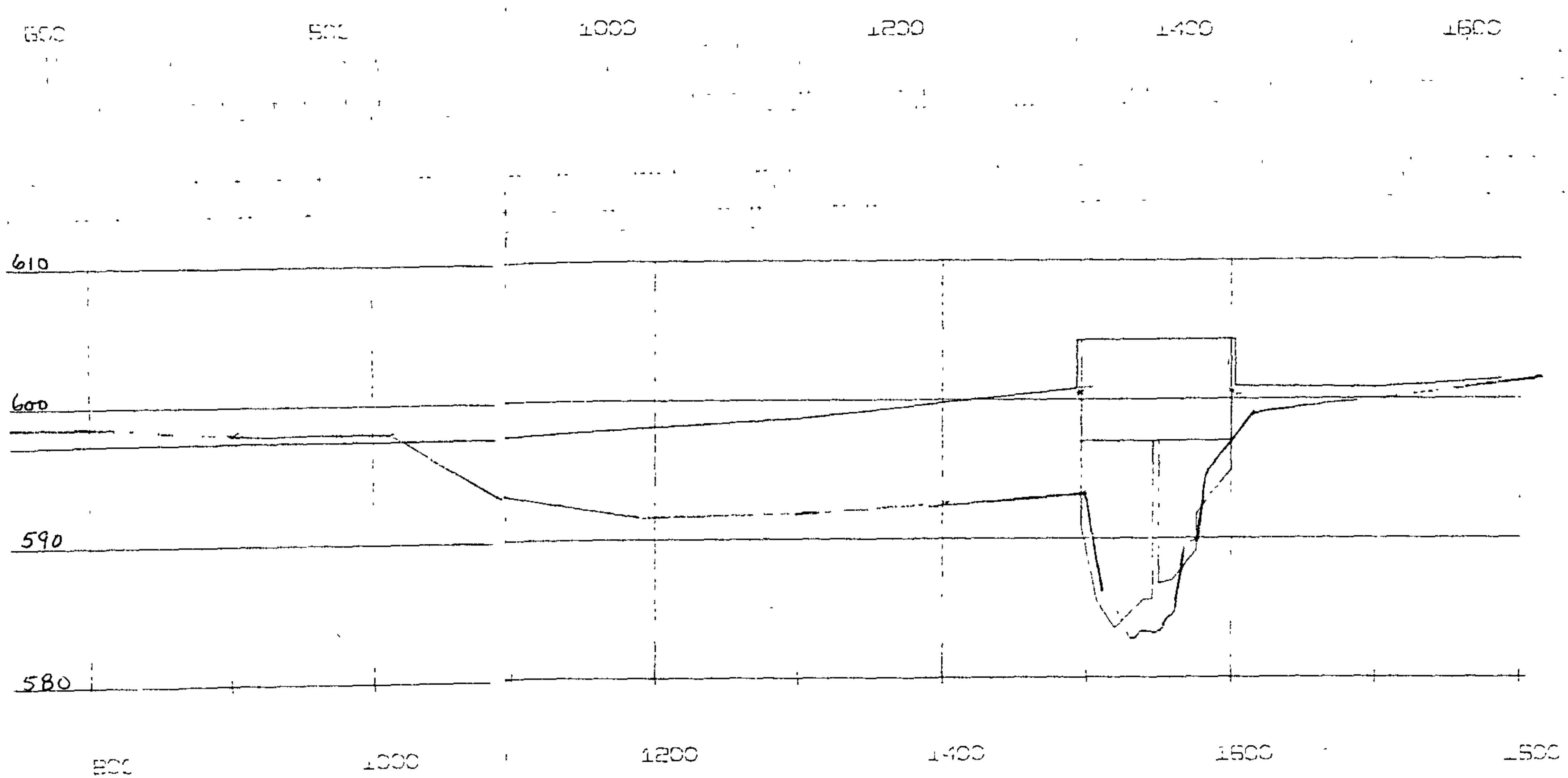
SECTION 132



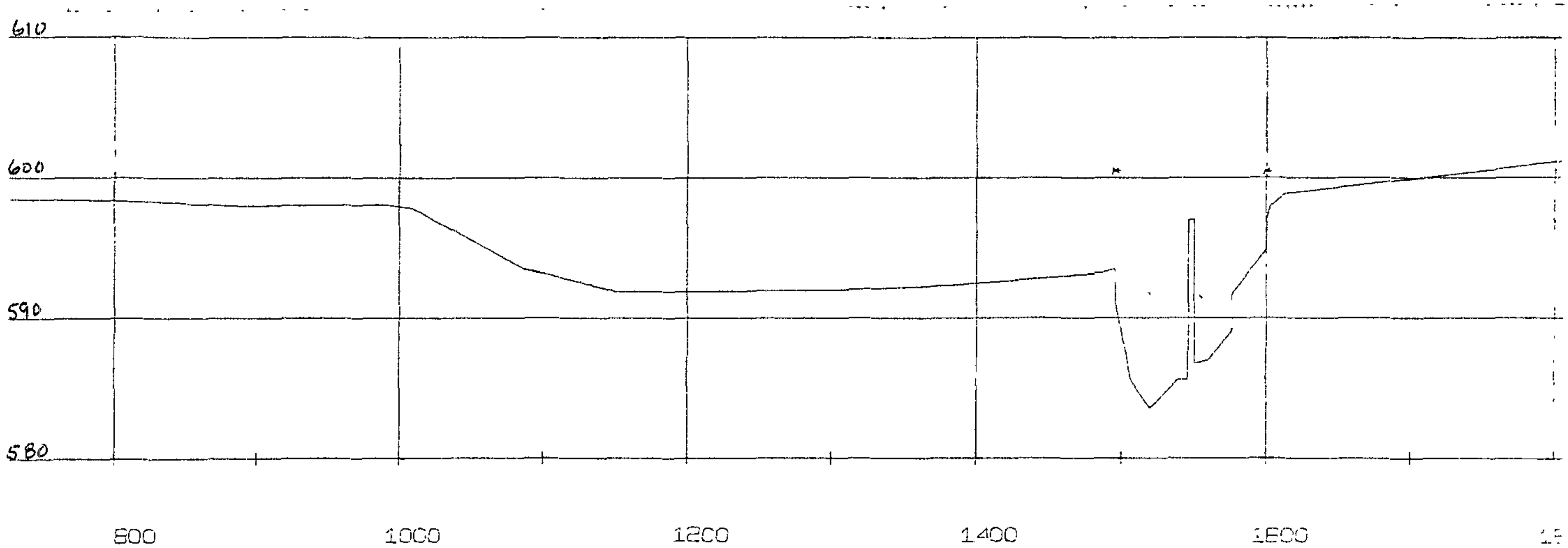
SECTION 43



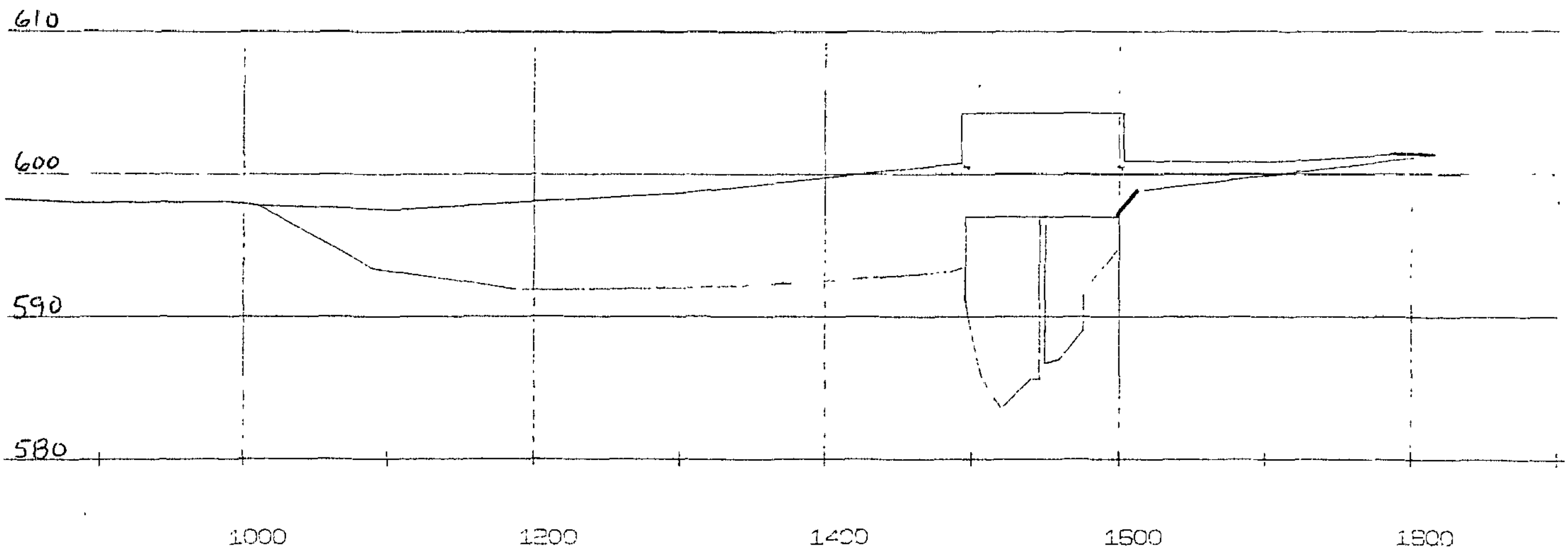
SECTION 44



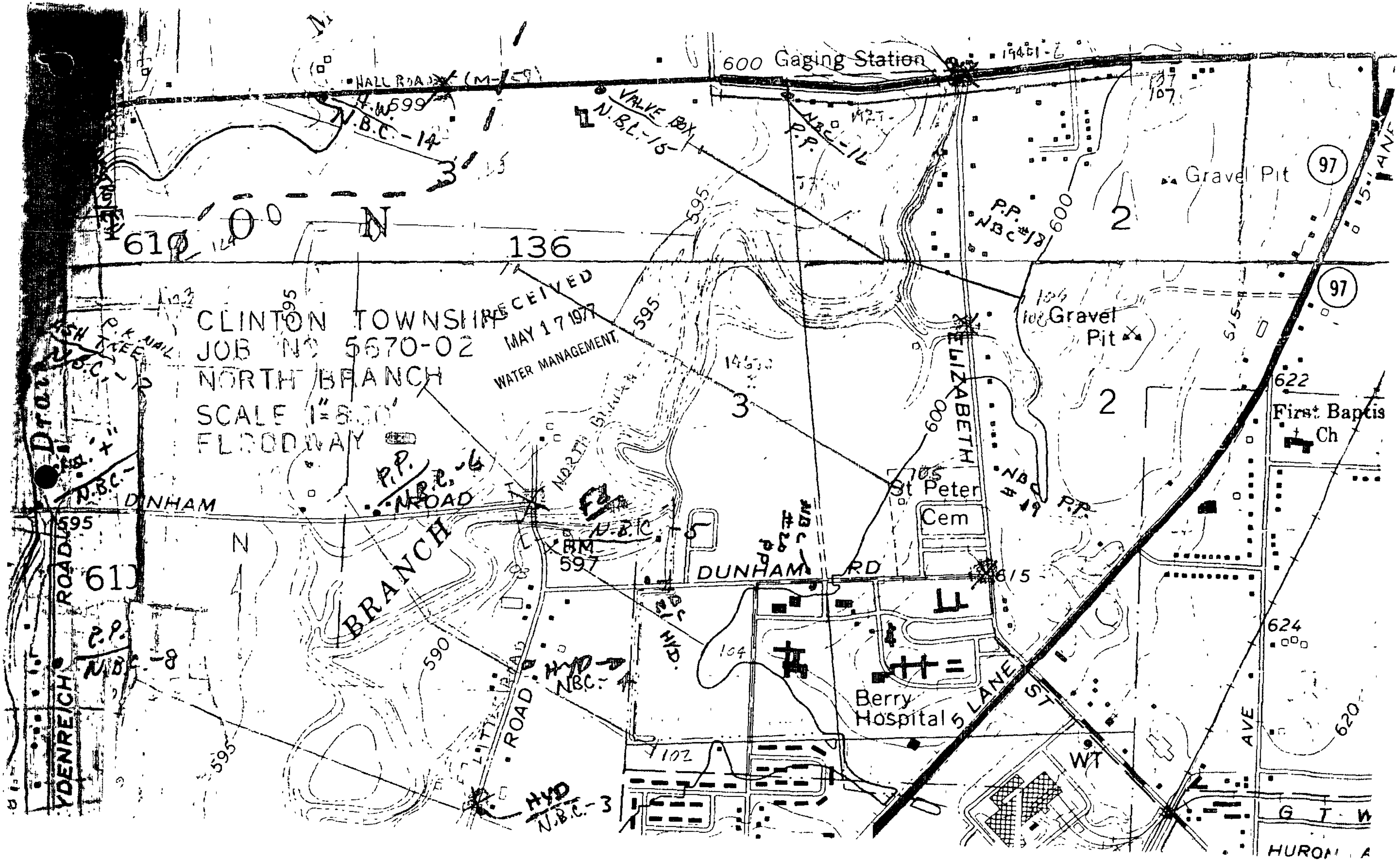
SECTION 44

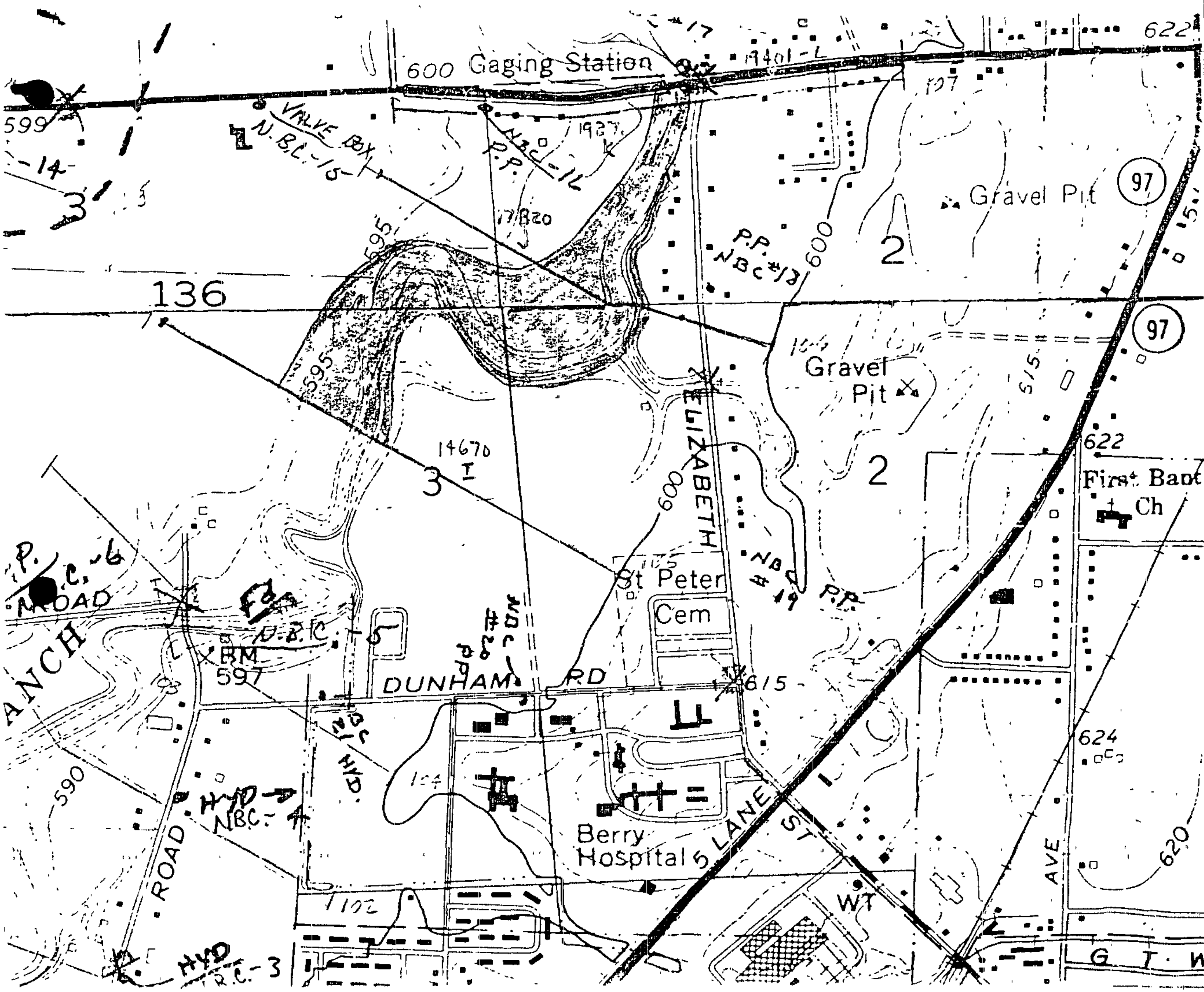


SECTION 17.102



SECTION 17.109


CLINTON TOWNSHIP
JOB NO 5670-02
NORTH BRANCH
SCALE 1"=800'
FLOODWAY
RECEIVED
MAY 17 1977
WATER MANAGEMENT
Gaging Station
HALL ROAD (M-59)
VALVE BOX
N.B.C.-14
N.B.C.-15
N.B.C.-16
P.P. NBC #18
NBC #19 P.P.
P.P. N.B.C.-6
N.B.C.-5
HYD N.B.C.-3
HYD NBC-4
N.B.C.-8
DUNHAM
DUNHAM RD
ROAD
YDENREICH ROAD
LITTLE ROAD
BRANCH
NORTH BRANCH
ELIZABETH
St Peter
Cem
Berry
Hospital
5 LANE
ST
AVE
HURON
G T W
WT
First Baptis
Ch
Gravel Pit
Gravel
Pit
136
97
BM
597
600
595
590
615
622
624
620



600 Gaging Station
599
622
VALVE BOX
N.B.C.-15
N.B.C.-16
P.P.
1927
17820
136
595
3
14670
Gravel Pit
97
2
P.P.
NBC #13
600
Gravel Pit
ELIZABETH
622
First Bapt Ch
St Peter
Cem
NBC #19
P.P.
NBC #20
DUNHAM RD
615
BM 597
D.B.C.-5
ANCH
ROAD
590
HYD
NBC-4
NBC
HYD
Berry Hospital
LANE
ST
WT
AVE
624
620
G T W
HYD
N.B.C.-3

CLINTON TOWNSHIP FLOOD INSURANCE STUDY
NORTH BRANCH OF THE CLINTON RIVER J*A NO. 5670-02
PROJECT MANAGER WILLIAM ROSSON

FIELD SECTION	SECNO	DESCRIPTION
	0	VALLEY SECTION A RELOCATED INVERT NOT ADJUSTED STARTING WATER SURFACE ELEVATIONS FROM CLINTON RIVER AT FLOWS CORRESPONDING TO PEAK FLOWS IN THE NORTH BRANCH ENCROACHMENTS DUE TO FLOW EXPANSION
A	300	VALLEY SECTION A ENCROACHMENTS DUE TO FLOW EXPANSION
	858	BRIDGE SECTION B RELOCATED GROUND POINTS ONLY SECTION SKEWED FOR PERPENDICULARITY TO MASS OF FLOW BLEND OF SECTIONS A AND B ENCROACHED TO BRIDGE OPENING
B	944	BRIDGE SECTION B CASS AVE. UPSTREAM FACE SECTION SKEWED FOR PERPENDICULARITY TO MASS OF FLOW BLEND OF SECTIONS A AND B ENCROACHED TO BRIDGE OPENING
	1244	VALLEY SECTION C RELOCATED INVERT ADJUSTED RIGHT ENCROACHMENT DUE TO HIGH GROUND
C	1650	VALLEY SECTION C LEFT ENCROACHMENT DUE TO HIGH GROUND
D	4670	VALLEY SECTION D LEFT ENCROACHMENT DUE TO HIGH GROUND
E	7680	VALLEY SECTION E RIGHT ENCROACHMENT DUE TO HIGH GROUND
F	10100	VALLEY SECTION F LEFT ENCROACHMENT DUE TO HIGH GROUND
G	11530	VALLEY SECTION G COMBINED VALLEY SECTION G AND OVERBANKS OF BRIDGE SECTION H
	11721	BRIDGE SECTION H RELOCATED GROUND POINTS ONLY LEFT ENCROACHMENT DUE TO HIGH GROUND
	11722	BRIDGE SECTION H LITTLE ROAD DOWNSTREAM FACE LEFT ENCROACHMENT DUE TO HIGH GROUND
H	11738	BRIDGE SECTION H LITTLE ROAD UPSTREAM FACE LEFT ENCROACHMENT DUE TO HIGH GROUND
	11739	BRIDGE SECTION H RELOCATED GROUND POINTS ONLY LEFT ENCROACHMENT DUE TO HIGH GROUND

I	14670	VALLEY SECTION I RIGHT ENCROACHMENT DUE TO FLOW EXPANSION
J	17820	VALLEY SECTION J RIGHT ENCROACHMENT DUE TO FLOW EXPANSION
K	19270	VALLEY SECTION K RIGHT ENCROACHMENT DUE TO FLOW EXPANSION LEFT ENCROACHMENT DUE TO FLOW EXPANSION
	19360	BRIDGE SECTION L RELOCATED GROUND POINTS ONLY BLEND OF SECTIONS K AND L RIGHT ENCROACHMENT DUE TO INEFFECTIVE FLOW AREA
L	19401	BRIDGE SECTION L HALL ROAD (M-59) UPSTREAM FACE BLEND OF SECTIONS K AND L RIGHT ENCROACHMENT DUE TO INEFFECTIVE FLOW AREA

JOB NAME: CLINTON TOWNSHIP, FIS	JOB NO.	5670	02	75

WATERCOURSE: NORTH BRANCH OF CLINTON R. [illegible] CULVERT LOCATION: CASS AVE BRIDGE

CULVERT DESCRIPTION: CONCRETE BRIDGE WITH [illegible] PARALLEL TO EMBANKMENT

BY BEH DATE 1/2/77

WEIR DESCRIPTION: PAVED ROAD WITH 72 FOOT [illegible]

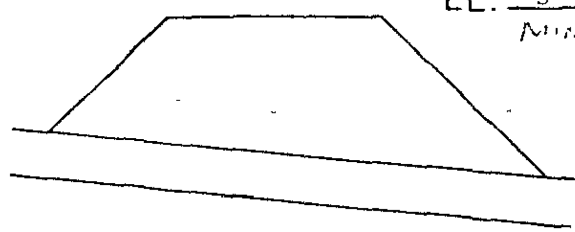
A = [illegible] D = 21.5

WP = 571.5 Ke = 0.5

$\frac{29.1}{R^{4/3}}$ = 3.1774 n = .0437

MAX U/S ELEV 592.6

EL. 595.2 MIN [illegible]



EL. 571.1

EL. 571.1

So = 0.00[illegible]

L = 36

Sta. 9+44 Sta. 8+58

CALCULATIONS AND COMMENTS:

— MANNING'S n —

$$n = \left(\frac{.015^2 \times 286.5 + .060^2 \times 285}{571.5}\right)^{1/2}$$

n = .0437

— XKOR —

$$XKOR = 1 + K_e + \frac{29.1\, n^2 L}{R^{4/3}}$$

XKOR = 1 + 0.5 + (3.1774)(.0437^2)(36)

XKOR = 2.022

— COFO —

ASSUME H = 1.0
FOR INITIAL [illegible]

$\frac{H}{L} = \frac{1}{72} = .014 < [illegible]$

∴ USE H = 1.0
COFO = 3.04

Johnson & Anderson, Inc.
Consulting Engineers
P O Box 1166 2300 Dixie Highway Pontiac, Michigan 48056

HYDRAULIC STRUCTURAL DATA

CODED
10/5/76
BEH

Code No. 02-95

Job Name: Clinton Twp F.I.S		By: T.R. Pruyt
Date: 10-4-76	Feature: Cass Rd Bridge	Water Course: N. Branch - Clinton River

Remarks: DEDICATION PLATE: USA BICENTENNIAL [illegible]

Photo log: C-7 U.S.F from left, C-8 U.S.F. from Right, C-9 U.S., C-10 Lt, C-11 Rt, C-12 D.S., C-13 D.S.F.

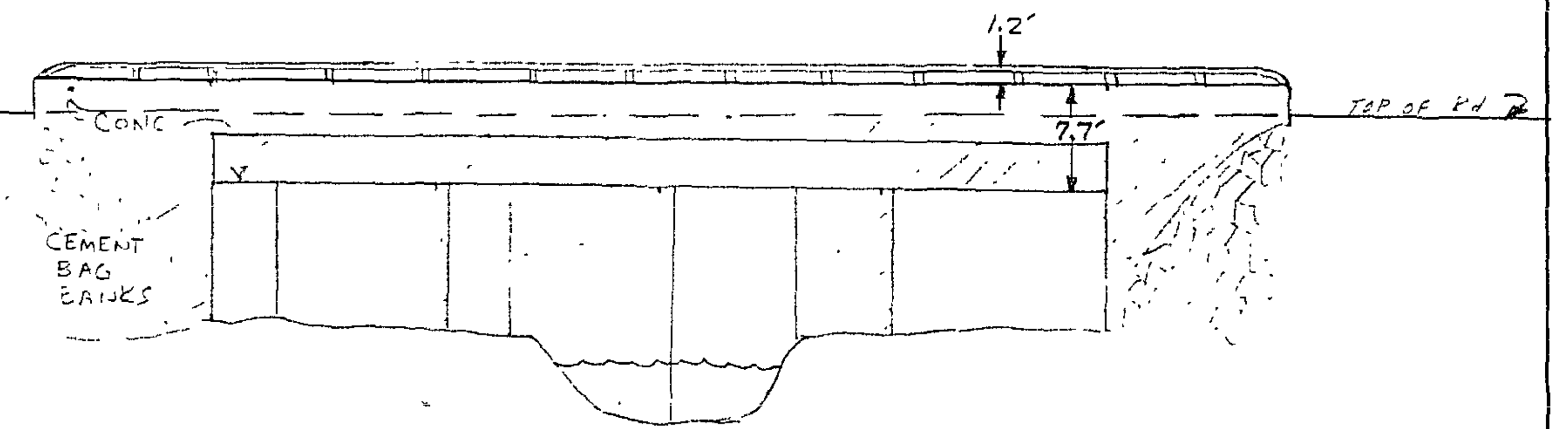
Bottom: Muck

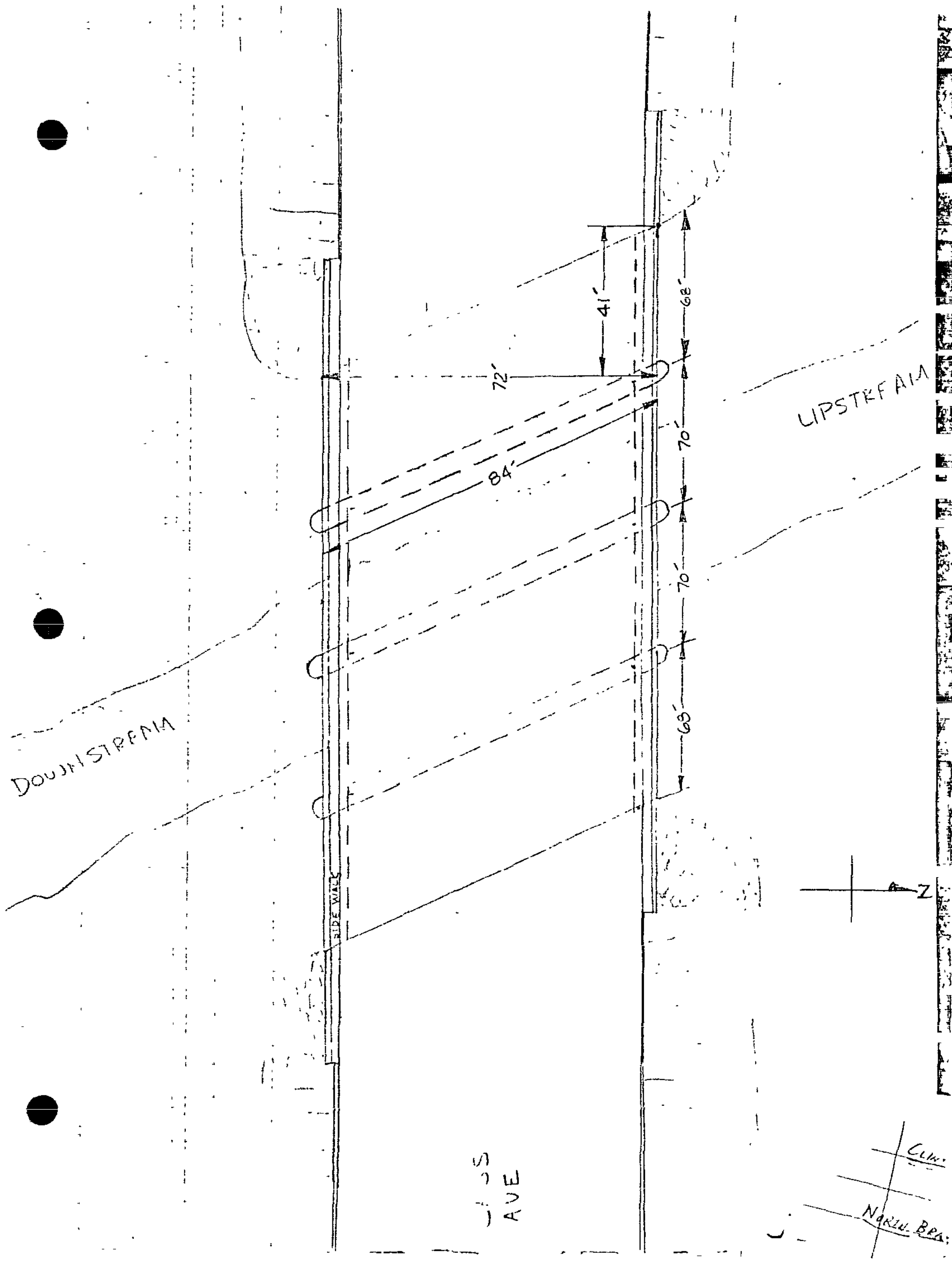
Width of Piers: 2.75′	Pier Shape: ROUNDED	No. of Piers: 3	Area:
Water Elevation: 576.3	Length: 276′	Width of Deck: 72′	Skew: SEE SKETCH

FIELD SKETCH

Profile View

~~Plan View~~ SEE BACK





41'
68'
72'
84'
70'
70'
68'
UPSTREAM
DOWNSTREAM
SIDE WALK
N
AVE

X1	85[illegible].00	51	500.00	776.00	558.[illegible]	558.00	558.00	0.857		
BT	27.00	0.00	599.20	0.00	100.00	595.50	0.00	200.00	595.90	0.00

BT	300.00	596.20	0.00	400.00	596.50	0.00	468.00	596.60	0.00	468.00
BT	599.50	0.00	500.00	599.50	591.80	566.30	599.70	592.10	569.70	599.70
BT	592.10	636.30	599.90	592.30	639.70	599.90	592.30	706.30	600.10	592.50
BT	709.70	600.10	592.50	776.00	600.30	592.60	776.00	600.30	581.10	808.00
BT	600.50	0.00	808.00	597.70	0.00	900.00	597.40	0.00	1000.00	596.90
BT	0.00	1100.00	596.50	0.00	1200.00	596.10	0.00	1300.00	595.60	0.00
BT	1400.00	595.20	0.00	1500.00	595.50	0.00	1600.00	595.70	0.00	1688.00
BT	595.80	0.00								

GR	599.20	0.00	595.50	100.00	592.60	200.00	592.50	300.00	593.10	346.00
GR	593.00	400.00	593.00	468.00	593.00	468.00	591.80	500.00	580.50	500.00
GR	579.90	520.00	580.10	540.00	580.30	566.30	592.10	566.30	592.10	569.70
GR	580.40	569.70	580.30	580.00	580.70	600.00	578.90	606.00	574.20	609.00
GR	573.60	620.00	572.90	630.00	572.70	636.30	592.30	636.30	592.30	639.70
GR	571.10	639.70	573.00	650.00	573.70	660.00	575.10	668.00	582.50	677.00
GR	581.40	700.00	581.60	706.30	592.50	706.30	592.50	709.70	581.10	709.70
GR	581.10	720.00	581.00	740.00	580.70	760.00	581.10	776.00	581.10	808.00
GR	582.40	900.00	581.90	940.00	580.80	1000.00	582.40	1100.00	583.00	1200.00
GR	590.20	1300.00	591.00	1388.00	591.20	1400.00	592.80	1500.00	594.40	1600.00
GR	595.80	1688.00								

******************LISTING OF TOP AND BOTTOM SECTIONS OF ORIFICE******************

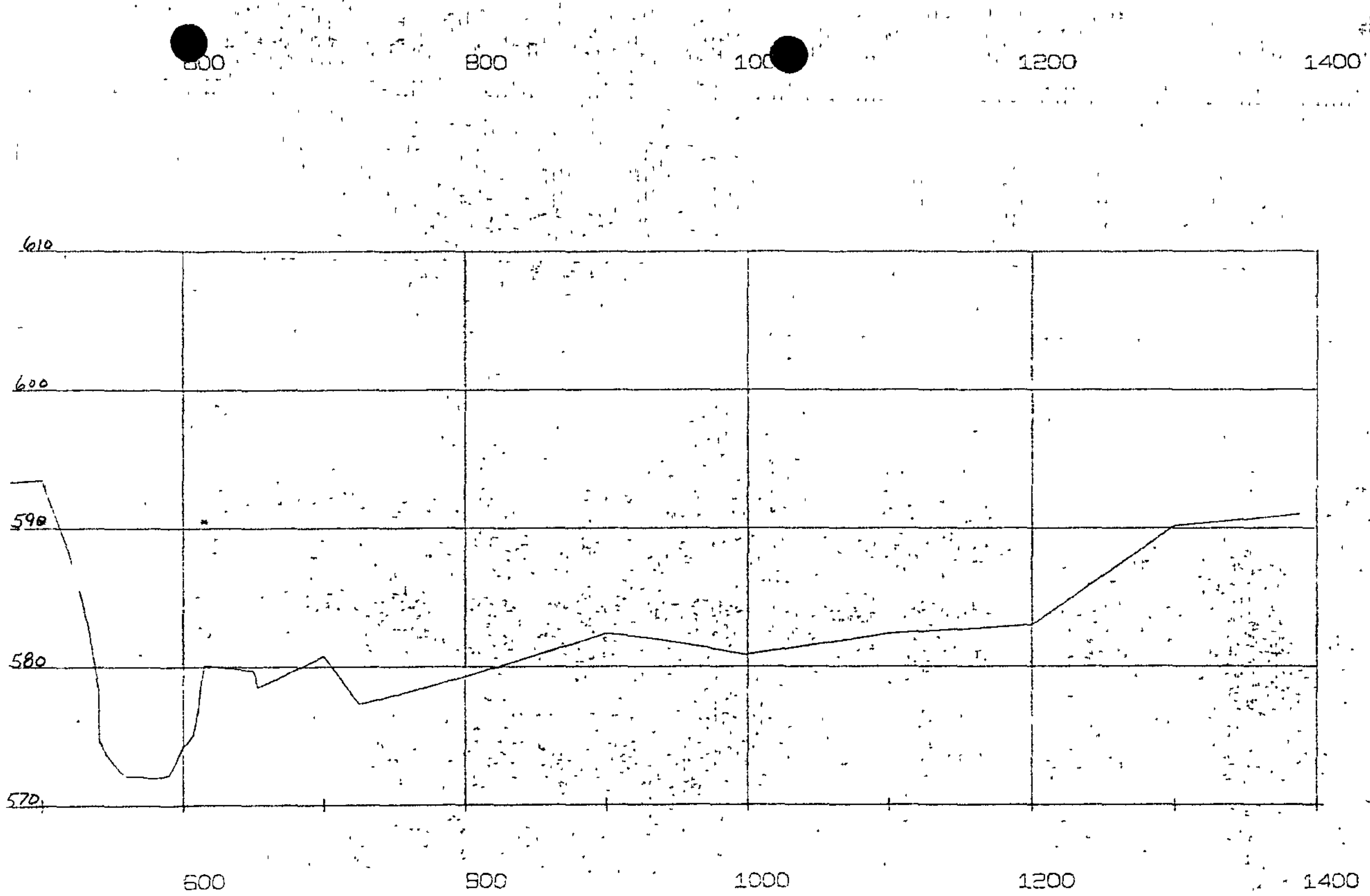
500.00	591.80	566.30	592.10	569.70	592.10	636.30	592.30	639.70	592.30
706.30	592.50	709.70	592.50	776.00	592.60	776.00	581.10		

500.00	591.80	500.00	580.50	520.00	579.90	540.00	580.10	566.30	580.30
566.30	592.10	569.70	592.10	569.70	580.40	580.00	580.30	600.00	580.70
606.00	578.90	609.00	574.20	620.00	573.60	630.00	572.90	636.30	572.70
636.30	592.30	639.70	592.30	639.70	571.10	650.00	573.00	660.00	573.70
668.00	575.10	677.00	582.50	700.00	581.40	706.30	581.60	706.30	592.50
709.70	592.50	709.70	581.10	720.00	581.10	740.00	581.00	760.00	580.70
776.00	581.10								

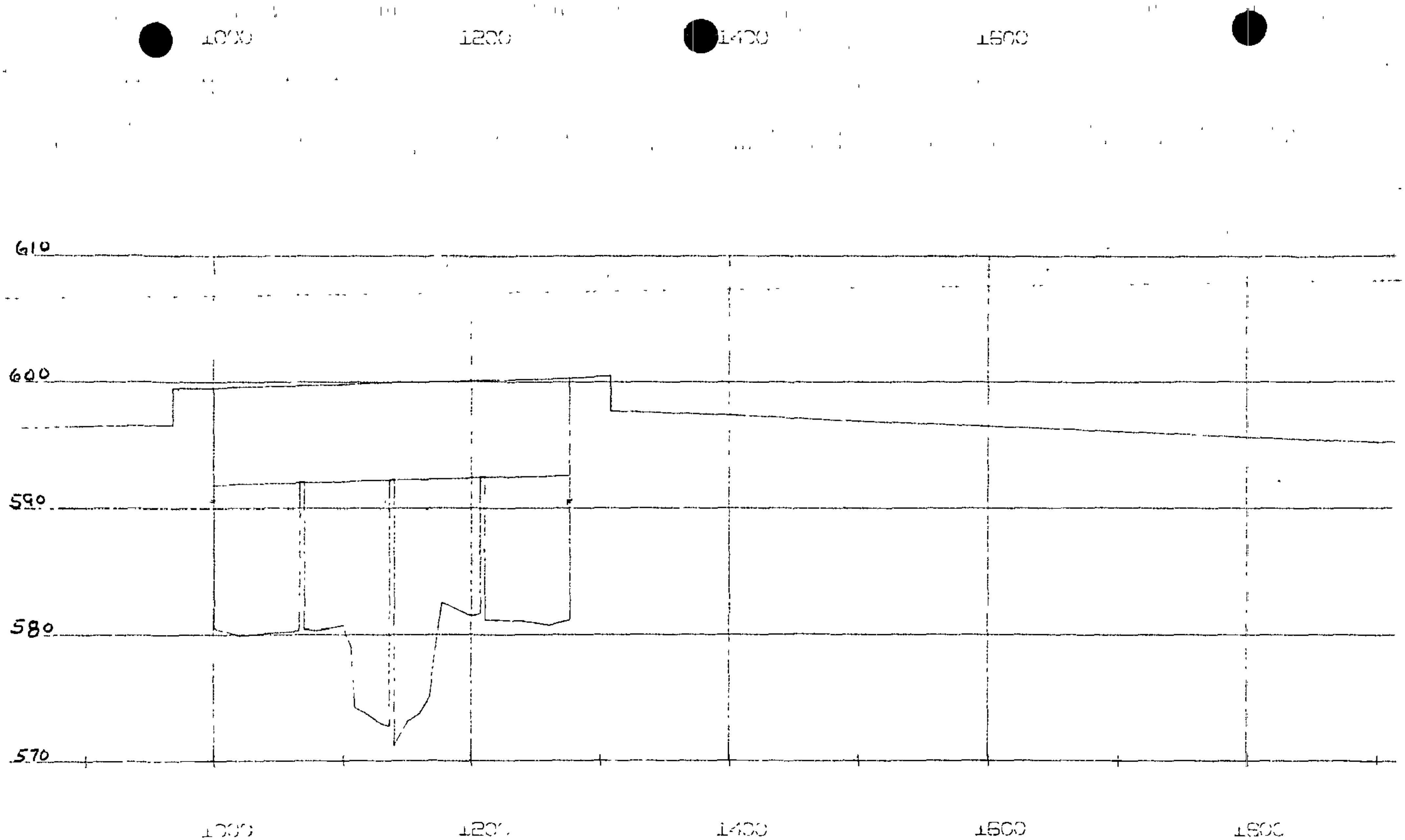
********** LISTING OF COORDINATES OF ORIFICE******************

500.00	591.80	566.30	592.10	569.70	592.10	636.30	592.30	639.70	592.30
706.30	592.50	709.70	592.50	776.00	592.60	776.00	581.10	760.00	580.70
740.00	581.00	720.00	581.10	709.70	581.10	709.70	592.50	706.30	592.50
706.30	581.60	700.00	581.40	677.00	582.50	668.00	575.10	660.00	573.70
650.00	573.00	639.70	571.10	639.70	592.30	636.30	592.30	636.30	572.70
630.00	572.90	620.00	573.60	609.00	574.20	606.00	578.90	600.00	580.70
580.00	580.30	569.70	580.40	569.70	592.10	566.30	592.10	566.30	580.30
540.00	580.10	520.00	579.90	500.00	580.50	500.00	591.80		

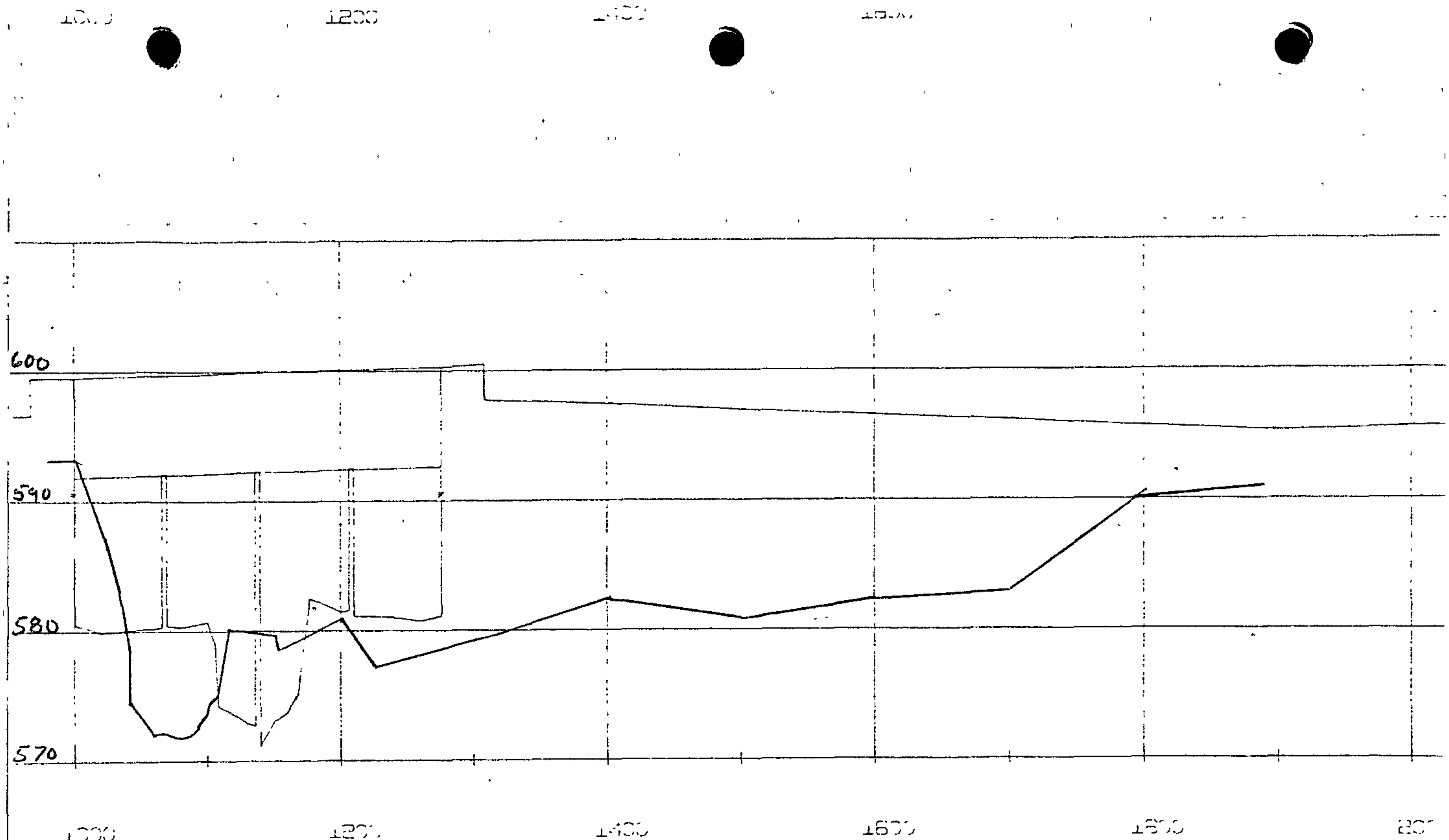
ORIFICE AREA 3014.1 WETTED PERIMETER 571.5 29.1/R**1.333 3.1774



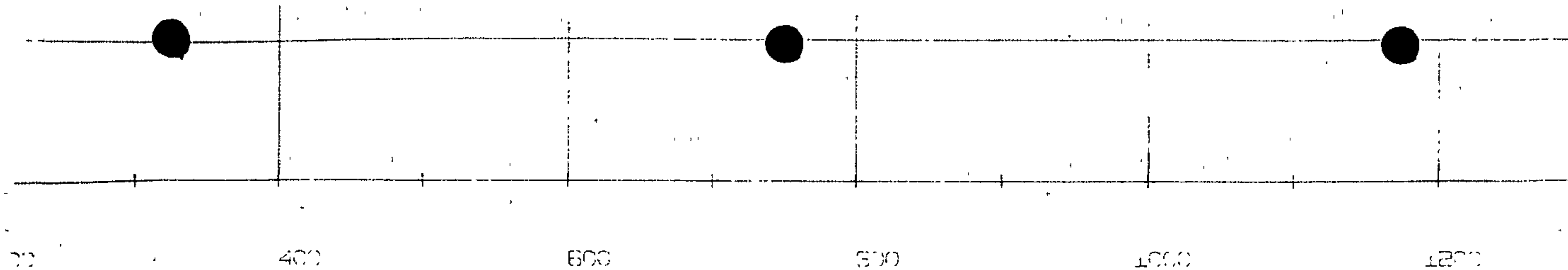
SECTION 97


1000
1200
1400
1600
610
600
590
580
570
1000
1200
1400
1600
1800

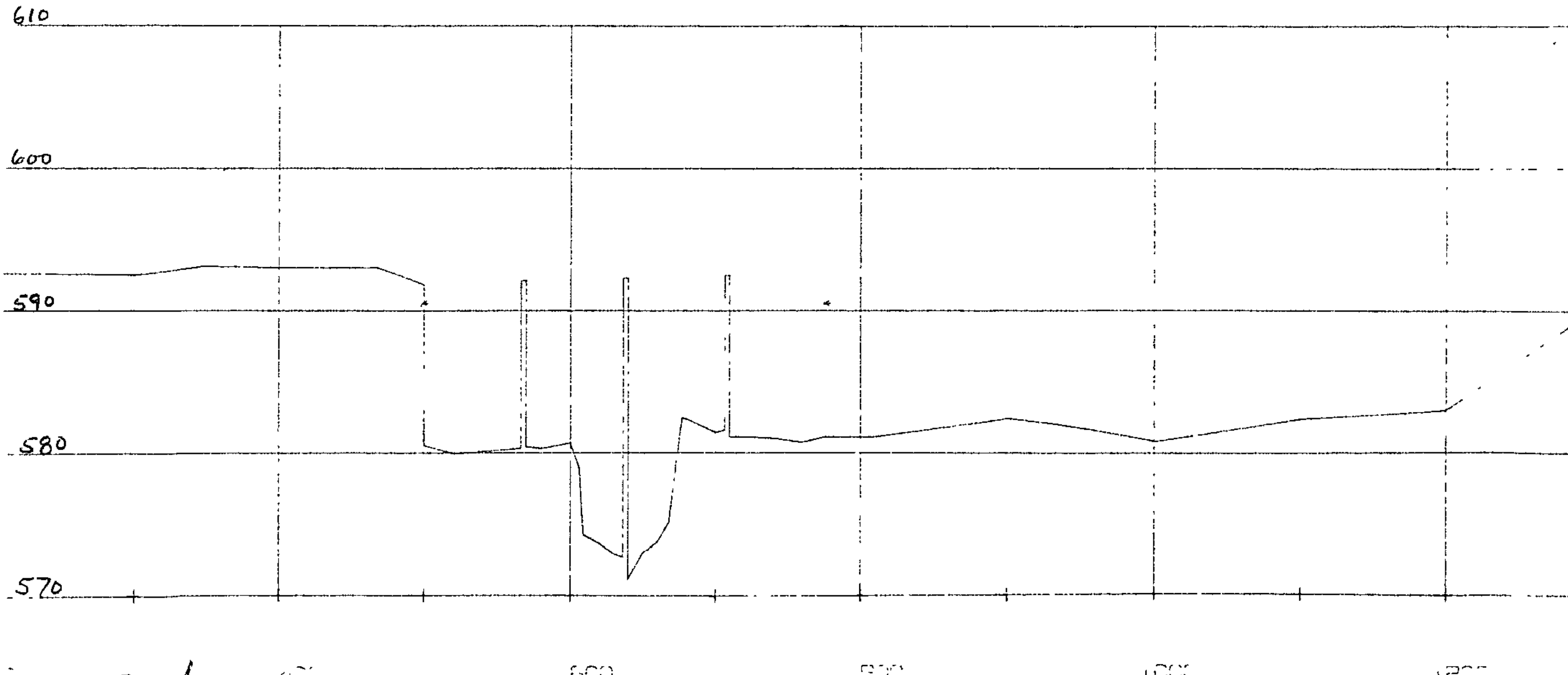
SECTION 98.



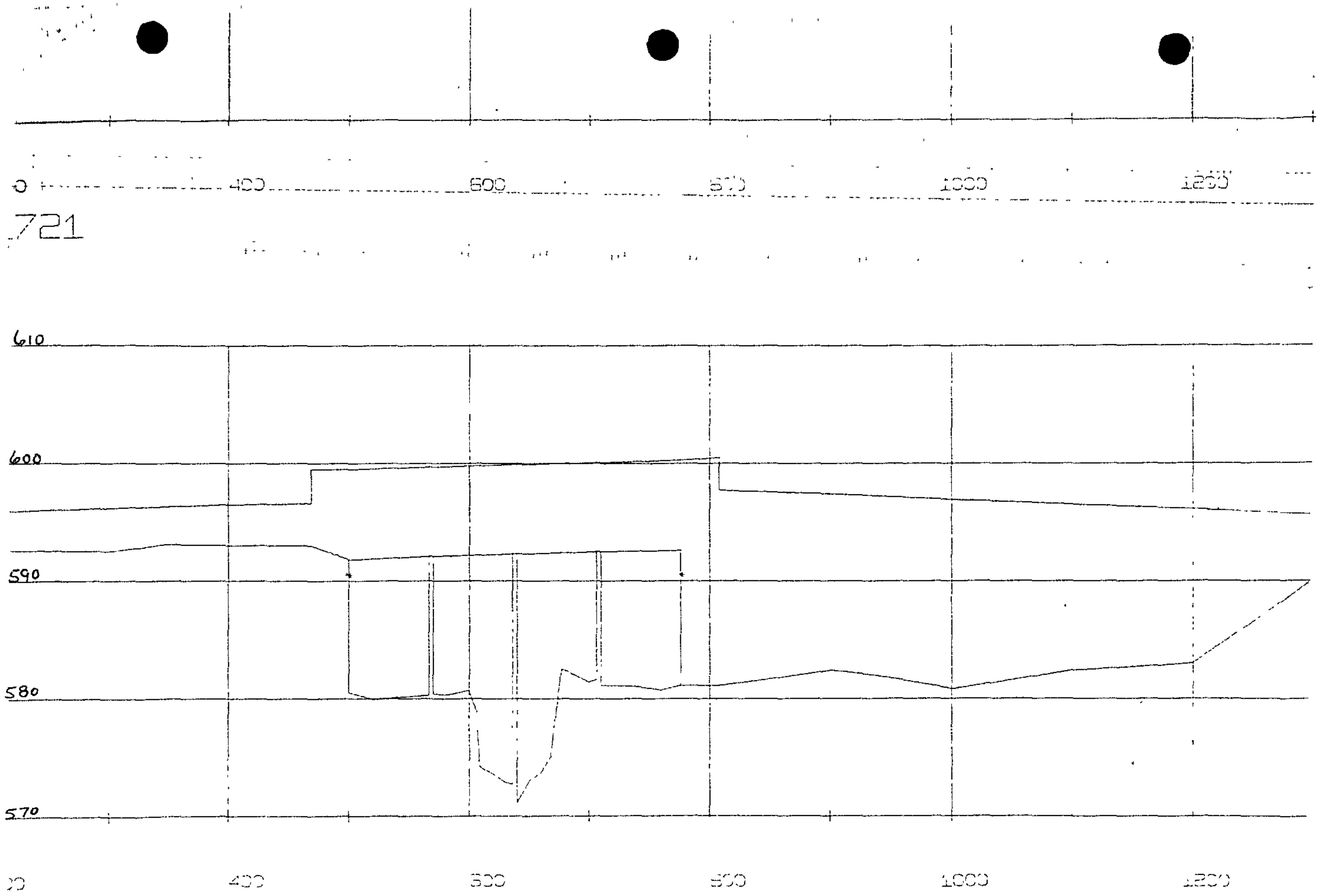
SECTION 98



721



SECTION
958



SECTION 944

JOB NAME: CLINTON TOWNSHIP, FIS | JOB NO. 5670 | 02 | 108

WATERCOURSE: NORTH BRANCH OF CLINTON RIVER

CULVERT LOCATION: HALL ROAD BRIDGE

CULVERT DESCRIPTION: STEEL BEAM WITH CONCRETE DECK, PIERS AND [illegible] WALLS. [illegible] PARALLEL TO STREAM

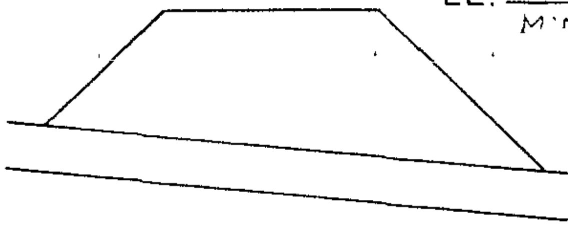
BY BEH

DATE 1/26/77

WEIR DESCRIPTION: PAV. ROADWAY WITH 37 FOOT BREADTH

MAX U/S CLLC 597.9

EL. 599.0 MIN [illegible]



EL. 530.5

EL 530.5

So = 0.0000

L = 39

Sta. 193+01

Sta. 193+60

A = 250.27

D = 17.3

WP = 565.5

Ke = 0.7

$\frac{29.1}{R^{4/3}}$ = 4.0146

n = .0280

CALCULATIONS AND COMMENTS:

— MANNING'S n —

$$n = \left(\frac{.015^2 \times 335 + .04^2 \times 230.5}{565.5}\right)^{1/2}$$

$n = .0280$

— XKOR —

$$XKOR = 1 + K_e + \frac{29.1 n^2 L}{R^{4/3}}$$

$$XKOR = 1 + 0.7 + (4.0146)(.0280)^2 37$$

$XKOR = 1.817$

— COFQ —

ASSUME H = 1.0

FOR INITIAL RUN

$\frac{H}{L} = \frac{1}{37} = .027 < .15$

$\therefore$ USE H = 1.0

COFQ = 3.04

Johnson & Anderson, Inc.
Consulting Engineers
P O Box 1166   2300 Dixie Highway   Pontiac, Michigan 48056

HYDRAULIC STRUCTURAL DATA

CODED 10/6/76 EH

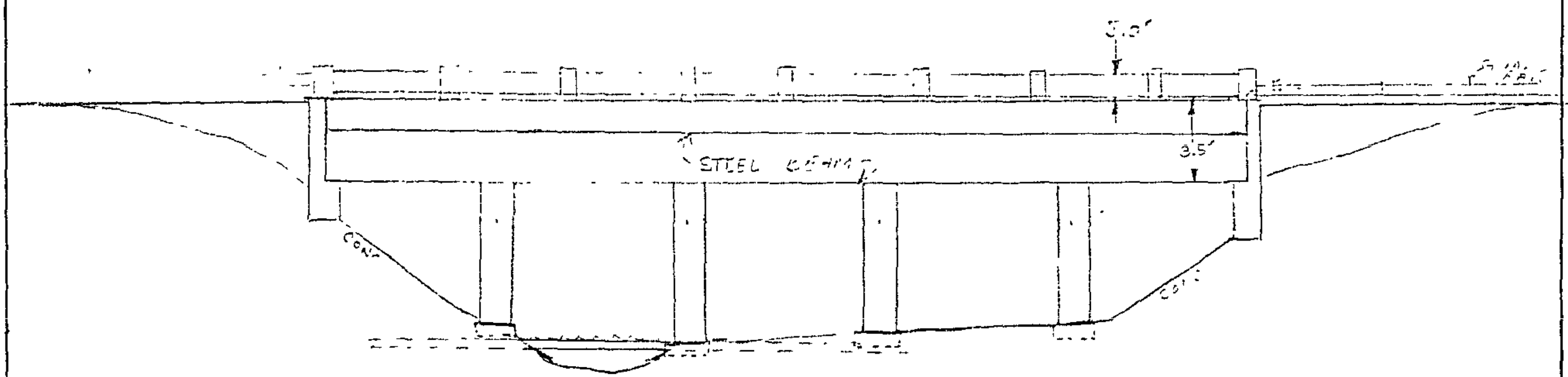
Code No. 02 - 108

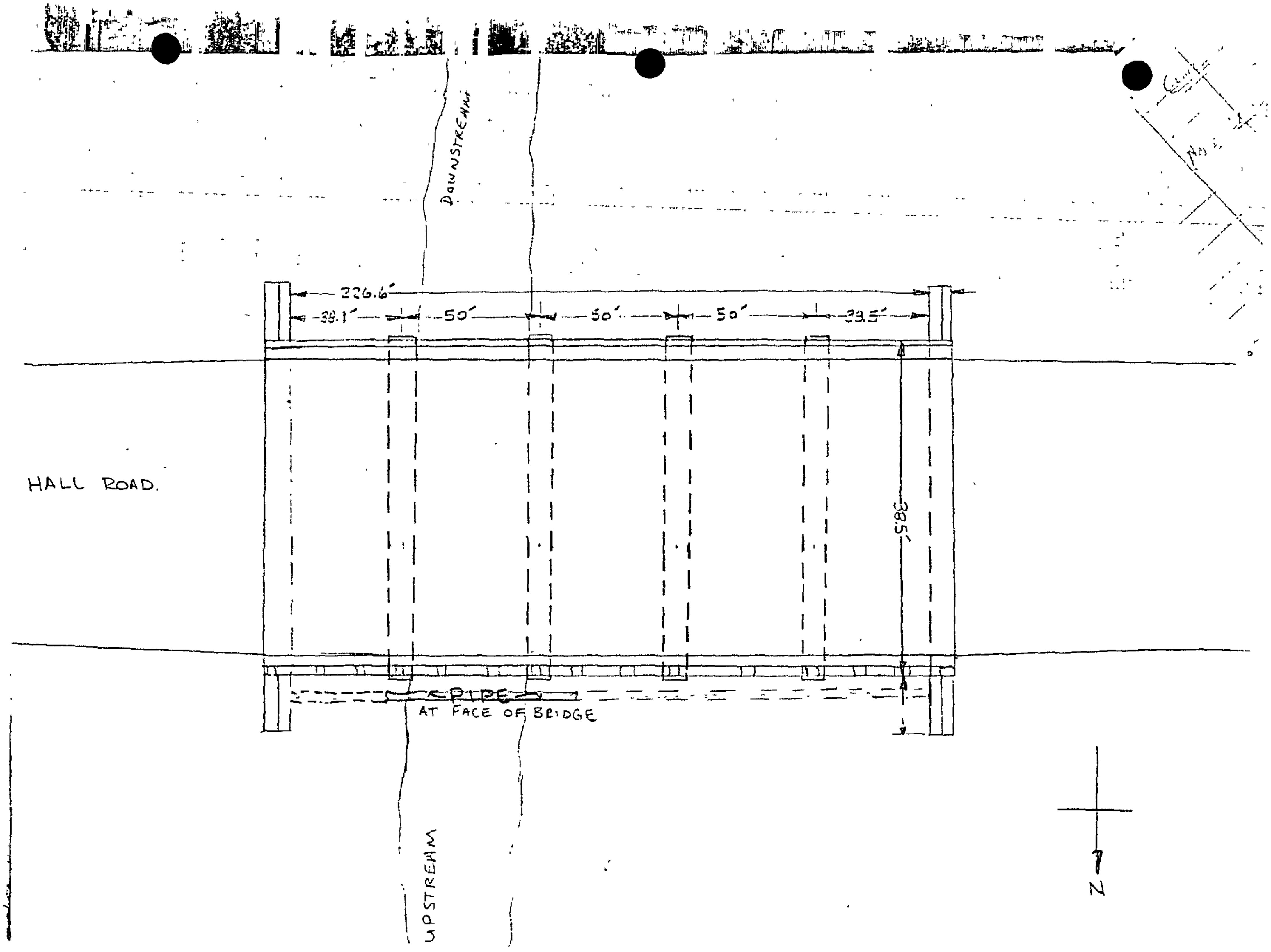
Job Name: [illegible]			By: T.R. Pruyt
Date: [illegible]	Feature: [illegible]		Water Course: N. Branch - Clinton River
Remarks:			
Photo log: D-1 U.S.F. from Right, D-2 U.S.F. from Left, D-3 D.S.F. from Left, D-4 D.S.F. from Right			
D-5 U.S., D-6 D.S., D-7 Right, D-8 Left			
Width of Piers: 3'	Pier Shape: SQUARE	No. of Piers: 4	Area:
Water Elevation:	Length: 226.6'	Width of Deck: 38.5	Skew: 90°

FIELD SKETCH

Profile View

~~Plan View~~ SEE BACK




DOWNSTREAM
226.6'
39.1'
50'
50'
50'
33.5'
38.5'
HALL ROAD.
PIPE
AT FACE OF BRIDGE
UPSTREAM
N

```
X1  1936.00         64  1700.00  1926.60    90.00    90.00    90.00    1.000

BT    36.00      0.00   603.80     0.00   100.00   602.90     0.00   200.00   601.90     0.00

BT   400.00    600.30     0.00   500.00   599.70     0.00   600.00   599.20     0.00   700.00
BT   599.00      0.00   900.00   599.00     0.00  1100.00   599.60     0.00  1400.00   600.20
BT     0.00   1600.00   600.40     0.00  1700.00   600.50   597.40  1700.00   601.20   597.70
BT  1736.60    601.20   597.70  1739.60   601.20   597.70  1786.60   601.30   597.80  1789.60
BT   601.30    597.80  1836.60   601.30   597.80  1839.60   601.30   597.80  1886.60   601.20
BT   597.70   1889.60   601.20   597.70  1897.00   601.20   597.70  1919.00   601.20   597.70
BT  1926.60    601.20   597.70  1926.60   600.50   595.30  1973.00   600.50     0.00  2173.00
BT   600.10      0.00  2373.00   599.90     0.00  2530.00   600.20     0.00  2800.00   600.20
BT     0.00   2900.00   600.40     0.00  3000.00   600.50     0.00  3300.00   600.20     0.00
BT  3400.00    600.00     0.00  3500.00   600.10     0.00  3600.00   601.10     0.00

GR   603.80      0.00   602.90   100.00   601.90   200.00   601.10   300.00   600.30   400.00
GR   599.70    500.00   599.20   600.00   599.00   700.00   599.00   800.00   599.00   900.00
GR   599.60   1100.00   600.20  1400.00   600.40  1600.00   600.40  1647.00   597.40  1700.00
GR   594.00   1700.00   593.00  1708.00   586.30  1726.00   582.30  1736.10   583.50  1736.10
GR   583.50   1736.60   597.70  1736.60   597.70  1739.60   583.50  1739.60   583.50  1740.10
GR   581.50   1740.10   580.80  1750.00   580.50  1770.00   581.00  1780.00   581.40  1786.10
GR   583.50   1786.10   583.50  1786.60   597.80  1786.60   597.80  1789.60   583.50  1789.60
GR   585.60   1800.00   586.60  1820.00   586.70  1836.60   597.80  1836.60   597.80  1839.60
GR   585.90   1839.60   586.20  1860.00   586.10  1875.00   585.90  1886.60   597.70  1886.60
GR   597.70   1889.60   584.50  1889.60   585.60  1897.00   594.40  1919.00   595.30  1926.60
GR   587.40   1926.60   587.40  1926.60   587.40  1926.60   587.60  1973.00   589.00  2173.00
GR   592.60   2373.00   600.20  2530.00   600.20  2800.00   600.40  2900.00   600.50  3000.00
GR   600.20   3300.00   600.00  3400.00   600.10  3500.00   601.10  3600.00
*******************LISTING OF TOP AND BOTTOM SECTIONS OF ORIFICE******************

1700.00  597.40 1700.00  597.70 1736.60  597.70 1739.60  597.70 1786.60  597.80
1789.60  597.80 1836.60  597.80 1839.60  597.80 1886.60  597.70 1889.60  597.70
1897.00  597.70 1919.00  597.70 1926.60  597.70 1926.60  595.30

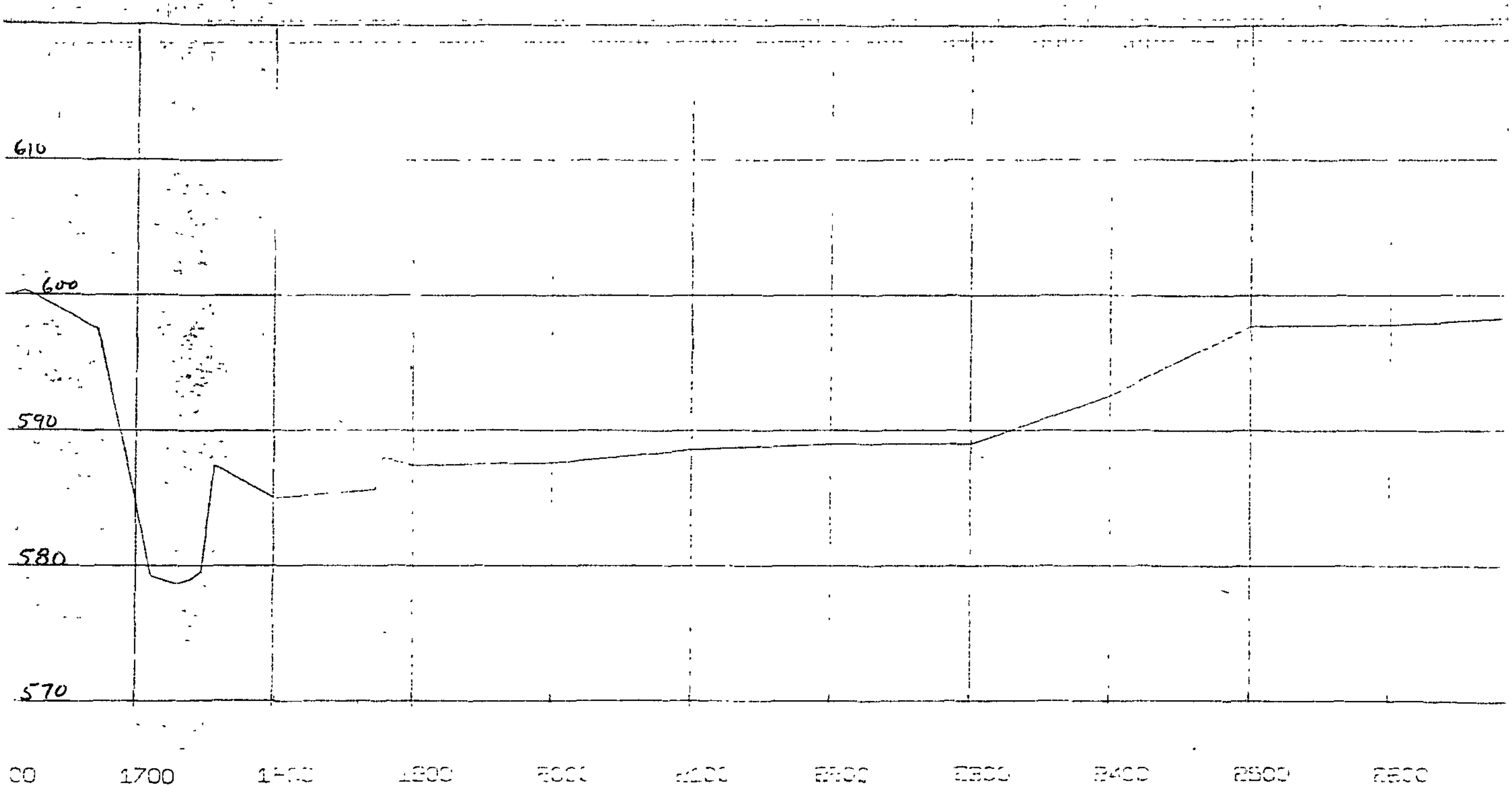
1700.00  597.40 1700.00  594.00 1708.00  593.00 1726.00  586.30 1736.10  582.30
1736.10  583.50 1736.60  583.50 1736.60  597.70 1739.60  597.70 1739.60  583.50
```

1740.10	[illegible]	1740.10	581.50	1750.00	580.80	[illegible]	580.50	1780.00	581.00
1786.10	[illegible]	1786.10	583.50	1786.60	583.50	[illegible]	597.80	1789.60	597.80
1789.60	583.50	1800.00	585.60	1820.00	586.60	1836.60	586.70	1836.60	597.80
1839.60	597.80	1839.60	585.90	1860.00	586.20	1875.00	586.10	1886.60	585.90
1886.60	597.70	1889.60	597.70	1889.60	584.50	1897.00	585.60	1919.00	594.40
1926.60	595.30	1926.60	587.40	1926.60	587.40	1926.60	567.40		

************* LISTING OF COORDINATES OF ORIFICE*********************

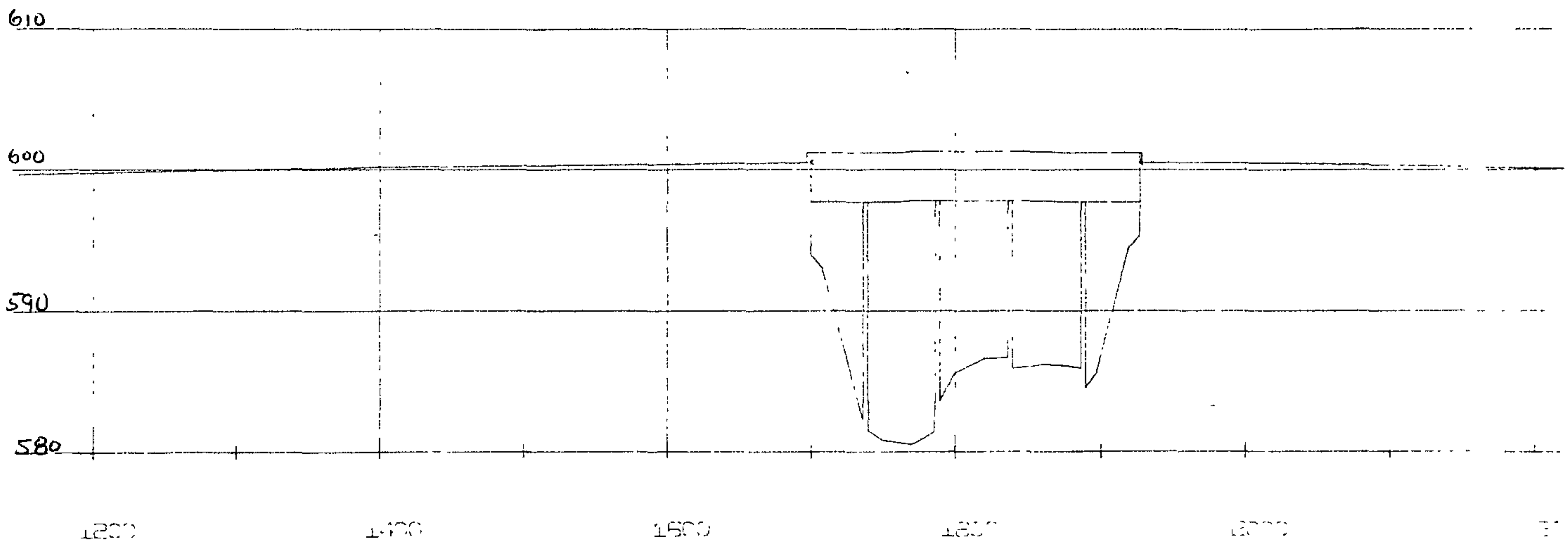
1700.00	597.40	1700.00	597.70	1736.60	597.70	1739.60	597.70	1786.60	597.80
1789.60	597.80	1836.60	597.80	1839.60	597.80	1886.60	597.70	1889.60	597.70
1897.00	597.70	1919.00	597.70	1926.60	597.70	1926.60	595.30	1926.60	587.40
1926.60	587.40	1926.60	595.30	1919.00	594.40	1897.00	585.60	1889.60	584.50
1889.60	597.70	1886.60	597.70	1886.60	585.90	1875.00	586.10	1860.00	586.20
1839.60	585.90	1839.60	597.80	1836.60	597.80	1836.60	586.70	1820.00	586.60
1800.00	585.60	1789.60	583.50	1789.60	597.80	1786.60	597.80	1786.60	583.50
1786.10	583.50	1786.10	581.40	1780.00	581.00	1770.00	580.50	1750.00	580.80
1740.10	581.50	1740.10	583.50	1739.60	583.50	1739.60	597.70	1736.60	597.70
1736.60	583.50	1736.10	583.50	1736.10	582.30	1726.00	586.30	1708.00	593.00
1700.00	594.00	1700.00	597.40						

ORIFICE AREA 2502.7 WETTED PERIMETER 565.5 29.1/R**1.333 4.0146

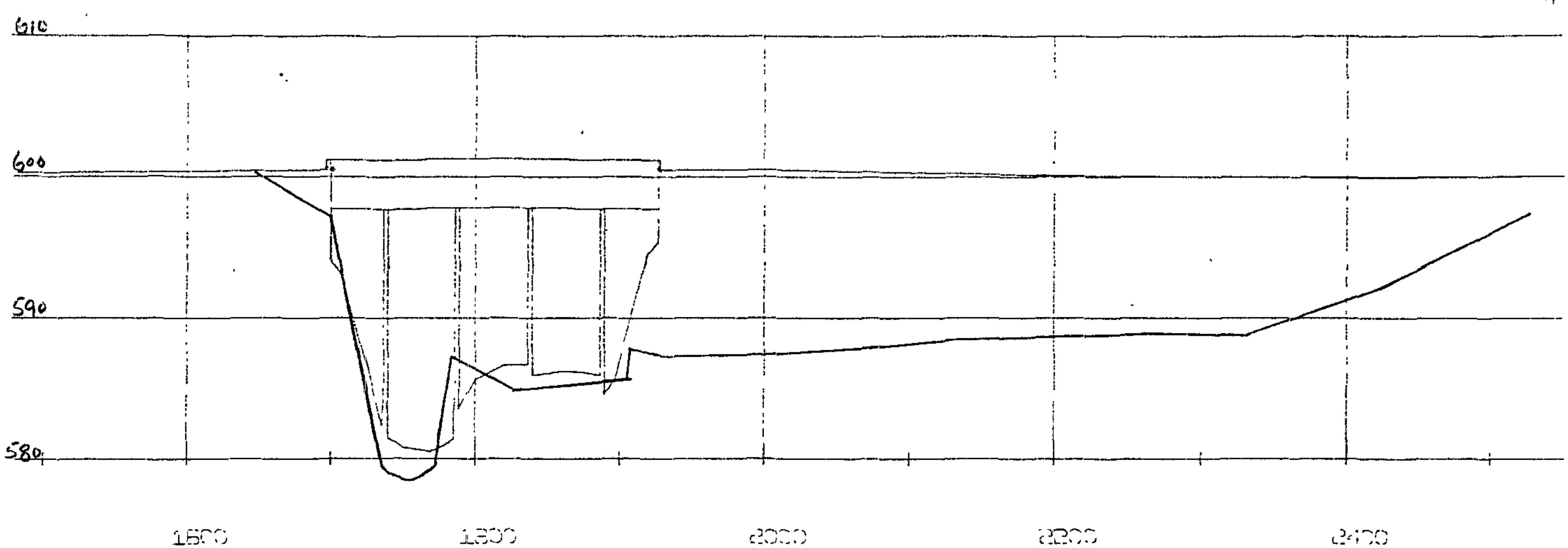


SECTION 107

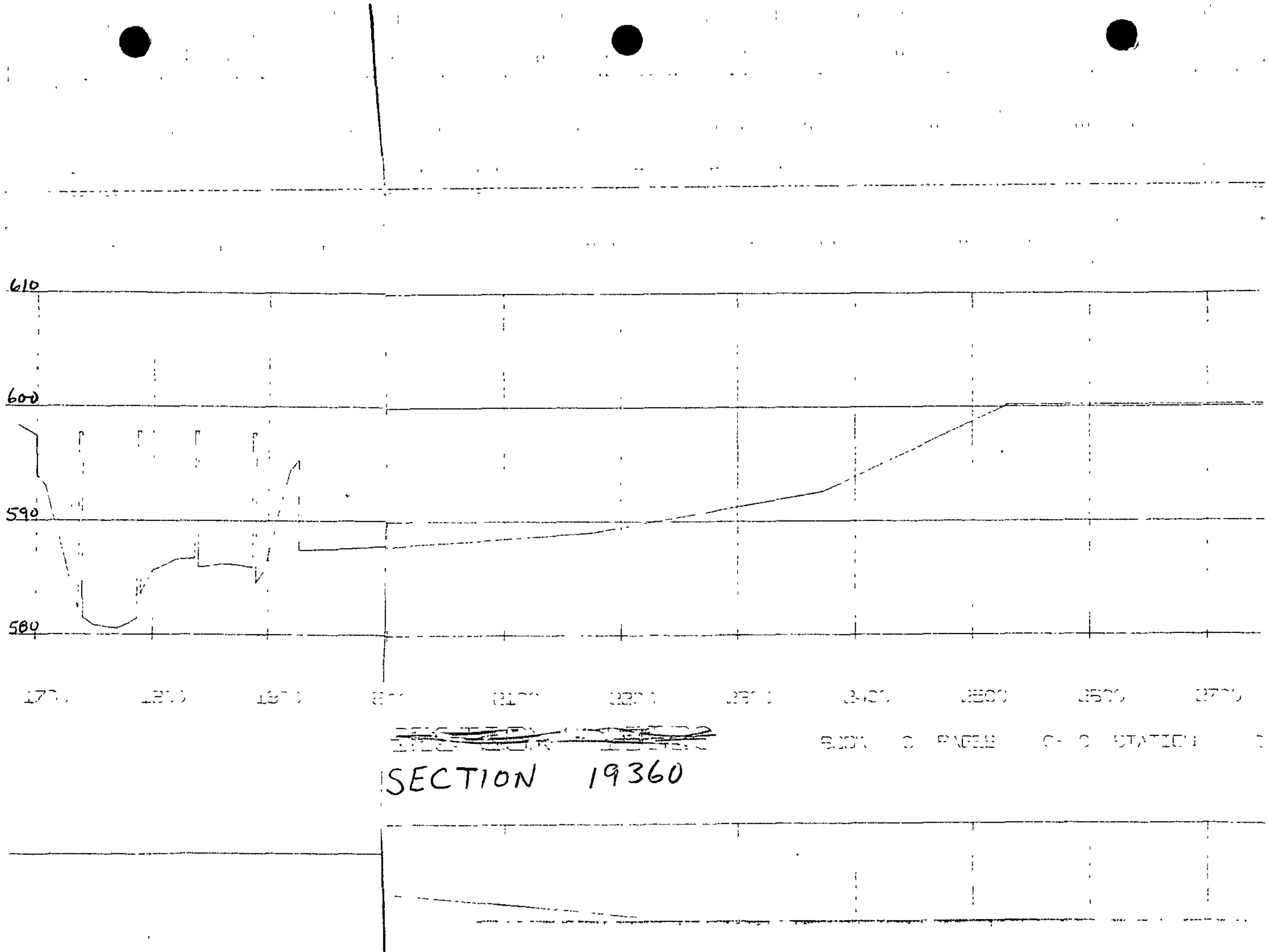
BOOK 0 P/GES 0- 0 STATION 0- 0

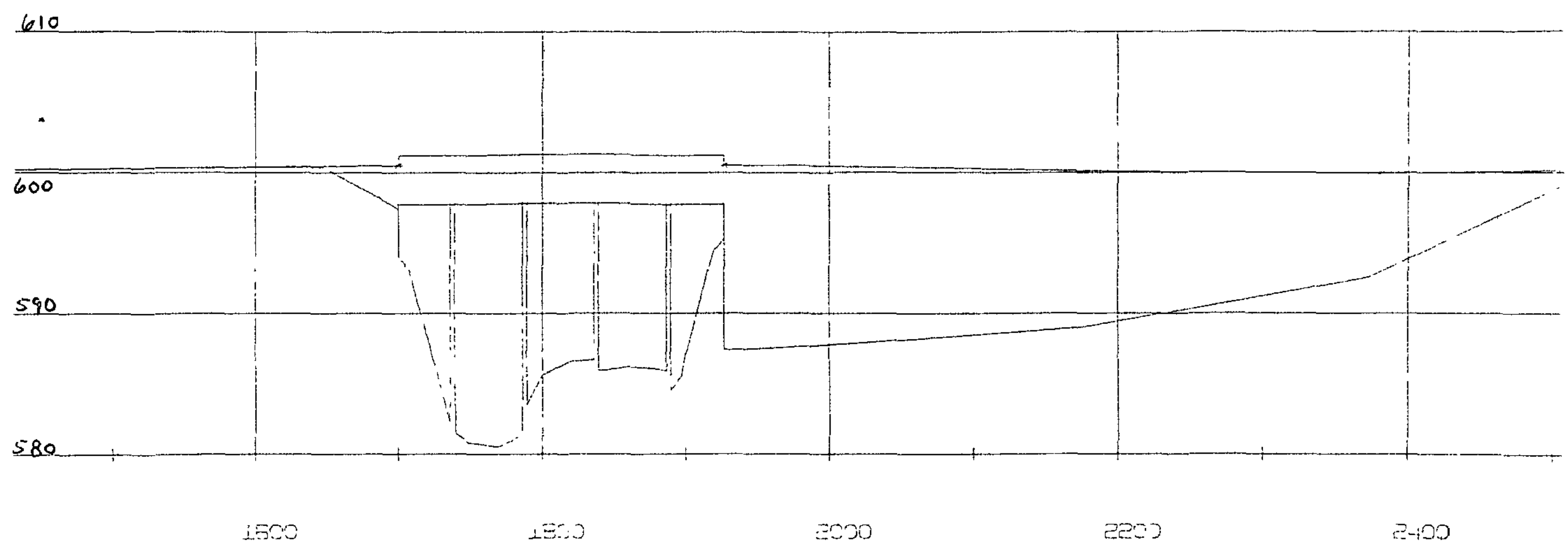


SECTION 108

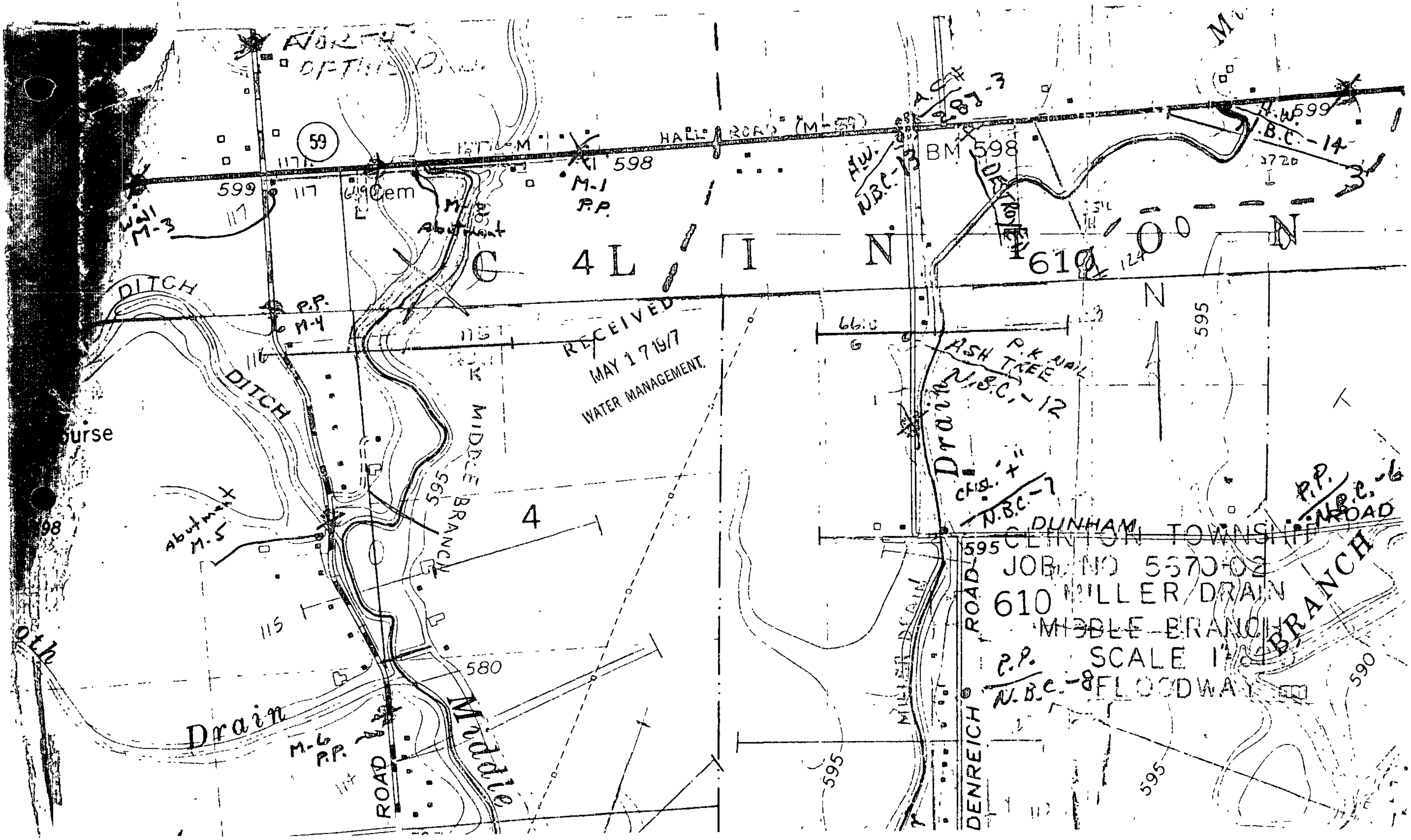


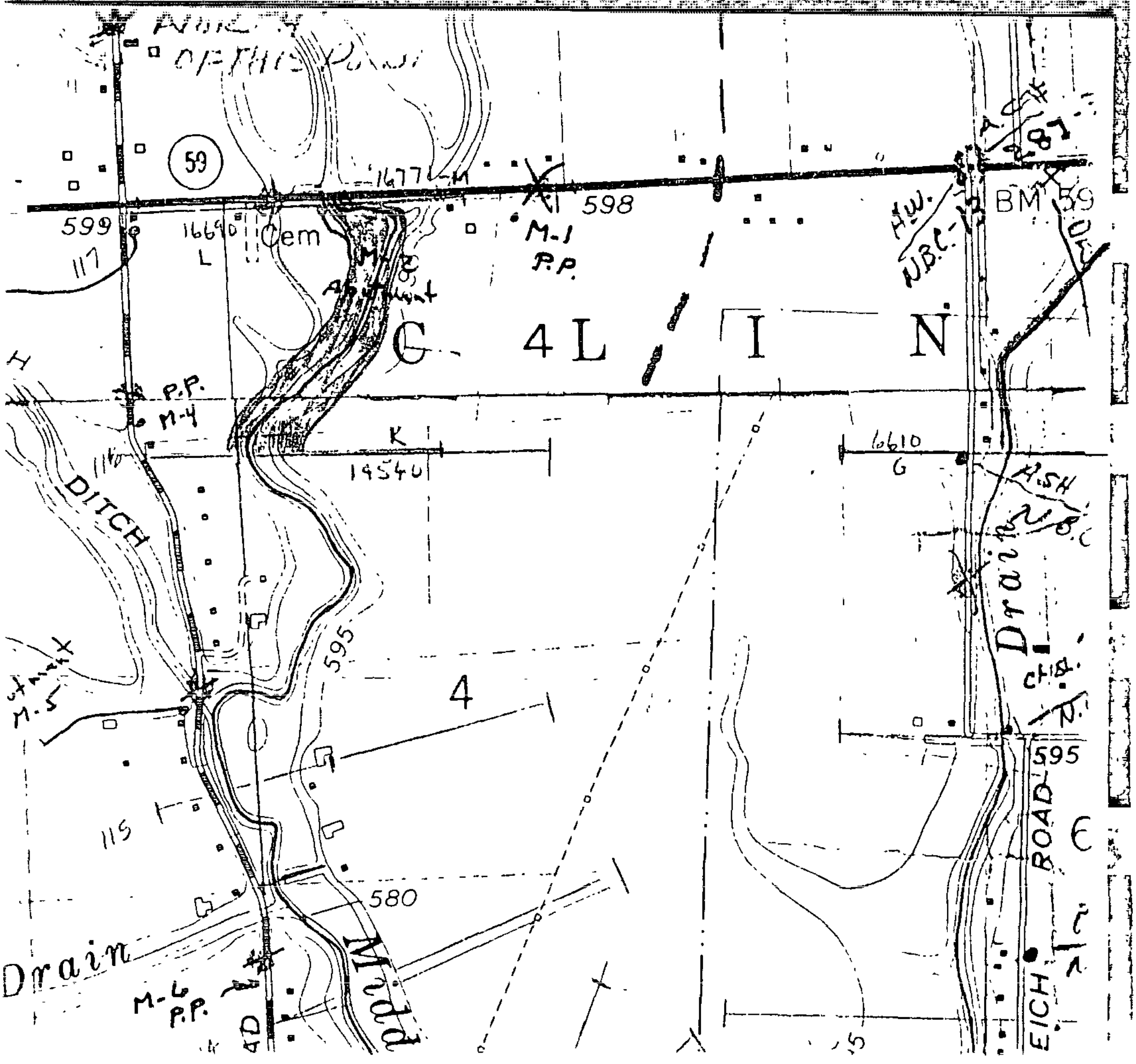
SECTION 108


610
600
590
580
SECTION 19360



SECTION 19401


CLINTON TOWNSHIP
JOB NO 5570-02
610 MILLER DRAIN
MIDDLE BRANCH
SCALE 1"
FLOODWAY
DUNHAM ROAD
DENREICH ROAD
HALL ROAD (M-59)
RECEIVED
MAY 17 1977
WATER MANAGEMENT
CLINTON
610
Middle Drain
MIDDLE BRANCH
BRANCH
MILLER DRAIN
Drain
DITCH
ROAD
59
Cem
BM 598
Wall M-3
M-4 P.P.
M-1 P.P.
M-2 Abutment
Abutment M-5
M-6 P.P.
H.W. N.B.C.-13
A.C.# 2-87-3
H.W. 599
N.B.C.-14
P.K. NAIL ASH TREE N.B.C.-12
Chis. "+" N.B.C.-7
P.P. N.B.C.-6
P.P. N.B.C.-8
595
598
599
580
590



59
1677-M
598
599
16690
L
Cem
117
M-1
P.P.
M-2
Abutment
BM 59
4L
I
N
P.P.
M-4
DITCH
K
14540
16610
G
Drain
595
4
M-5
115
580
Drain
M-6
P.P.
ROAD
595

CLINTON TOWNSHIP FLOOD INSURANCE STUDY
MIDDLE BRANCH OF THE CLINTON RIVER J*A NO. 5670-02
PROJECT MANAGER WILLIAM ROSSOW

FIELD SECTION	SECNO	DESCRIPTION
	0	VALLEY SECTION A RELOCATED INVERT ADJUSTED
A	1420	VALLEY SECTION A ENCROACHMENT ON 10 YEAR FLOW DUE TO FLOW EXPANSION
B	3220	VALLEY SECTION B BLEND OF SECTIONS B AND C ENCROACHMENT ON 10 YEAR FLOW DUE TO FLOW EXPANSION LEFT ENCROACHMENT AT DIVIDE OF MILLER AND MIDDLE BRANCH
	3268	BRIDGE SECTION C RELOCATED GROUND POINTS ONLY RIGHT ENCROACHMENT DUE TO FLOW CONTRACTIONS LEFT ENCROACHMENT AT DIVIDE OF MILLER AND MIDDLE BRANCH
	3269	BRIDGE SECTION C HEYDENREICH ROAD DOWNSTREAM FACE RIGHT ENCROACHMENT DUE TO FLOW CONTRACTIONS LEFT ENCROACHMENT AT DIVIDE OF MILLER AND MIDDLE BRANCH
C	3292	BRIDGE SECTION C HEYDENREICH ROAD UPSTREAM FACE RIGHT ENCROACHMENT DUE TO FLOW CONTRACTIONS LEFT ENCROACHMENT AT DIVIDE OF MILLER AND MIDDLE BRANCH
	3293	BRIDGE SECTION C RELOCATED GROUND POINTS ONLY RIGHT ENCROACHMENT DUE TO FLOW CONTRACTIONS LEFT ENCROACHMENT AT DIVIDE OF MILLER AND MIDDLE BRANCH
D	5050	VALLEY SECTION D LEFT ENCROACHMENT DUE TO HIGH GROUND
	6120	BRIDGE SECTION E RELOCATED GROUND POINTS ONLY BLEND OF SECTION D (FIELD SECTION 112) AND FIELD SECTION 112A RIGHT ENCROACHMENT DUE TO HOUSES LEFT ENCROACHMENT DUE TO HIGH GROUND
E	6134	BRIDGE SECTION E PRIVATE DRIVE UPSTREAM FACE BLEND OF SECTION D (FIELD SECTION 112) AND FIELD SECTION 112A RIGHT ENCROACHMENT DUE TO HOUSES LEFT ENCROACHMENT DUE TO HIGH GROUND
F	8150	VALLEY SECTION F RIGHT ENCROACHMENT DUE TO HIGH GROUND LEFT ENCROACHMENT DUE TO HIGH GROUND
G	10180	VALLEY SECTION G RIGHT ENCROACHMENT DUE TO HIGH GROUND LEFT ENCROACHMENT DUE TO HIGH GROUND

	10880	BRIDGE SECTION H RELOCATED GROUND POINTS ONLY BLEND OF SECTION F (FIELD SECTION 114) AND FIELD SECTIO 114A RIGHT ENCROACHMENT DUE TO HIGH GROUND LEFT ENCROACHMENT DUE TO HIGH GROUND
H	10895	BRIDGE SECTION H PRIVATE DRIVE UPSTREAM FACE BLEND OF SECTION F (FIELD SECTION 114) AND FIELD SECTIO 114A RIGHT ENCROACHMENT DUE TO HIGH GROUND LEFT ENCROACHMENT DUE TO HIGH GROUND
	10965	VALLEY SECTION J RELOCATED INVERT ADJUSTED
	11275	BRIDGE SECTION I RELOCATED GROUND POINTS ONLY BLEND OF SECTION J (FIELD SECTION 115) AND FIELD SECTIO 114B
	11276	BRIDGE SECTION I PRIVATE DRIVE DOWNSTREAM FACE BLEND OF SECTION J (FIELD SECTION 115) AND FIELD SECTIO 114B
I	11290	BRIDGE SECTION I PRIVATE DRIVE UPSTREAM FACE BLEND OF SECTION J (FIELD SECTION 115) AND FIELD SECTIO 114B
	11291	BRIDGE SECTION I RELOCATED GROUND POINTS ONLY BLEND OF SECTION J (FIELD SECTION 115) AND FIELD SECTIO 114B
J	11700	VALLEY SECTION J
K	14540	VALLEY SECTION K RIGHT ENCROACHMENT DUE TO HIGH GROUND LEFT ENCROACHMENT DUE TO HIGH GROUND
L	16690	VALLEY SECTION L RIGHT ENCROACHMENT DUE TO EXPANSION OF FLOW LEFT ENCROACHMENT DUE TO EXPANSION OF FLOW
	16730	BRIDGE SECTION M RELOCATED GROUND POINTS ONLY BLEND OF SECTIONS L AND M RIGHT ENCROACHMENT DUE TO BRIDGE OPENING LEFT ENCROACHMENT DUE TO BRIDGE OPENING
M	16771	BRIDGE SECTION M HALL RD. (M-59) UPSTREAM FACE BLEND OF SECTIONS L AND M RIGHT ENCROACHMENT DUE TO BRIDGE OPENING LEFT ENCROACHMENT DUE TO BRIDGE OPENING

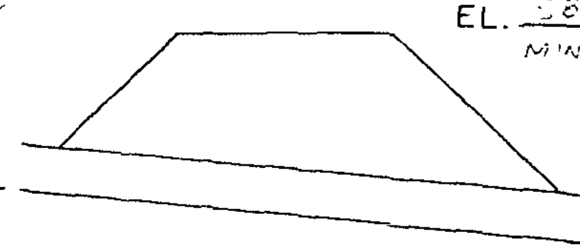
JOB NAME: CLINTON TOWNSHIP, FIS — JOB NO. 5670 | 02 | 112A

WATERCOURSE: MIDDLE BRANCH, CLINTON RIVER — CULVERT LOCATION: 2300' U/S OF HEYDENREICH ROAD

CULVERT DESCRIPTION: WOOD BRIDGE WITH CONCRETE HEADWALLS AND NO WINGWALLS

BY BEH — DATE 12/30/76

MAX U/S ELEV 587.4



WEIR DESCRIPTION: PLANKING WITH 12 FOOT BREADTH

A = 1978 — D = 10.7

WP = 569 — Ke = 0.5

$\frac{29.1}{R^{4/3}}$ = 5.5494 — n = .0210

So = 0.0000 — L = 14

Sta. 61+34 — Sta. 61+20

CALCULATIONS AND COMMENTS:

— MANNINGS n —

$$n = \left(\frac{.015^2 \times 169 + .013^2 \times 20 + .03^2 \times 20}{569}\right)^{1/2}$$

$$n = .0210$$

— XKOR —

$$XKOR = 1 + Ke + \frac{29.1\, n^2 L}{R^{4/3}}$$

$$XKOR = 1 + 0.5 + (.0210)^2 (5.5494)\, 14$$

$$XKOR = 1.534$$

— COEF —

ASSUME H=1.0 FOR INITIAL RUN

$\frac{H}{L} = \frac{1}{12} = .083 < .15$

∴ USE H=1.0

COEF = 3.04

Johnson & Anderson, Inc.
Consulting Engineers
P O Box 1166   2300 Dixie Highway   Pontiac, Michigan 48056

HYDRAULIC STRUCTURAL DATA   CODED BEN 11/2/76

Code No. 02-112-

Job Name: CLINTON TOWNSHIP FIS	By: P. SPUNCK
Date: 29 OCTOBER 1971 · Feature: ALEXANDER NURSERY BRIDGE EXTRA BRIDGE	Water Course: MIDDLE BRANCH CLINTON RIVER

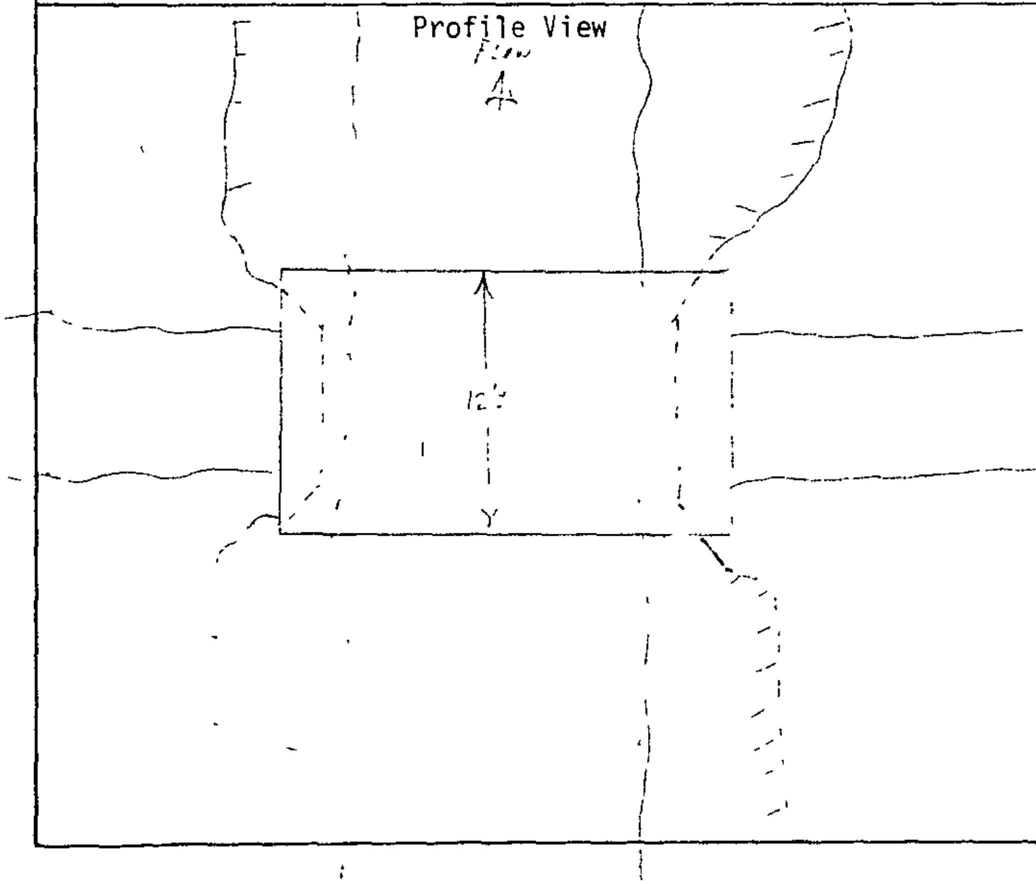
Remarks: A. [illegible] SOME [illegible] IN CHANNEL JUNK   BRIDGE [illegible] ROUGH & IRREGULAR — ABUTMENTS WERE ROUGHLY FORMED & POURED FORMS WERE LEFT IN PLACE

C. PHOTOS! NBB-15 UP/S FACE   NBB-17 RIGHT   NBB-19 DOWN/STREAM
NBB-16 UP/STREAM   NBB-18 LEFT   NBB-20 DOWN/S FACE

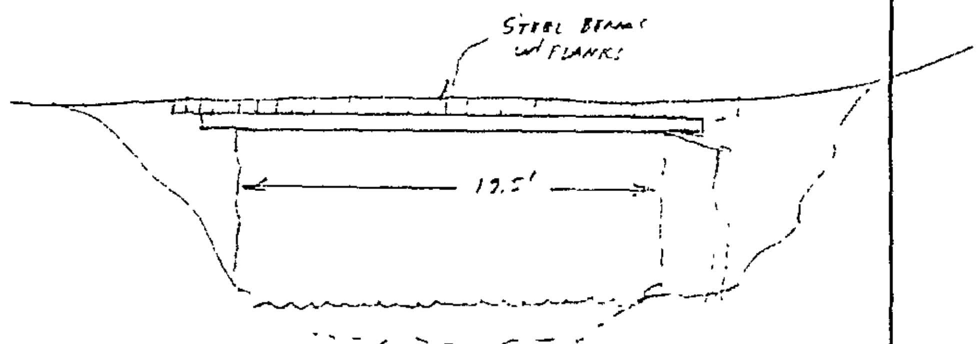
Width of Piers: N/A	Pier Shape: N/A	No. of Piers: NONE	Area:
Water Elevation: 578.?	Length: 19.5'	Width of Deck: 12'	Skew: 90°

FIELD SKETCH

Profile View



Plan View



```
X1   6120.00        36    515.00    534.50   1070.00   1070.00   1070.00     1.000

BT     22.00      0.00    594.50      0.00    100.00    593.70      0.00    200.00    594.50      0.00

BT    265.00    593.20      0.00    294.00    584.00      0.00    315.00    583.30      0.00    415.00
BT    584.20      0.00    515.00    588.20    579.10    515.00    598.20    587.40    534.50    588.30
BT    587.30    534.50    588.30    581.80    538.00    588.30      0.00    560.00    588.90      0.00
BT    595.00    589.40      0.00    660.00    597.40      0.00    670.00    597.30      0.00   1200.00
BT    596.30      0.00   1300.00    597.80      0.00   1400.00    597.00      0.00   1500.00    596.50
BT      0.00   1515.00    596.10      0.00   1572.00    598.10      0.00

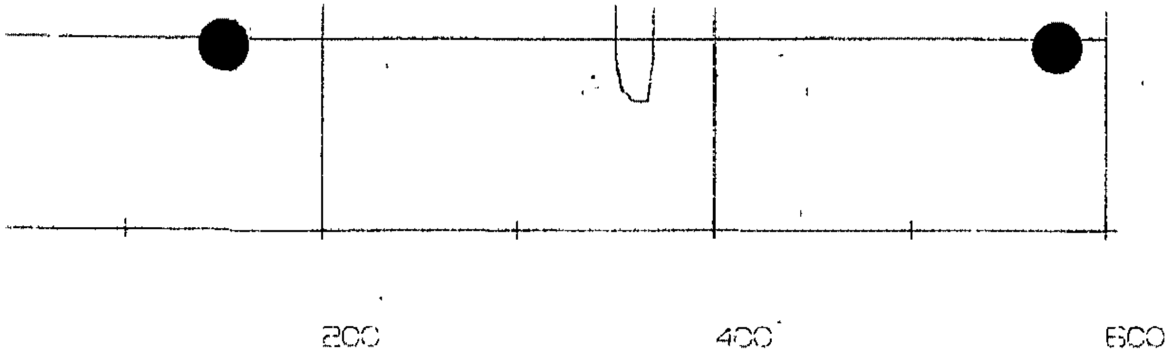
GR    594.50      0.00    593.70    100.00    594.50    200.00    593.20    265.00    584.00    294.00
GR    581.10    303.00    581.40    315.00    582.90    400.00    582.90    415.00    583.00    500.00
GR    583.00    515.00    579.10    515.00    577.40    518.00    576.60    523.00    576.70    528.00
GR    576.80    532.00    578.80    534.50    581.80    534.50    581.90    538.00    582.50    560.00
GR    583.50    595.00    583.60    600.00    584.50    660.00    584.60    670.00    585.10    700.00
GR    588.30    800.00    590.10    900.00    592.10   1000.00    595.90   1100.00    596.70   1132.00
GR    596.30   1200.00    597.80   1300.00    597.00   1400.00    596.50   1500.00    596.10   1515.00
GR    598.10   1572.00
*******************LISTING OF TOP AND BOTTOM SECTIONS OF ORIFICE******************

 515.00  579.10  515.00  587.40  534.50  587.30  534.50  581.80

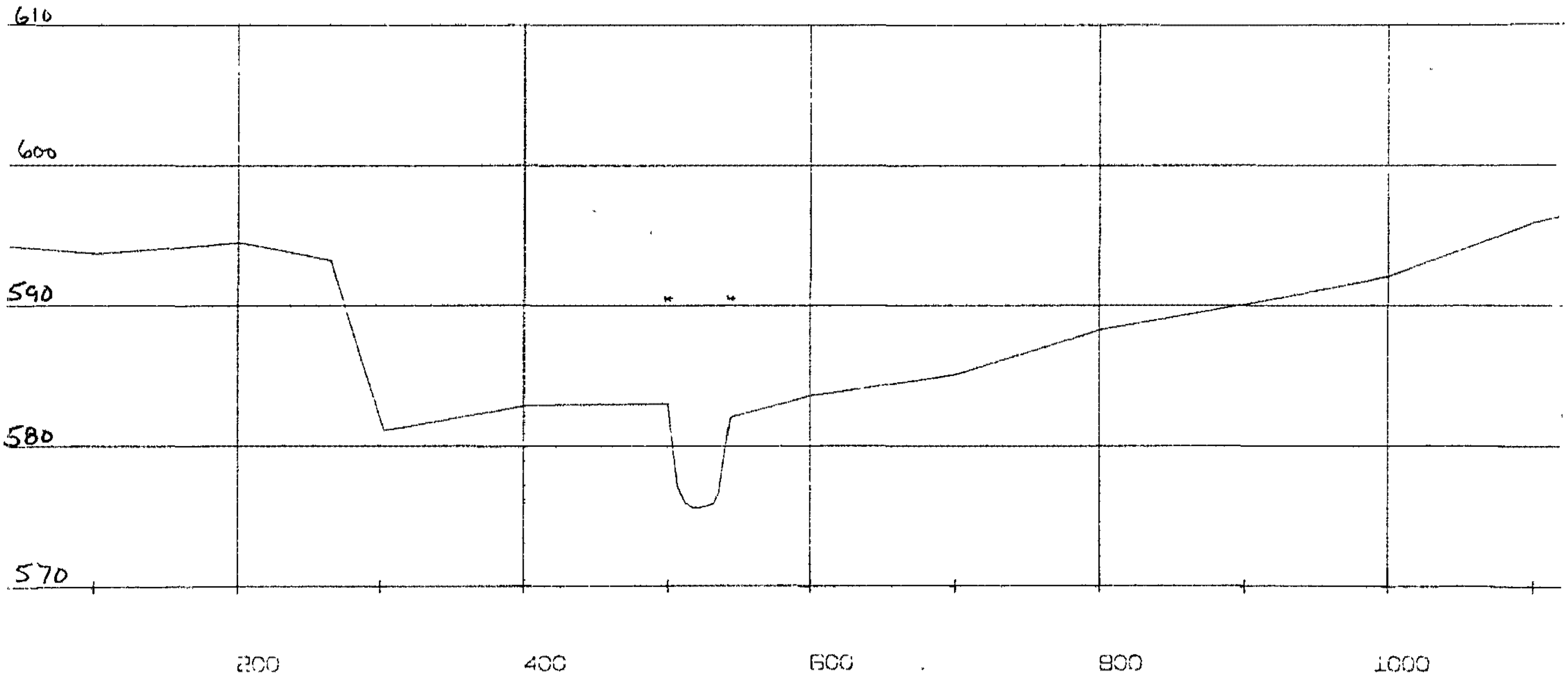
 515.00  583.00  515.00  579.10  518.00  577.40  523.00  576.80  528.00  576.70
 532.00  576.80  534.50  578.80  534.50  581.80
************** LISTING OF COORDINATES OF ORIFICE*********************

 515.00  579.10  515.00  587.40  534.50  587.30  534.50  581.80  534.50  578.80
 532.00  576.80  528.00  576.70  523.00  576.80  518.00  577.40  515.00  579.10
 515.00  579.10

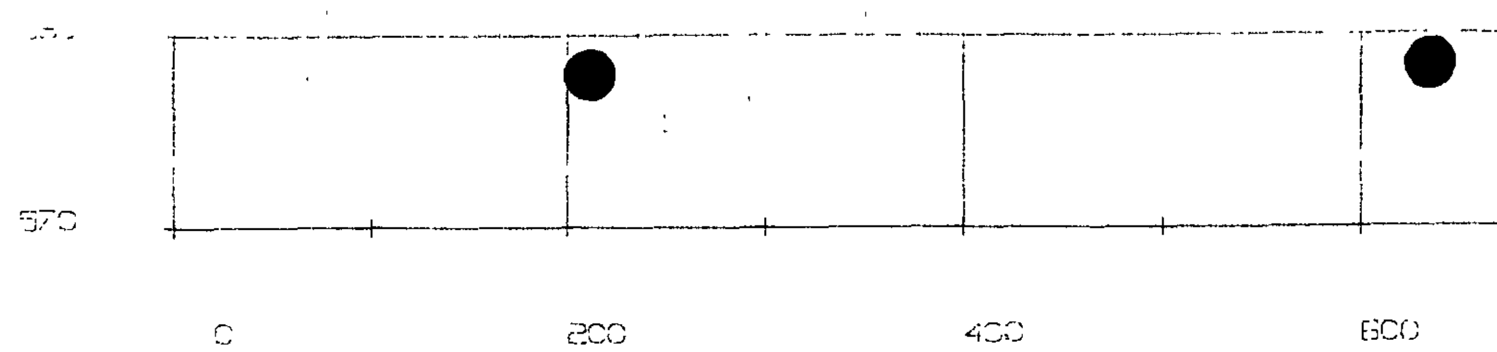
 ORIFICE AREA      197.8 WETTED PERIMETER     56.0  29.1/R**1.333       5.5494
```



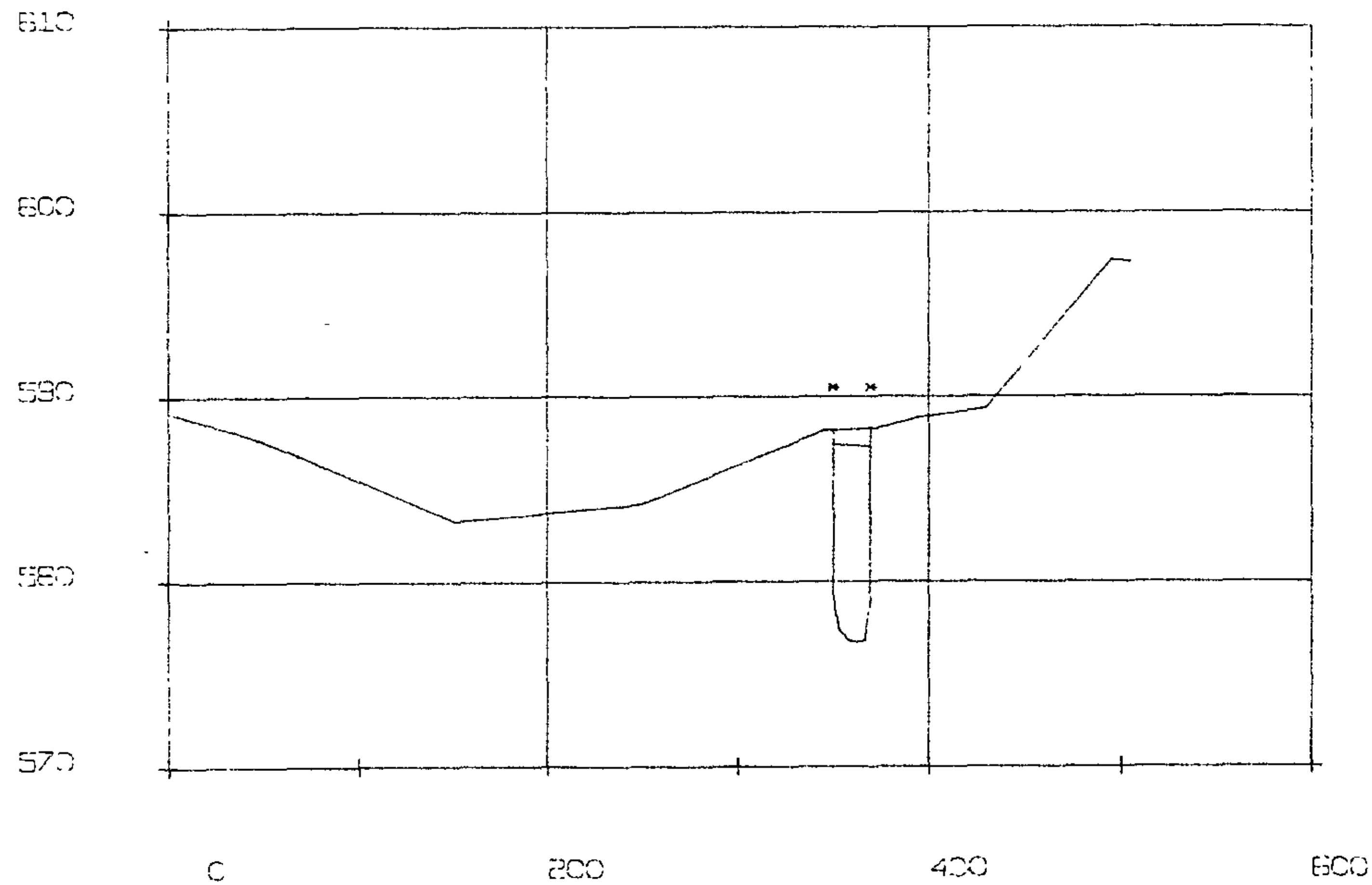
CTION 112.1



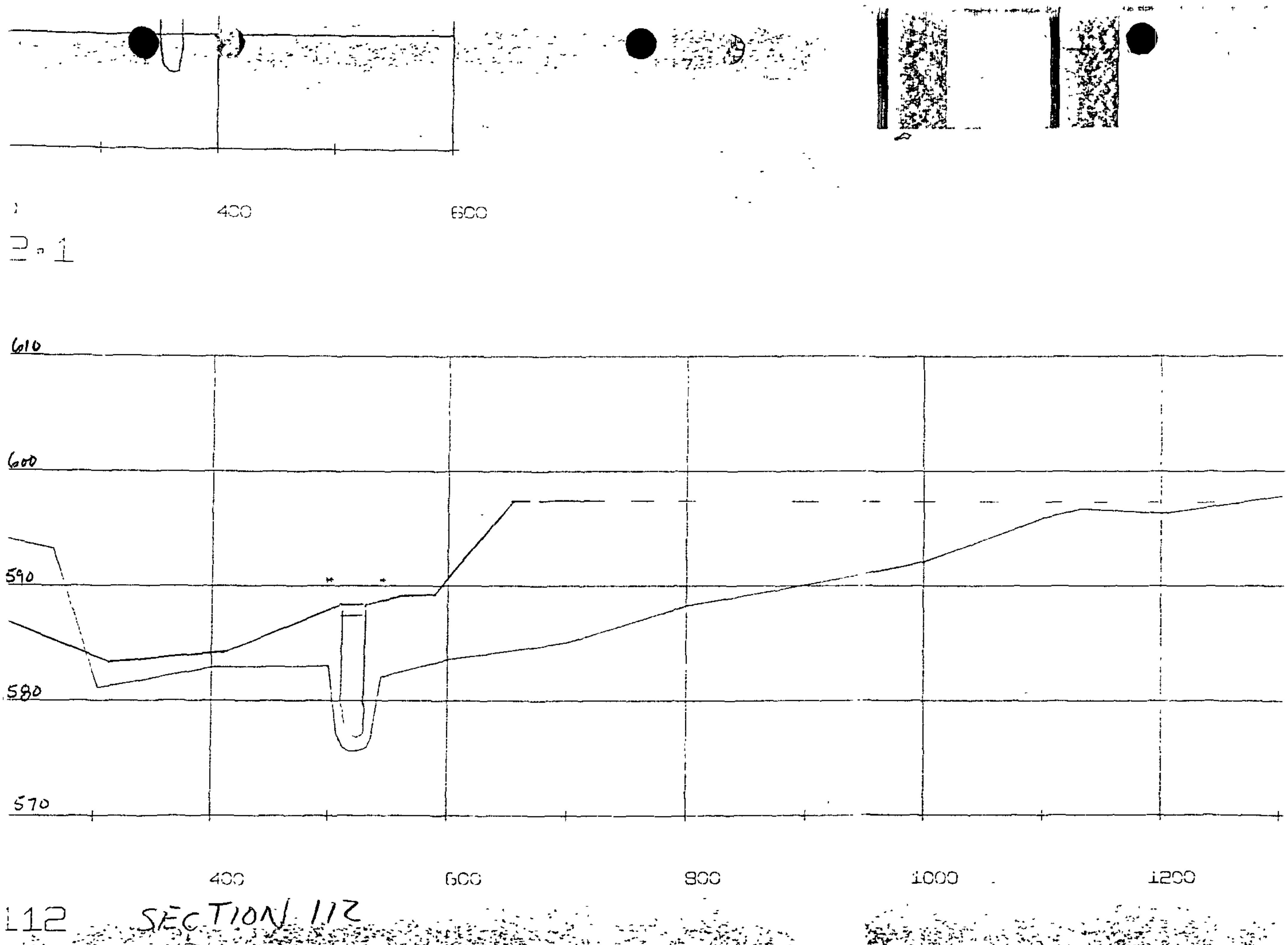
CTION 112



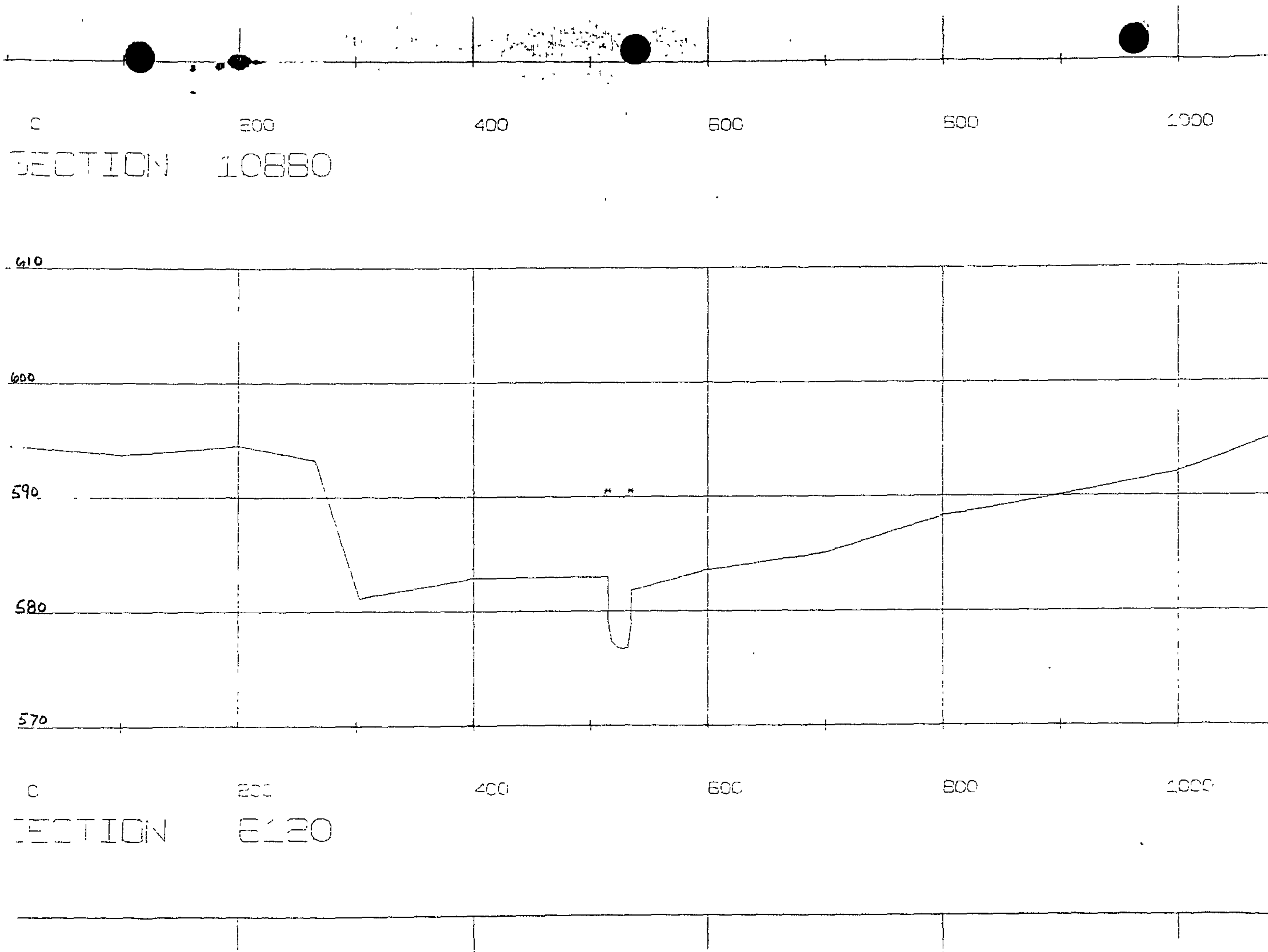
SECTION 113



SECTION 112.1



400
600
2 : 1
610
600
590
580
570
400
600
800
1000
1200
112
SECTION 112


0
200
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1000
SECTION 10880
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600
590
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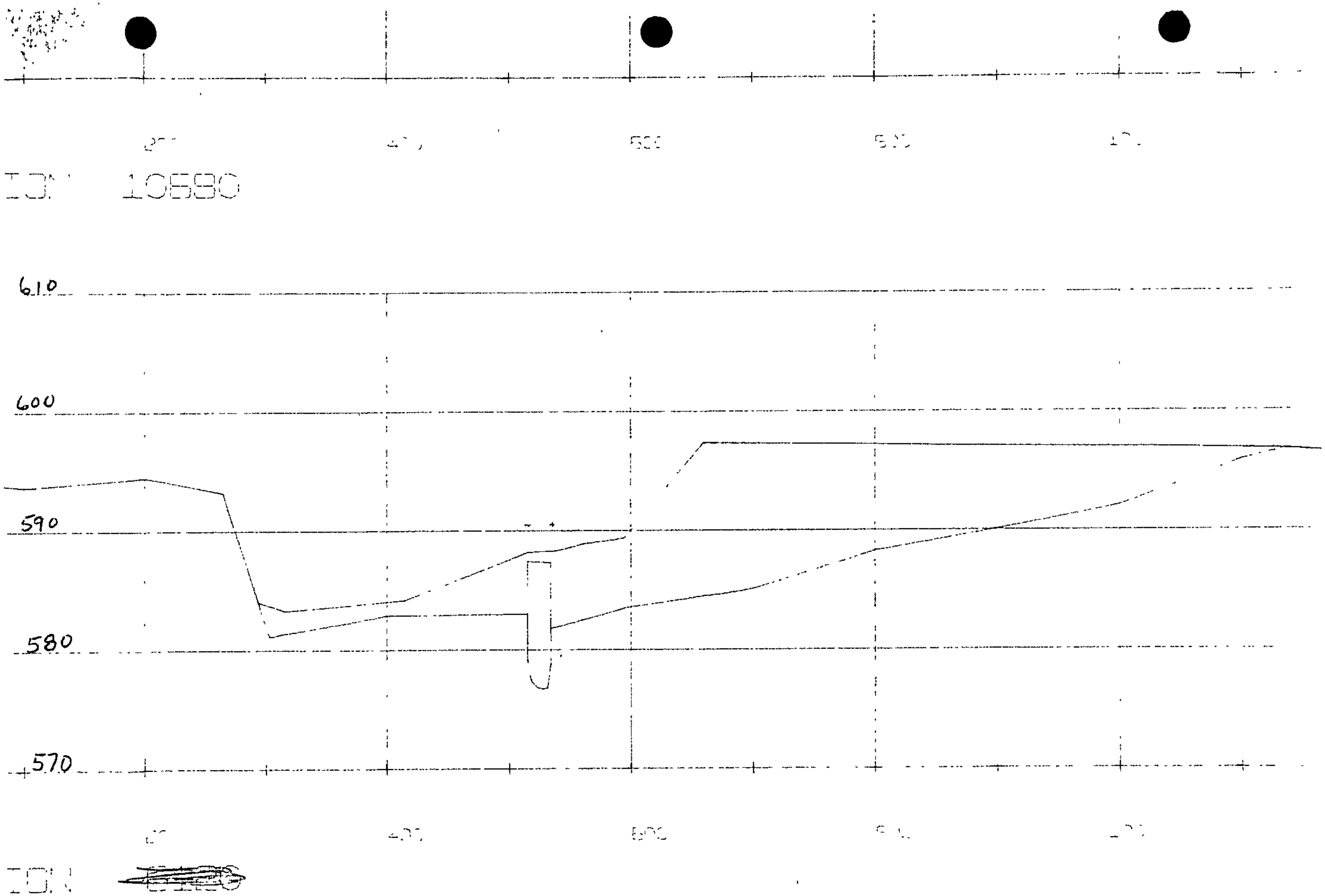
200
400
600
800
1000
SECTION 6120



SECTION 6134

JOB NAME: CLINTON TOWNSHIP, FIS — JOB NO. 5670 | 02 | 14A

WATERCOURSE: MIDDLE BRANCH, CLINTON RIVER — CULVERT LOCATION: 5100' D/S OF M-59

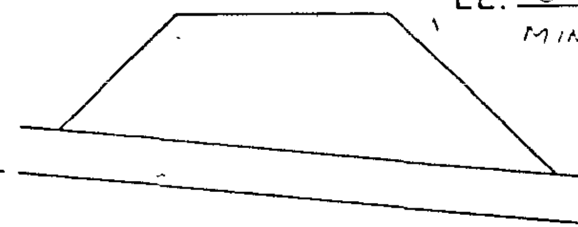
CULVERT DESCRIPTION: WOOD DECK ON STEEL BEAMS WITH CONCRETE HEADWALLS, BOX BRIDGE. WINGWALL AT SLIGHT ANGLE TO BARREL

BY BEH — DATE 12/30/76

WEIR DESCRIPTION: PLANKING AND GRAVEL WITH 12 FOOT BREADTH

MAX U/S ELEC 591.0

EL. 591.8 MIN ELTRD



EL. 576.8

EL 576.8

So = 0.0000

L = 15

Sta. 108+95 — Sta. 108+80

A = 504.3	D = 14.2
WP = 98.8	Ke = 0.5
$\frac{29.1}{R^{4/3}}$ = 3.3197	n = .0277

CALCULATIONS AND COMMENTS:

— MANNING'S n —

$$n = \left(\frac{.015^2 \times 60 + .04^2 \times 38.8}{98.8}\right)^{1/2}$$

n = .0277

— XKOR —

$$XKOR = 1 + K_e + \frac{29.1\, n^2 L}{R^{4/3}}$$

$$XKOR = 1 + .5 + (.0277)^2 (3.3197)(13)$$

XKOR = 1.533

— COFQ —

ASSUME H = 1.0 FOR INITIAL RUN

$\frac{H}{L} = \frac{1}{13} = .077 < .15$

∴ USE H = 1.0

COFQ = 2.84

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Consulting Engineers
P O Box 1166 2300 Dixie Highway Pontiac, Michigan 48056

HYDRAULIC STRUCTURAL DATA

EXTRA BRIDGE SECTION + ELEVATIONS DOWN/STREAM

CODED 10/29/76
BEH

Code No. 02-114A

Job Name: CLINTON TWP. F.I.S.	By: T.R PRUYT

Date: 10-28-76	Feature: DRIVEWAY BRIDGE	Water Course: MIDDLE BRANCH- CLINTON RIV

Remarks: BOTTOM: SAND

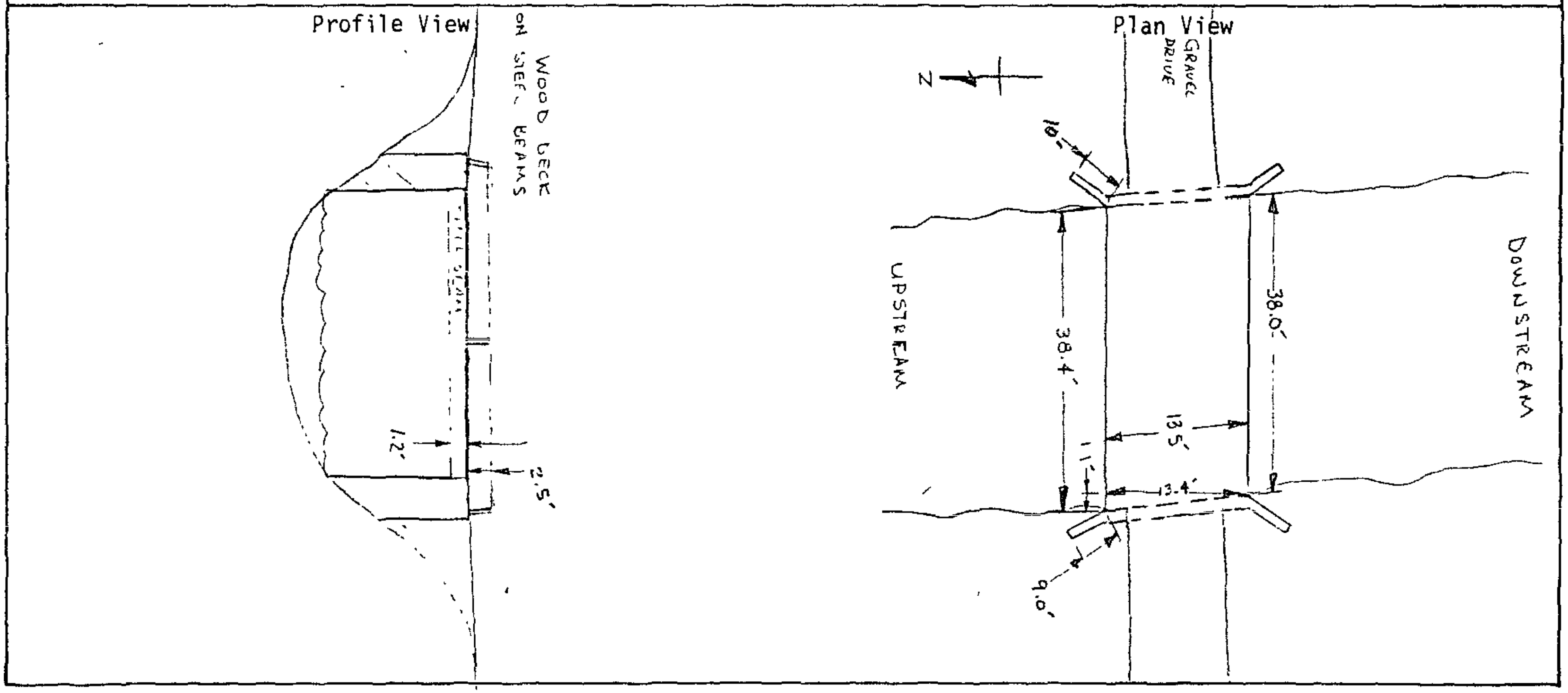
PHOTO LOG: MBA-5 UP/STREAM FACE MBA-7 RIGHT MBA-9 DOWN/STREAM

MBA-6 UP/STREAM MBA-8 LEFT MBA-10 DOWN/STREAM FACE

Width of Piers: N/A	Pier Shape: N/A	No. of Piers: NONE	Area:
Water Elevation: 580.1	Length: 35.0'	Width of Deck: 13.4'	Skew: SEE SKETCH

FIELD SKETCH

Profile View Plan View



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X1  10880.00         42  1765.00   1803.00    700.00    700.00    700.00     1.000

BT      34.00      0.00   597.10      0.00    100.00    596.60      0.00    200.00    596.40      0.00



BT     300.00    596.40     0.00    400.00    596.10      0.00    500.00    596.00      0.00    600.00
BT     595.30      0.00   700.00    596.10      0.00    800.00    596.40      0.00    900.00    596.30
BT       0.00   1000.00   597.30      0.00   1100.00    597.40      0.00   1200.00    597.40      0.00
BT    1300.00    597.10     0.00   1400.00    594.90      0.00   1500.00    591.80      0.00   1600.00
BT     591.40      0.00  1700.00    591.50      0.00   1765.00    592.10    584.30   1765.00    592.10
BT     590.90   1803.00   592.20    591.00   1803.00    592.20    584.20   1822.00    592.00      0.00
BT    1854.00    593.80     0.00   1865.00    593.50      0.00   1883.00    593.50      0.00   1900.00
BT     595.90      0.00  2050.00    595.90      0.00   2100.00    597.60      0.00   2200.00    597.10
BT       0.00   2232.00   597.60      0.00   2300.00    596.10      0.00   2400.00    595.90      0.00
BT    2500.00    596.10     0.00



GR     597.10      0.00   596.60    100.00    596.40    200.00    596.40    300.00    596.10    400.00
GR     596.00    500.00   595.30    600.00    596.10    700.00    596.40    800.00    596.30    900.00
GR     597.30   1000.00   597.40   1100.00    597.40   1200.00    597.10   1300.00    594.90   1400.00
GR     591.80   1500.00   590.20   1600.00    586.30   1700.00    584.30   1765.00    580.20   1765.00
GR     577.60   1769.00   577.60   1777.00    576.80   1785.00    577.10   1793.00    578.30   1800.00
GR     580.50   1803.00   584.20   1803.00    584.30   1822.00    584.40   1854.00    584.40   1865.00
GR     584.40   1883.00   584.50   1900.00    585.10   1935.00    591.70   1964.00    594.20   2000.00
GR     595.90   2050.00   597.60   2100.00    597.10   2200.00    597.60   2232.00    596.10   2300.00
GR     595.90   2400.00   596.10   2500.00
*******************LISTING OF TOP AND BOTTOM SECTIONS OF ORIFICE*****************

1765.00  584.30 1765.00  590.90 1803.00  591.00 1803.00  584.20



1765.00  584.30 1765.00  580.20 1769.00  577.60 1777.00  577.60 1785.00  576.80
1793.00  577.10 1800.00  578.30 1803.00  580.50 1803.00  584.20
************** LISTING OF COORDINATES OF ORIFICE********************

1765.00  584.30 1765.00  590.90 1803.00  591.00 1803.00  584.20 1803.00  580.50
1800.00  578.30 1793.00  577.10 1785.00  576.80 1777.00  577.60 1769.00  577.60
1765.00  580.20 1765.00  584.30
```
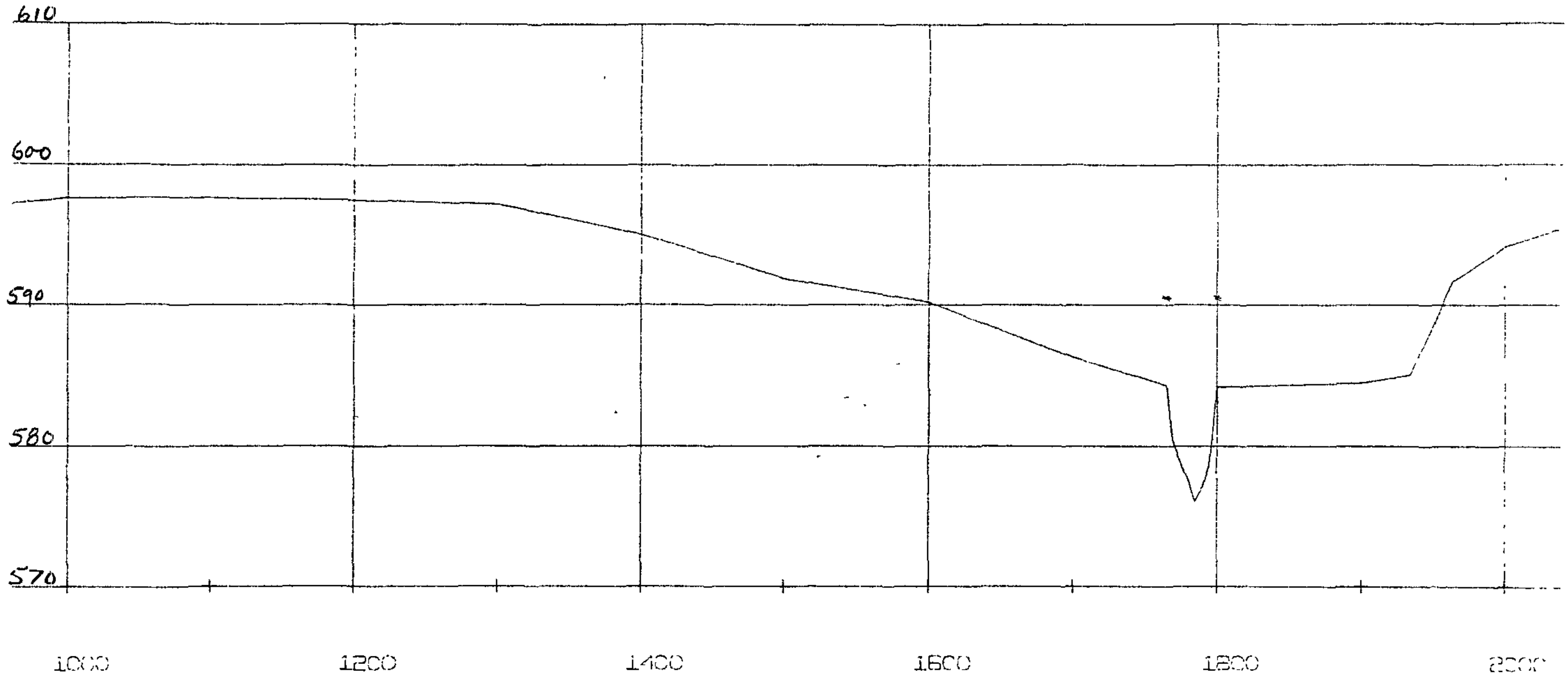
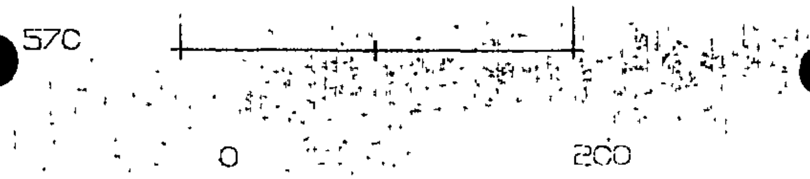
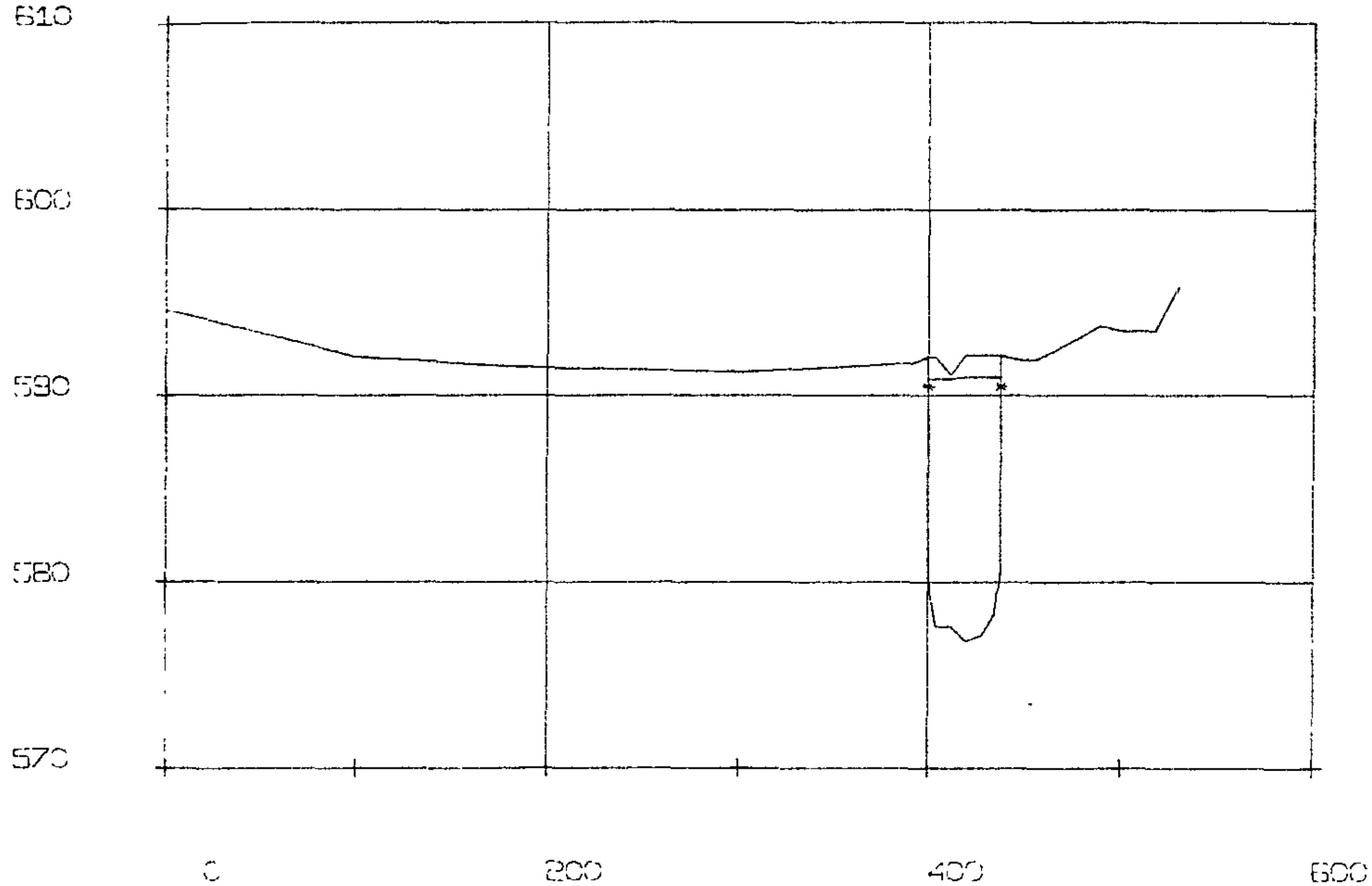

ORIFICE AREA 504.3 WETTED PERIMETER 93.8 29.1/R**1.333 3.3197



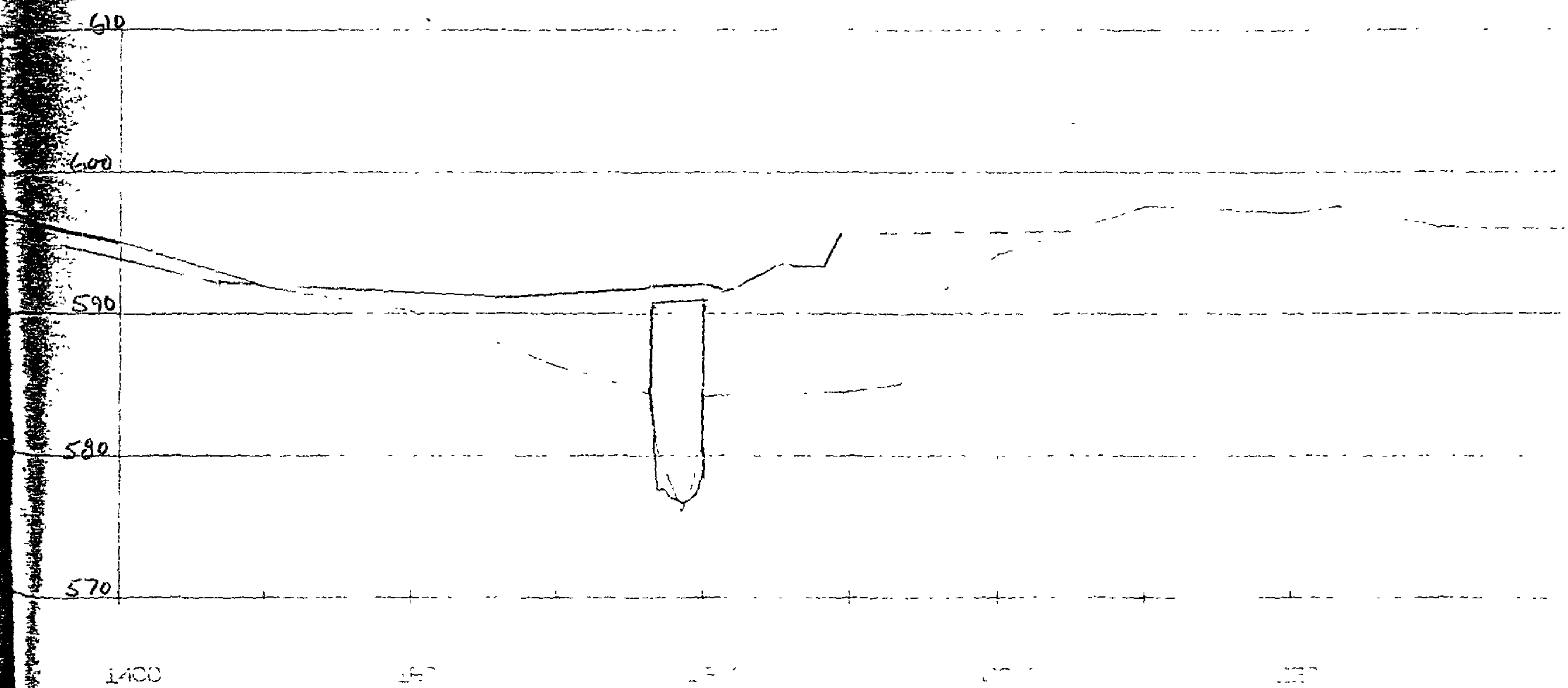
SECTION 114



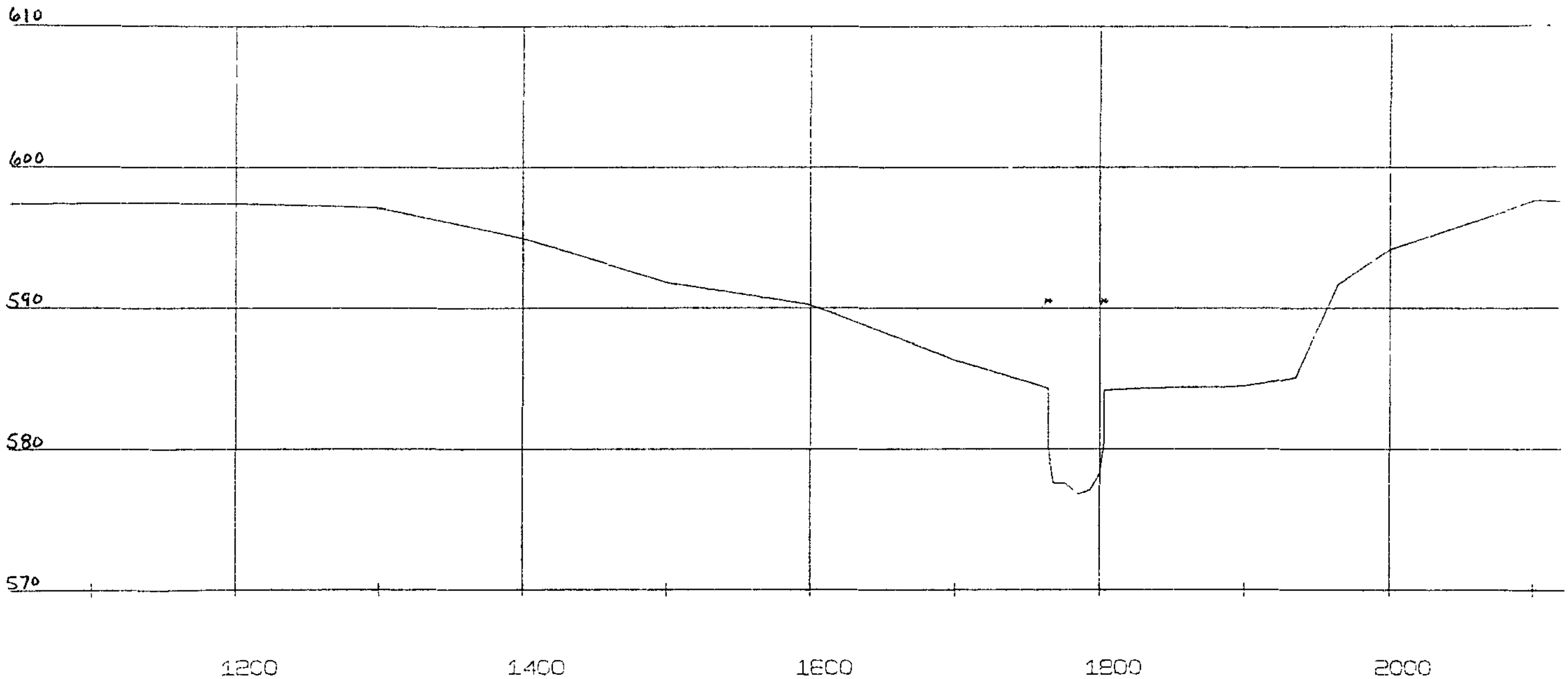
SECTION 114.5



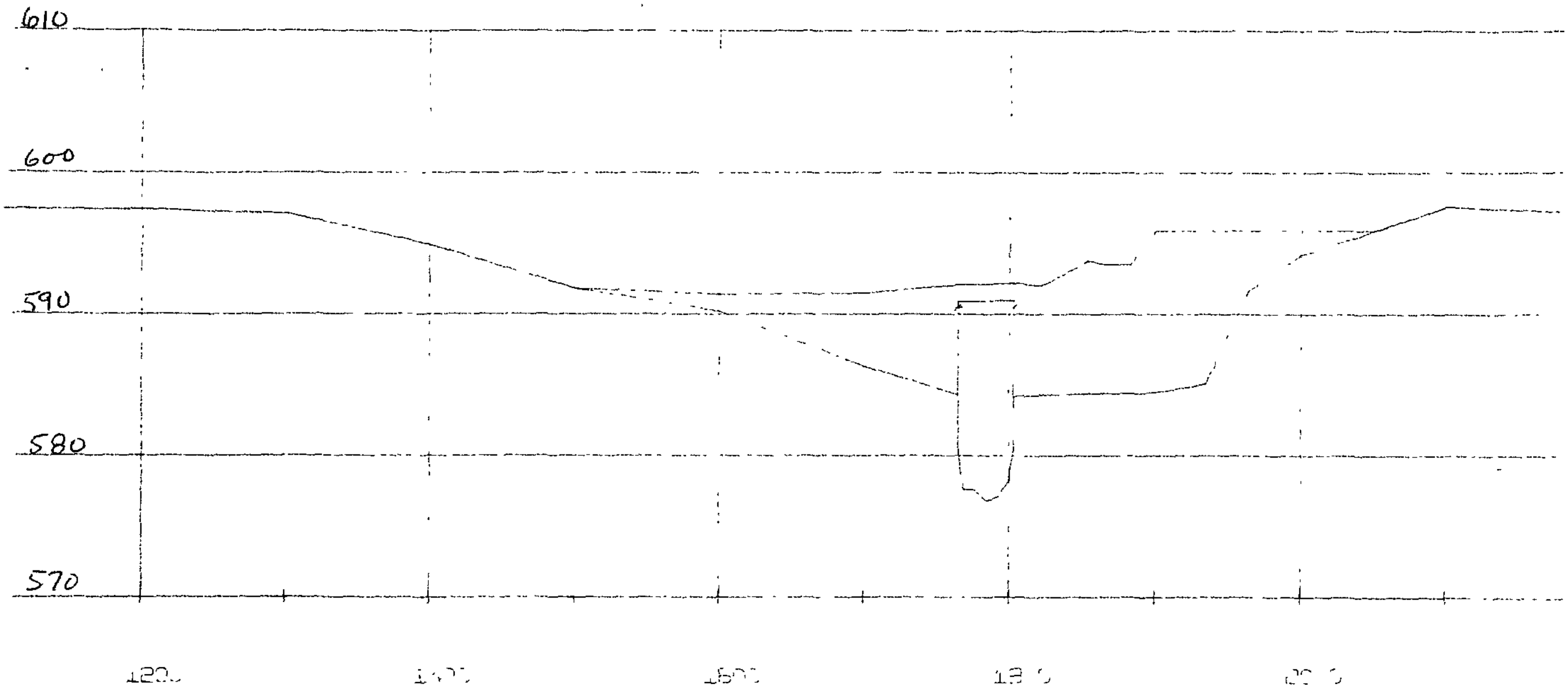
SECTION 114.1



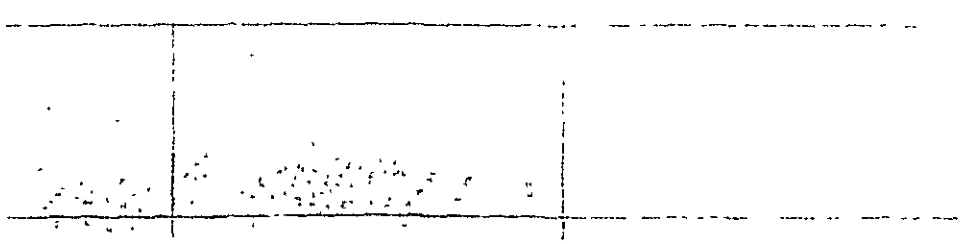
SECTION 114



SECTION 10880



SECTION 10895



JOB NAME: CLINTON TOWNSHIP FIS	JOB NO.	5670	02	117

WATERCOURSE: MIDDLE BRANCH CLINTON RIVER

CULVERT LOCATION: HALL ROAD

CULVERT DESCRIPTION: CONCRETE DECK, STEEL BEAM BRIDGE WITH CONCRETE HEADWALL PARALLEL TO THE DIRECTION OF FLOW

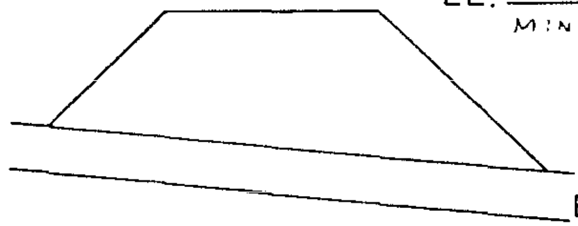
BY BEH

DATE 3/14/77

WEIR DESCRIPTION: PAVED ROADWAY WITH 39 FOOT BREADTH

MAX DIS ELEV 596.5

EL. 599.2 MIN ELTRD



EL. 580.8

EL. 580.8

So = 0.0000

L = 41

Sta. 167+71

Sta. 167+30

A = 1302.7 D = 157

WP = 319.3 Ke = 0.7

$\frac{29.1}{R^{4/3}}$ = 4.4745 n = .0298

CALCULATIONS AND COMMENTS:

– MANNING'S n –

$$n = \left(\frac{.015^2 \times 165 + .04^2 \times 154.3}{319.3} \right)^{1/2}$$

$n = .0298$

– COFQ –

ASSUME H=1.0

FOR INITIAL RUN

$\frac{H}{L} = \frac{1}{39} = .026 < .15$

– XKOR –

$$XKOR = 1 + K_e + \frac{29.1 n^2 L}{R^{4/3}}$$

$$XKOR = 1 + 0.7 + (4.4745)(.0298)^2(41)$$

$XKOR = 1.863$

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Consulting Engineers
PO Box 1166 2300 Dixie Highway Pontiac, Michigan 48056

A

HYDRAULIC STRUCTURAL DATA

SHT 1 OF 2
CODED 10/1/76
BEH

Code No. 5170-02 117

Job Name:		By:
Date:	Feature:	Water Course:

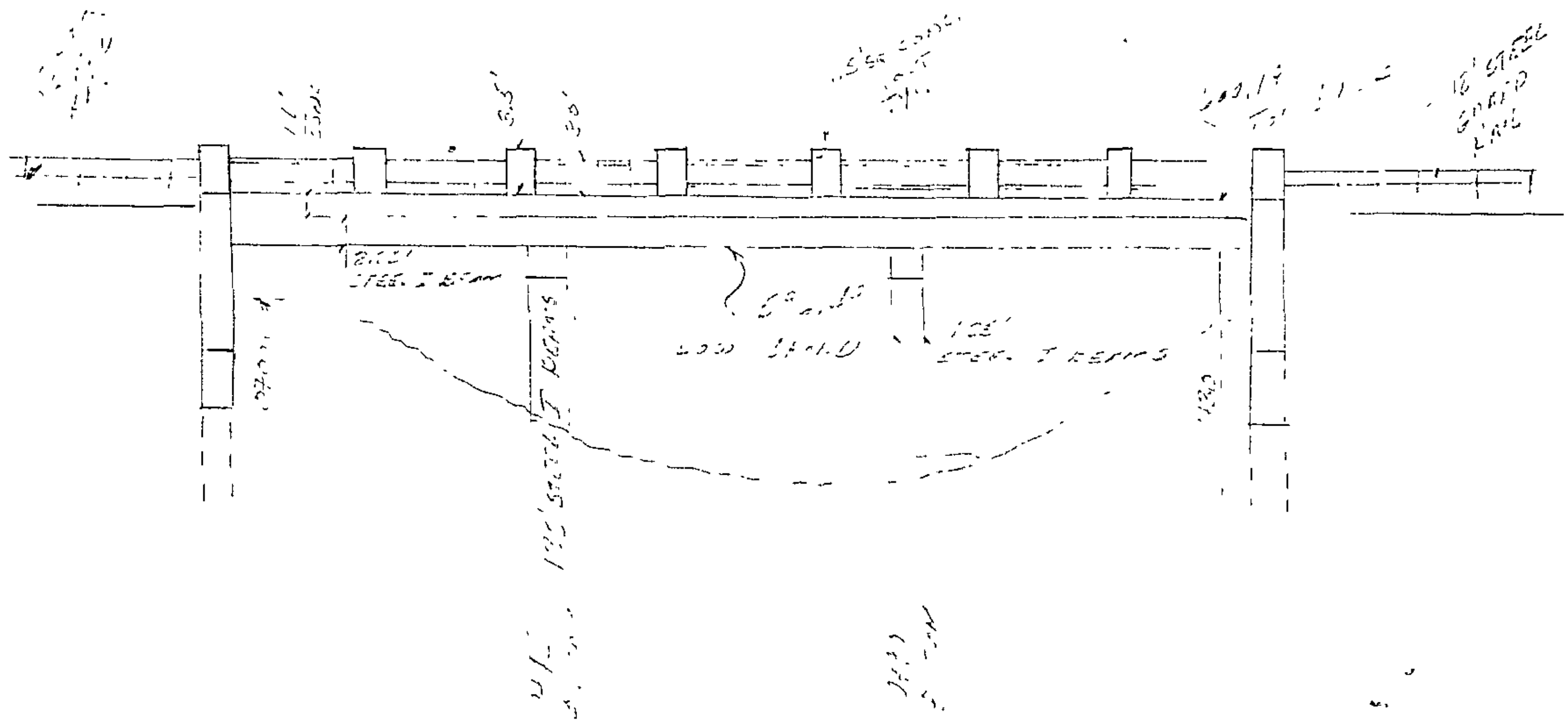
Remarks:

HEAVY BRUSH & MED SIZE TREES ON BANKS WEEDE FIELDS BEYOND

Width of Piers:	Pier Shape:	No. of Piers:	Area:
Water Elevation: 583.9	Length:	Width of Deck:	Skew: NONE

FIELD SKETCH

Profile View | Plan View



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Consulting Engineers
.:66 2300 Dixie Highway Pontiac, Michigan 48056

HYDRAULIC STRUCTURE DATA

Code No. [illegible] 117

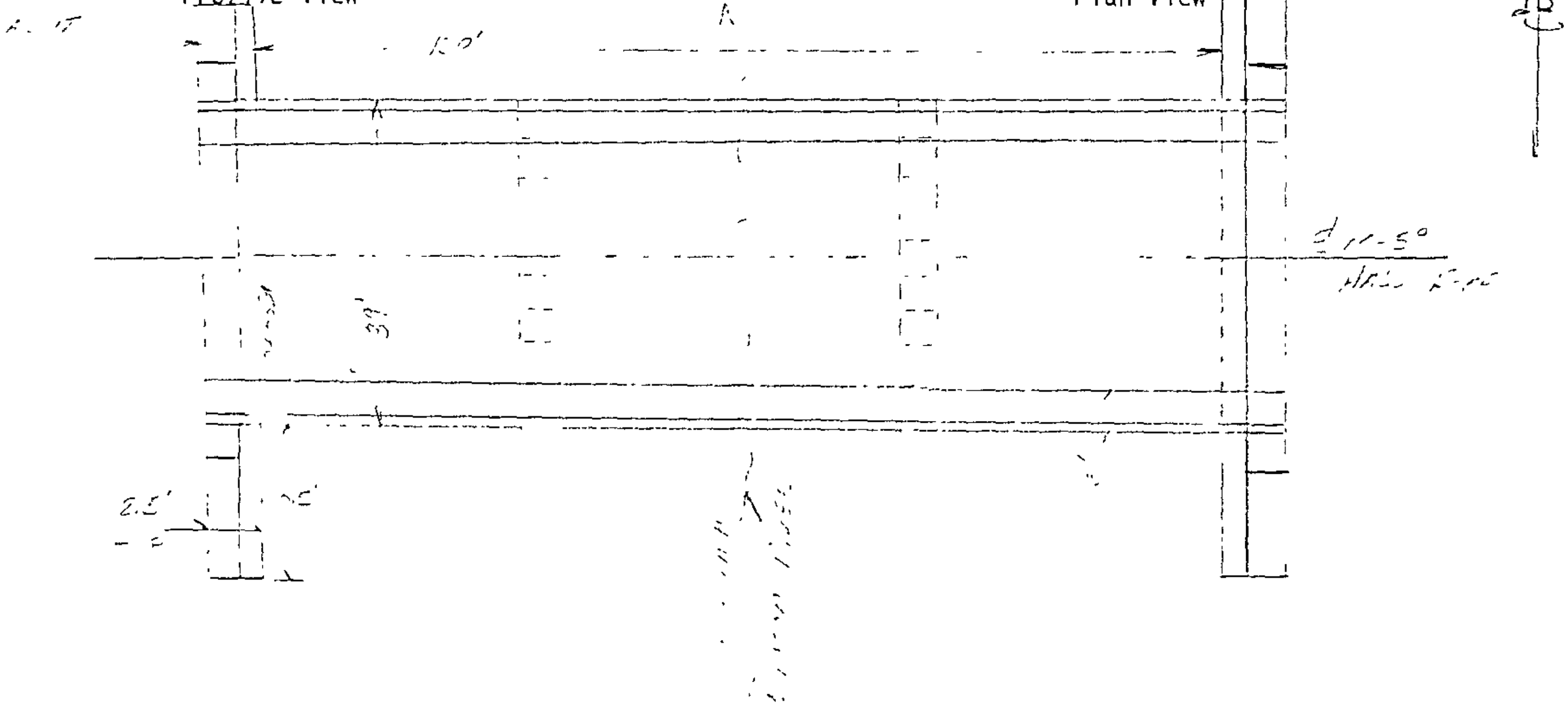
:		By:
	Feature:	Water Course:

of Piers:	Pier Shape:	No. of Piers:	Area:
Elevation:	Length:	Width of Deck:	Skew:

FIELD SKETCH

Profile View

Plan View



X1	16[illegible].00	48	1400.00	1530.00	40[illegible]0	40.00	40.00	1.000		

BT	27.00	0.00	599.20	0.00	200.00	599.40	0.00	400.00	599.40	0.00

BT	600.00	599.40	0.00	630.00	599.40	0.00	730.00	599.50	0.00	830.00
BT	599.50	0.00	930.00	599.40	0.00	1030.00	599.30	0.00	1130.00	599.30
BT	0.00	1230.00	599.30	0.00	1330.00	599.40	0.00	1397.50	599.40	0.00
BT	1397.50	600.20	0.00	1400.00	600.20	589.50	1400.00	600.20	596.50	1444.40
BT	600.20	596.50	1445.60	600.20	596.50	1489.40	600.20	596.50	1490.60	600.20
BT	596.50	1530.00	600.20	596.50	1530.00	600.20	588.20	1532.50	600.20	0.00
BT	1532.50	599.60	0.00	2230.00	599.60	0.00	2430.00	599.30	0.00	2630.00
BT	599.20	0.00								

GR	599.20	0.00	599.40	200.00	599.40	400.00	599.40	600.00	597.20	630.00
GR	596.50	730.00	592.30	830.00	590.50	930.00	588.70	1030.00	589.70	1130.00
GR	588.80	1230.00	589.50	1330.00	589.50	1397.50	589.50	1400.00	589.50	1422.00
GR	586.00	1430.00	585.50	1440.00	585.80	1444.40	596.50	1444.40	596.50	1445.60
GR	585.80	1445.60	586.40	1450.00	588.00	1455.00	583.90	1458.00	582.00	1460.00
GR	580.80	1470.00	583.10	1480.00	583.90	1483.00	585.20	1489.40	596.50	1489.40
GR	596.50	1490.60	585.20	1490.60	587.10	1500.00	587.00	1510.00	588.10	1513.00
GR	588.20	1530.00	588.20	1532.50	588.40	1630.00	589.30	1730.00	596.20	1830.00
GR	598.70	1930.00	597.50	2030.00	598.60	2130.00	598.90	2230.00	597.50	2330.00
GR	598.00	2430.00	598.60	2530.00	599.20	2630.00				

******************LISTING OF TOP AND BOTTOM SECTIONS OF ORIFICE******************

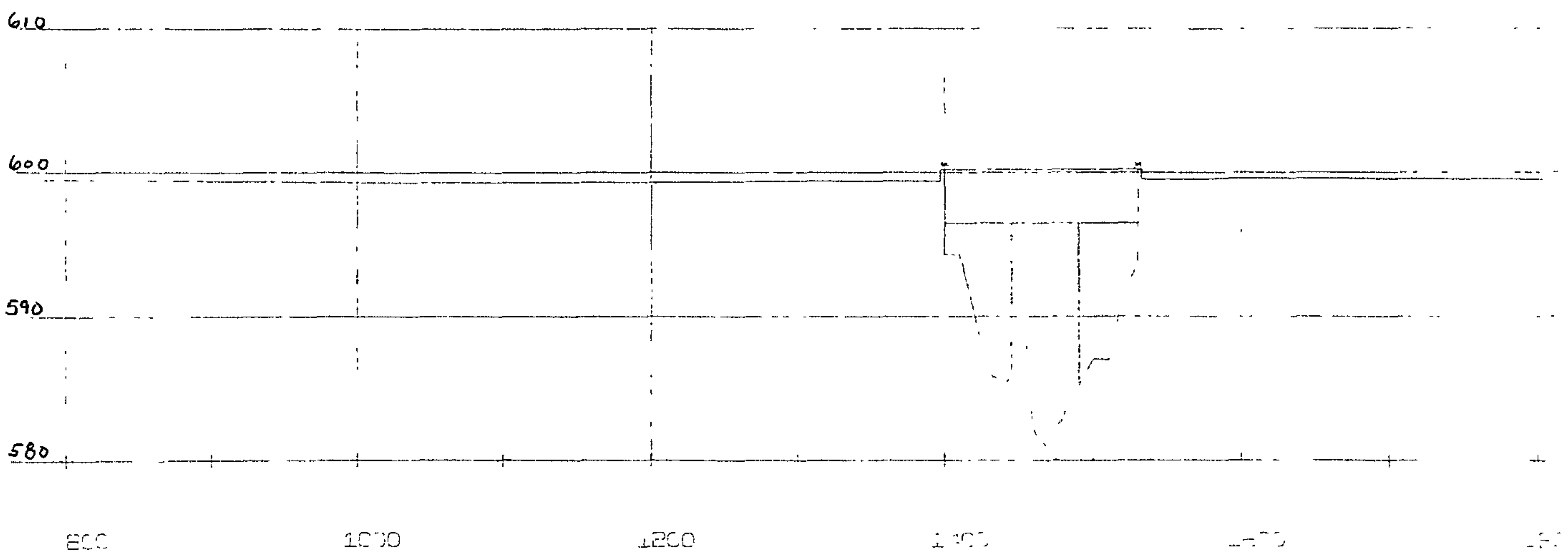
1400.00	589.50	1400.00	596.50	1444.40	596.50	1445.60	596.50	1489.40	596.50
1490.60	596.50	1530.00	596.50	1530.00	588.20				

1400.00	589.50	1422.00	589.50	1430.00	586.00	1440.00	585.50	1444.40	585.80
1444.40	596.50	1445.60	596.50	1445.60	585.80	1450.00	586.40	1455.00	588.00
1458.00	583.90	1460.00	582.00	1470.00	580.80	1480.00	583.10	1483.00	583.90
1489.40	585.20	1489.40	596.50	1490.60	596.50	1490.60	585.20	1500.00	587.10
1510.00	587.00	1513.00	588.10	1530.00	588.20				

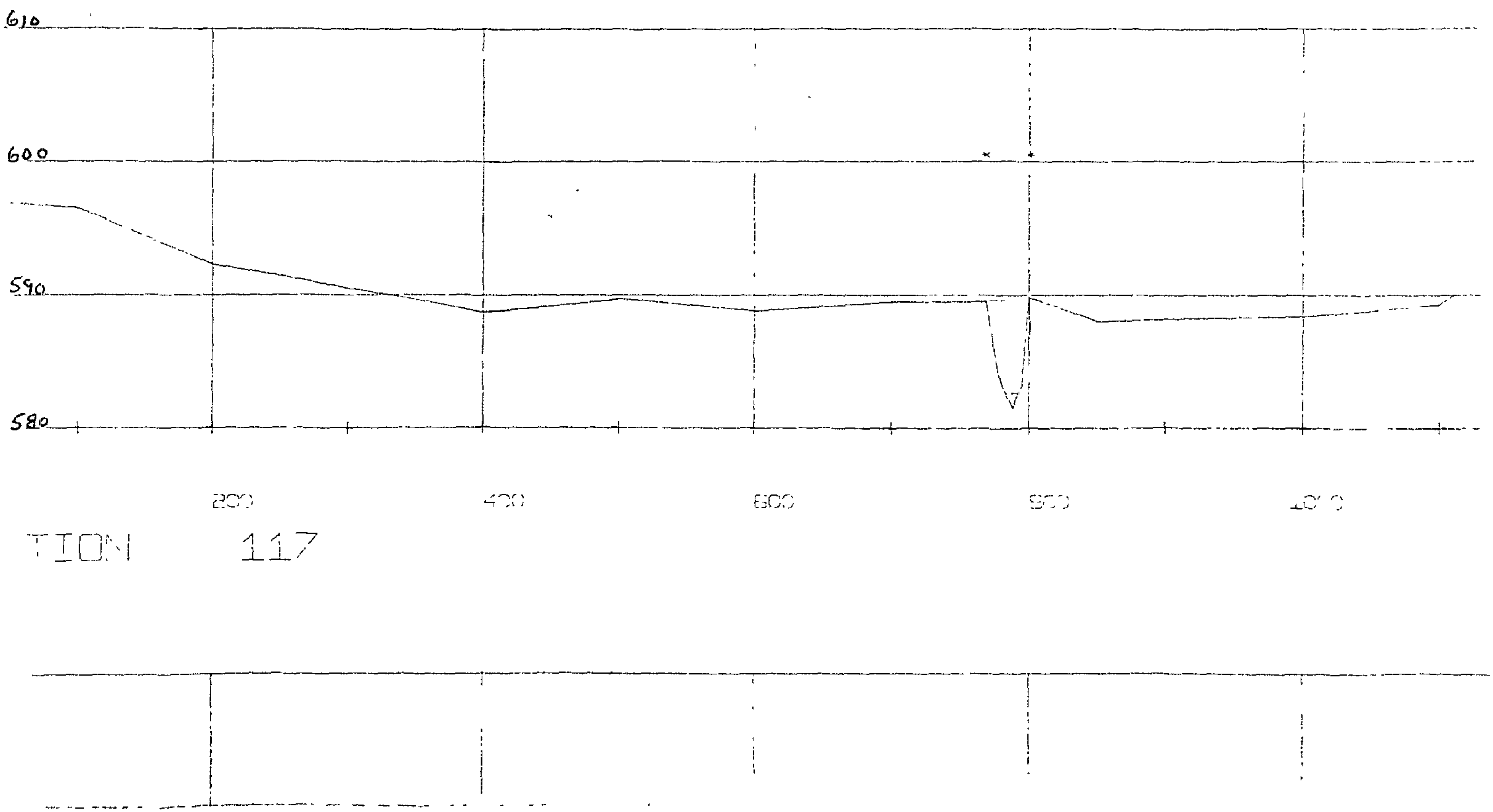
************* LISTING OF COORDINATES OF ORIFICE********************

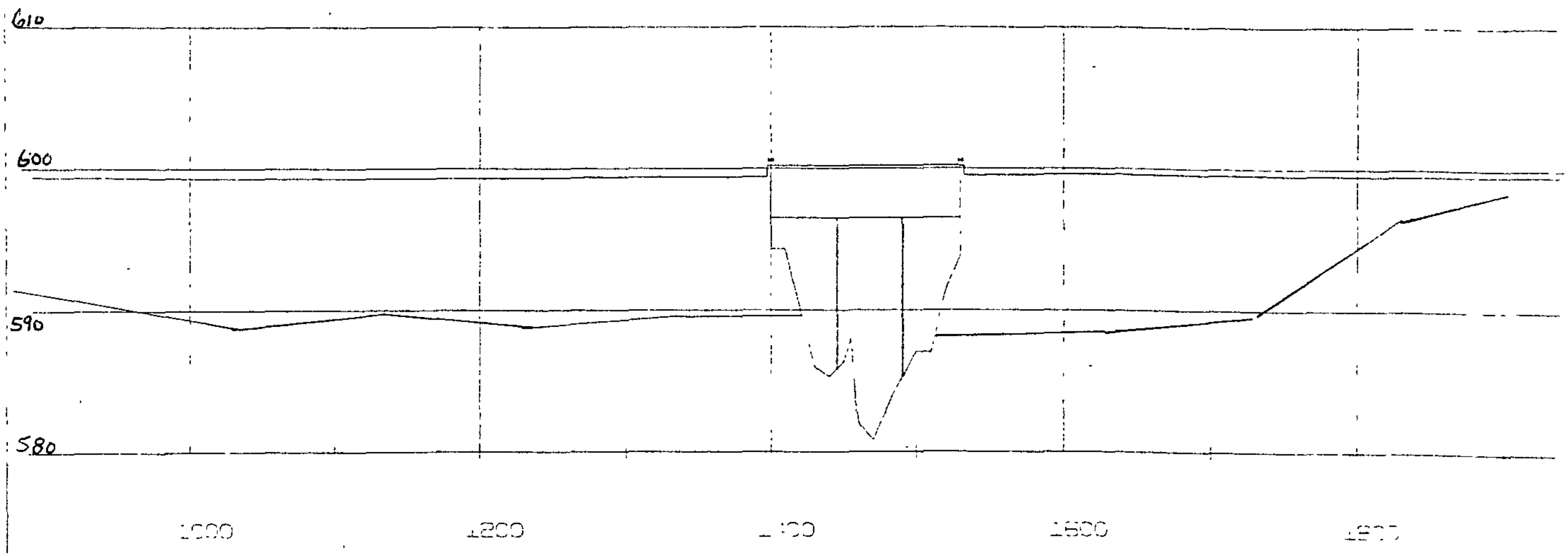
1400.00	589.50	1400.00	596.50	1444.40	596.50	1445.60	596.50	1489.40	596.50
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

```
1400.00  589.50 1422.00  [illegible]
1444.40  596.50 1445.60  596.50 1445.60  585.80 1450.00  586.40 1455.00  588.00
1458.00  583.90 1460.00  582.00 1470.00  580.80 1480.00  583.10 1483.00  583.90
1489.40  585.20 1489.40  596.50 1490.60  596.50 1490.60  585.20 1500.00  587.10
1510.00  587.00 1513.00  588.10 1530.00  588.20
************** LISTING OF COORDINATES OF ORIFICE********************

1400.00  589.50 1400.00  596.50 1444.40  596.50 1445.60  596.50 1489.40  596.50
1490.60  596.50 1530.00  596.50 1530.00  588.20 1513.00  588.10 1510.00  587.00
1500.00  587.10 1490.60  585.20 1490.60  596.50 1489.40  596.50 1489.40  585.20
1483.00  583.90 1480.00  583.10 1470.00  580.80 1460.00  582.00 1458.00  583.90
1455.00  588.00 1450.00  586.40 1445.60  585.80 1445.60  596.50 1444.40  596.50
1444.40  585.80 1440.00  585.50 1430.00  586.00 1422.00  589.50 1400.00  589.50


 ORIFICE AREA      1302.7 WETTED PERIMETER    319.3  29.1/R**1.333       4.4745
```

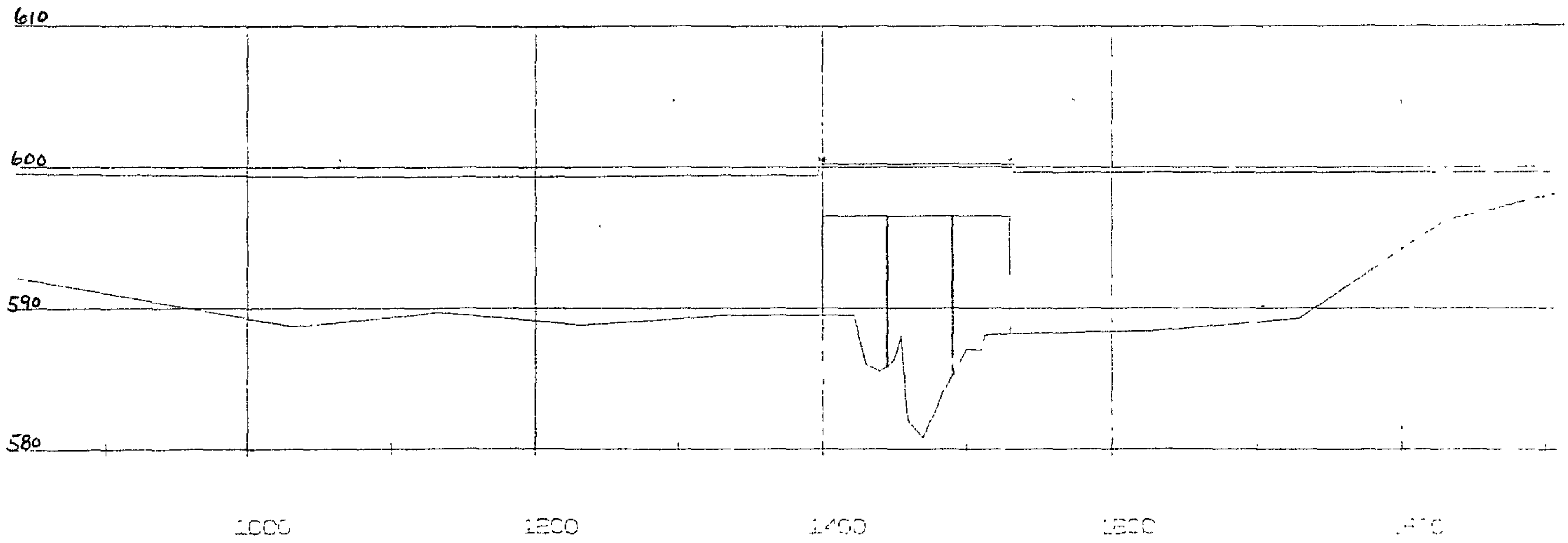


SECTION 117A


610
600
590
580
200
400
600
800
TION 117



SECTION 117



SECTION 167+71

CLINTON TOWNSHIP FLOOD INSURANCE STUDY
MILLER DRAIN J#A NO. 5670-02
PROJECT MANAGER WILLIAM ROSSOW

SECTION FIELD	SECNO	DESCRIPTION
	0	VALLEY SECTION A RELOCATED INVERT ADJUSTED
A	850	VALLEY SECTION A
	989	BRIDGE SECTION B RELOCATED GROUND POINTS ONLY SECTION SKEWED FOR PERPENDICULARITY TO MASS OF FLOW RIGHT ENCROACHMENT AT DIVIDE OF MILLER AND MIDDLE BRANCH
	990	BRIDGE SECTION B HEYDENREICH RD. DOWNSTREAM FACE SECTION SKEWED FOR PERPENDICULARITY TO MASS OF FLOW RIGHT ENCROACHMENT AT DIVIDE OF MILLER AND MIDDLE BRANCH
B	1010	BRIDGE SECTION B HEYDENREICH RD. UPSTREAM FACE SECTION SKEWED FOR PERPENDICULARITY TO MASS OF FLOW RIGHT ENCROACHMENT AT DIVIDE OF MILLER AND MIDDLE BRANCH
	1011	BRIDGE SECTION B RELOCATED GROUND POINTS ONLY SECTION SKEWED FOR PERPENDICULARITY TO MASS OF FLOW RIGHT ENCROACHMENT AT DIVIDE OF MILLER AND MIDDLE BRANCH
C	2270	VALLEY SECTION C
D	3200	VALLEY SECTION D RIGHT ENCROACHMENT DUE TO HIGH GROUND
E	4800	VALLEY SECTION E ENCROACHMENTS DUE TO FLOW EXPANSION
	4892	BRIDGE SECTION F RELOCATED GROUND POINTS ONLY BLEND OF SECTIONS E AND F ENCROACHMENTS DUE TO BRIDGE OPENING SECTION SKEWED FOR PERPENDICULARITY TO MASS OF FLOW
F	4911 ~~4976~~	BRIDGE SECTION F DUNHAM ROAD UPSTREAM FACE BLEND OF SECTIONS E AND F ENCROACHMENTS DUE TO BRIDGE OPENING SECTION SKEWED FOR PERPENDICULARITY TO MASS OF FLOW
	5101	VALLEY SECTION F RELOCATED DISTANCE EQUAL TO CONTRACTION
G	6610	VALLEY SECTION G
H	8510	VALLEY SECTION H LEFT ENCROACHMENT DUE TO HIGH GROUND
I	~~10220~~ 10005	VALLEY SECTION I

JOB NAME: CLINTON TOWNSHIP FIS — JOB NO. 5670 | 02 | 122

WATERCOURSE: MILLER DRAIN — CULVERT LOCATION: DUNHAM ROAD

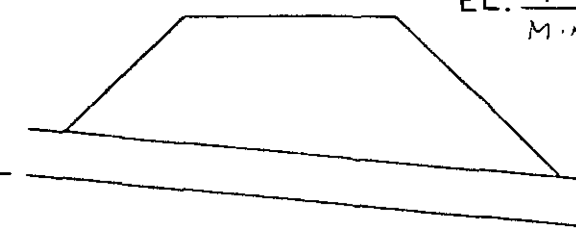
CULVERT DESCRIPTION: CONCRETE DECK, STEEL BEAM BRIDGE WITH CONCRETE HEADWALLS PARALLEL TO THE STREAM

BY BEH — DATE 3/14/77

WEIR DESCRIPTION: CONCRETE DECK WITH GRAVEL APPROACHES AND A 32 FOOT BREADTH

MAX U/S ELEC. 592.0

EL. 594.6 (MIN ELTRD)



EL. 585.1

EL 585.1

So = 0.00

L = 34

Sta. 49+26

Sta. 48+92

A = 123.6 D = 6.9

WP = 51.6 Ke = 0.7

$\frac{29.1}{R^{4/3}}$ = 9.1216 n = .0313

CALCULATIONS AND COMMENTS:

— MANNING'S n —

$$n = \left(\frac{.0015^2 \times 30 + 21.6 \times .045^2}{51.6}\right)^{1/2}$$

n = .0313

— XKOR —

$$XKOR = 1 + K_e + \frac{29.1 n^2 L}{R^{4/3}}$$

$$XKOR = 1 + 0.7 + (9.1216)(.0313)^2(34)$$

XKOR = 2.003

— COFQ —

ASSUME H = 1.0 FOR INITIAL RUN

$\frac{H}{L} = \frac{1}{32} = .031 < .15$

∴ USE H = 1.0

COFQ - 3.04

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HYDRAU[illegible] STRUCTURAL DATA

CODED 10/7/76
BEH

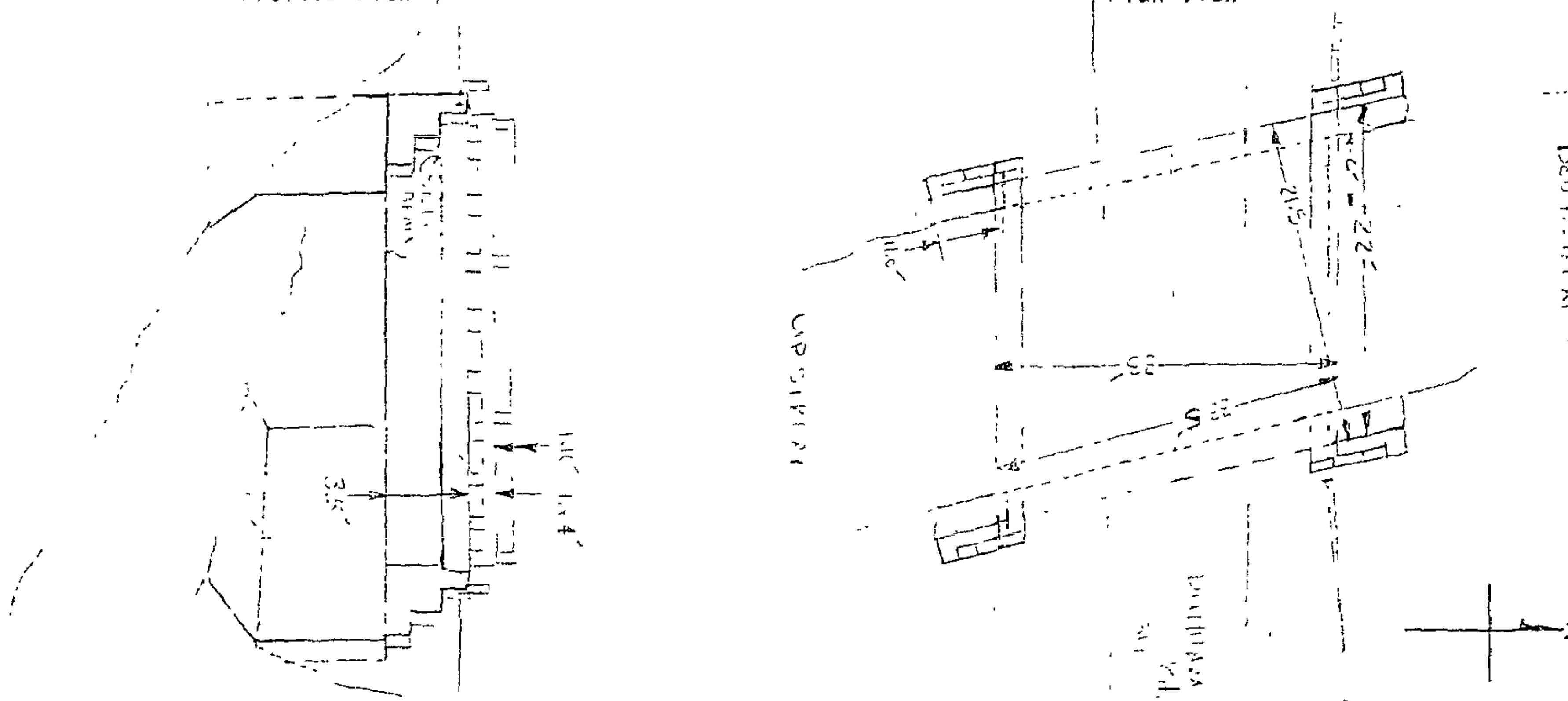
Code No. 02-122

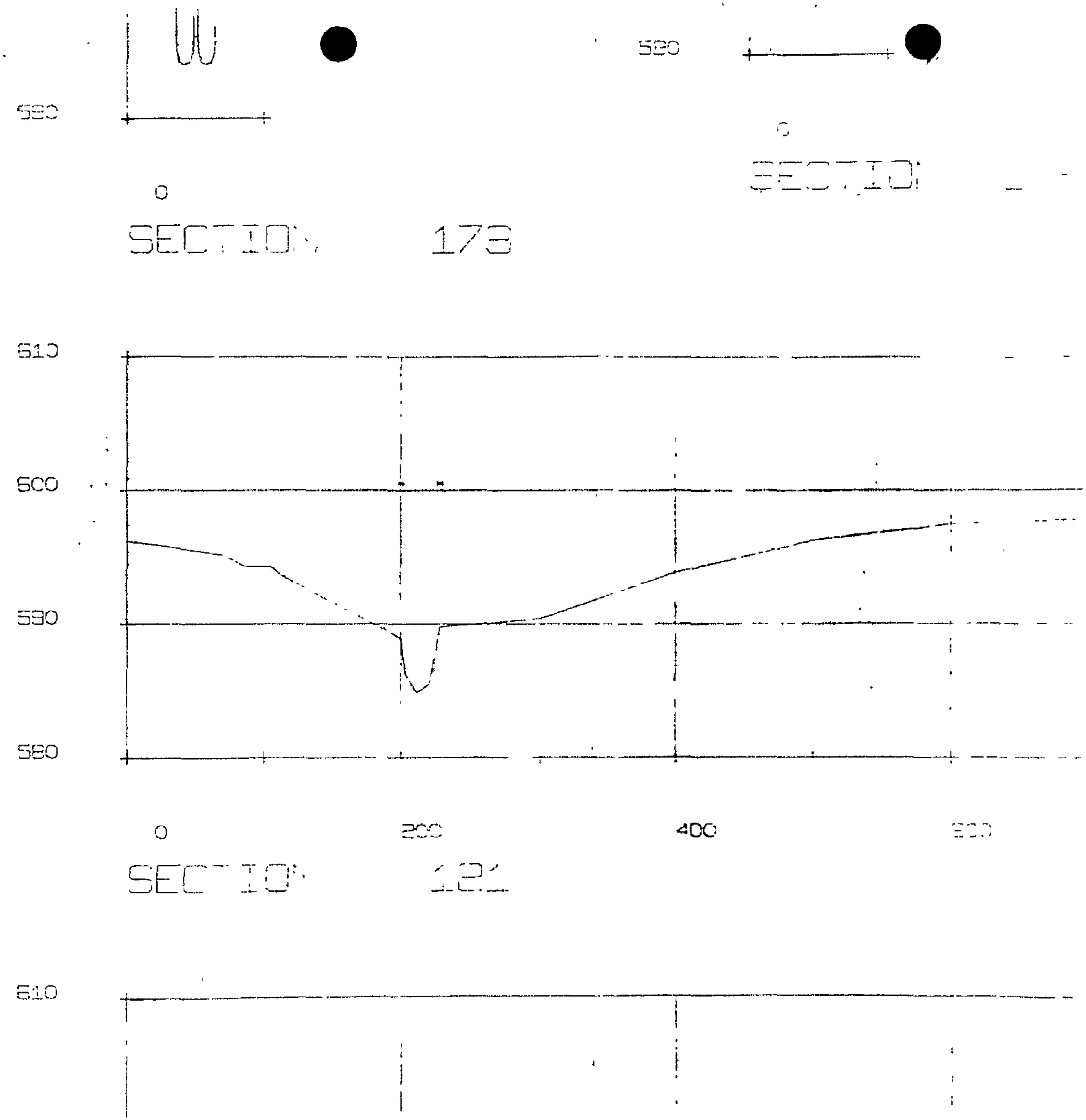
Job Name: [illegible]			By: TR Po[illegible] /T-PETE SHU[illegible]
Date: [illegible]	Feature: [illegible]		Water Course: Miller Drain
Remarks: [illegible]			
Width of Piers: —	Pier Shape: —	No. of Piers: —	Area:
Water Elevation: [illegible]	Length: 33.5	Width of Deck: 21.5	Skew: [illegible]

FIELD SKETCH

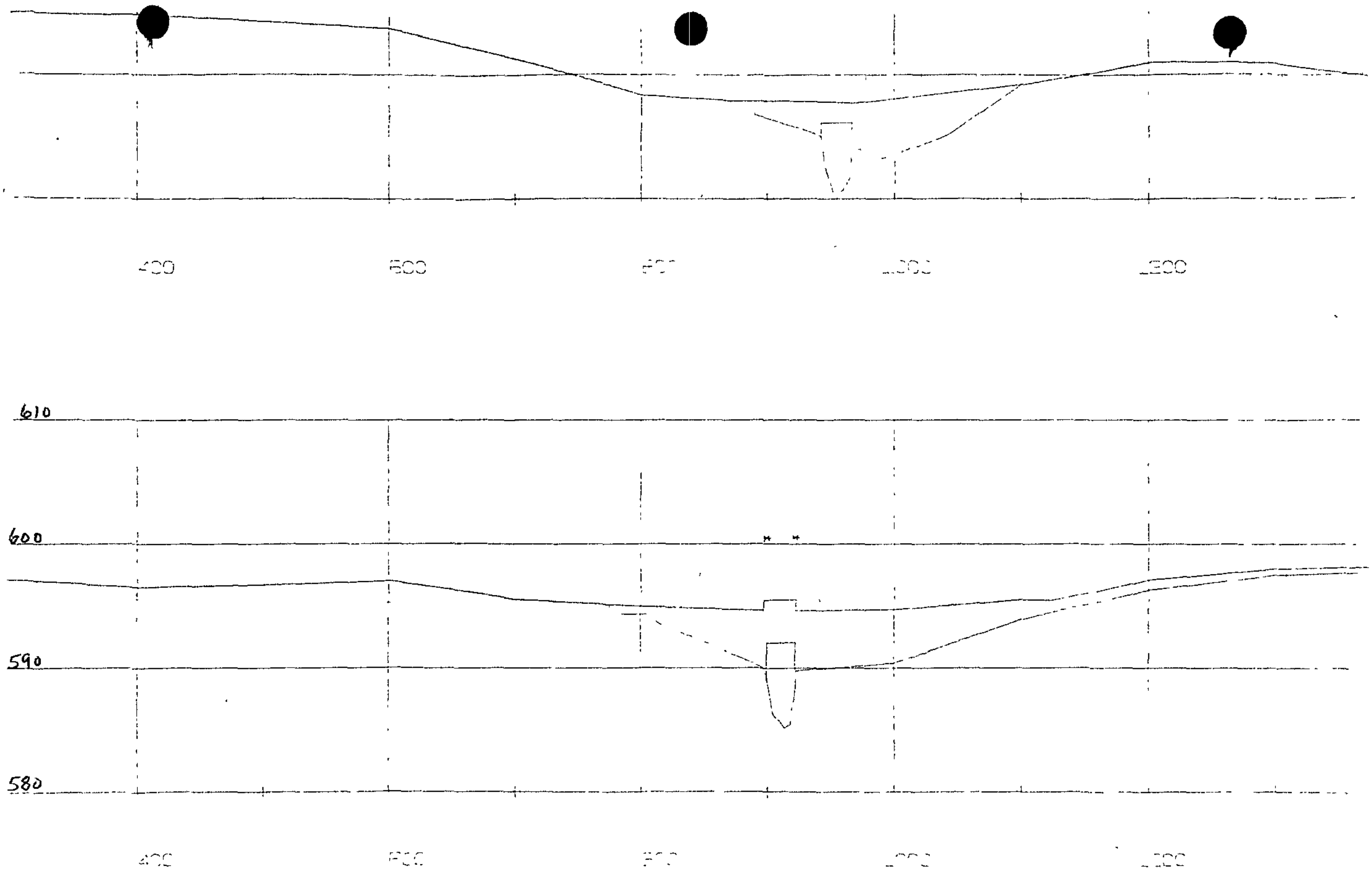
Profile View

Plan View



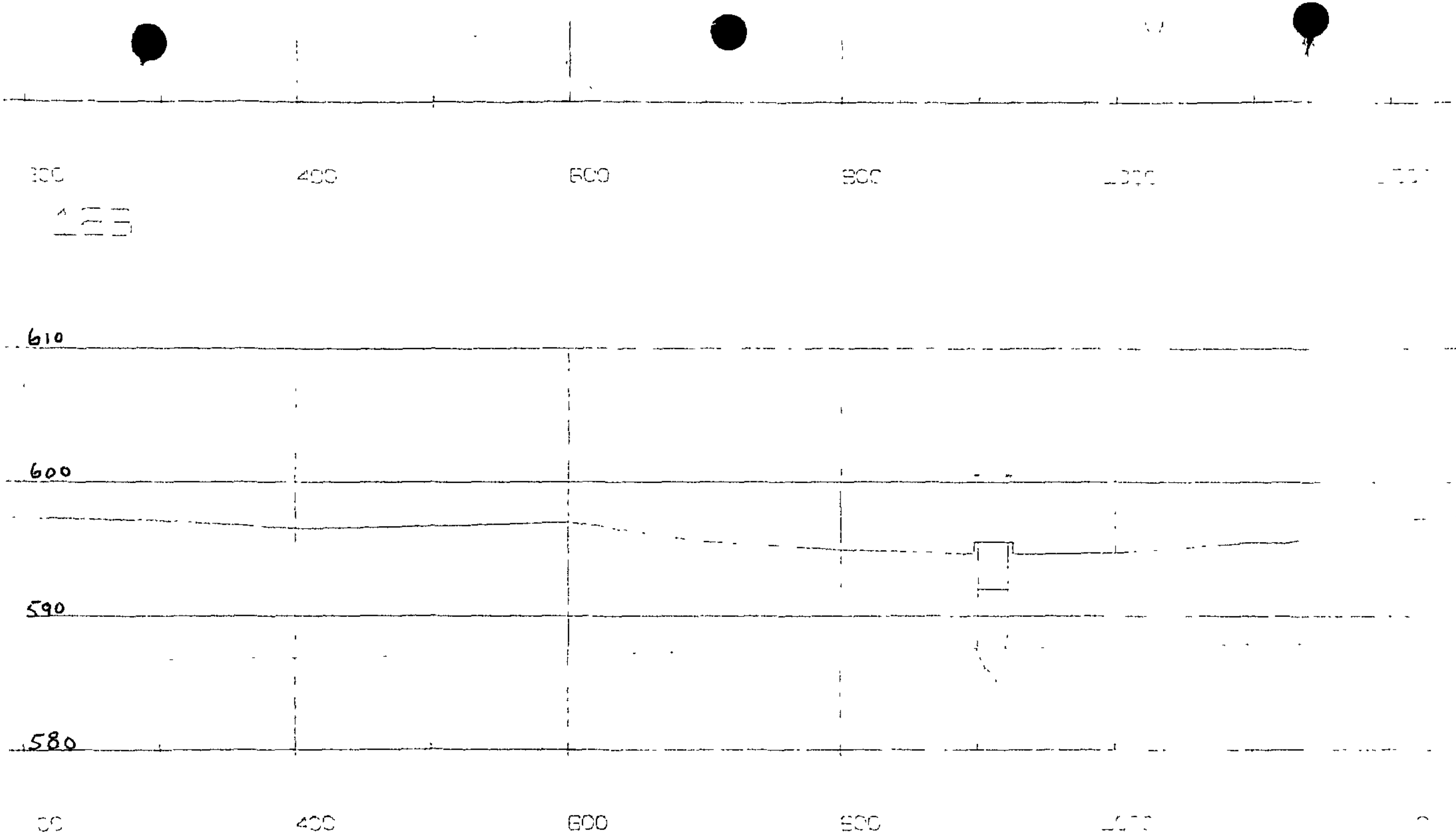


SECTION 173
610
600
590
580
0
200
400
SECTION
610

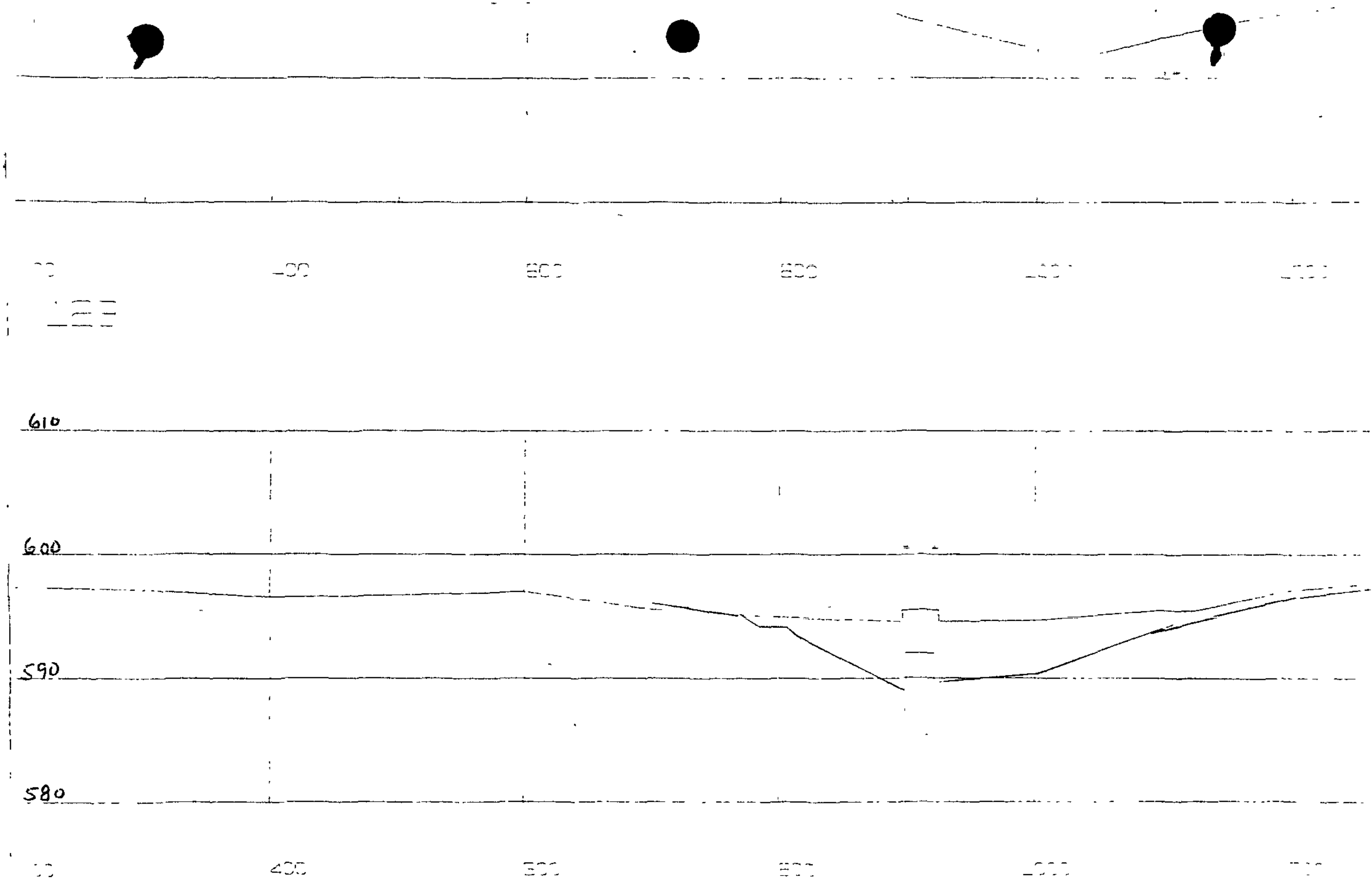


SECTION 49+26

```
X1   4[illegible].00        26   900.00   922.00   34[illegible]0    34.00    34.00    0.985


BT     29.00      0.00   597.70     0.00   100.00   597.60     0.00   200.00   597.30     0.0


BT    300.00    597.10     0.00   400.00   596.50     0.00   500.00   596.70     0.00   600.0
BT    597.00      0.00   700.00   595.50     0.00   772.00   595.10     0.00   805.00   594.9
BT      0.00    897.50   594.60     0.00   897.50   595.50     0.00   900.00   595.50   588.9
BT    900.00    595.50   592.00   922.00   595.50   592.00   922.00   595.50   589.80   922.5
BT    595.50      0.00   922.50   594.60     0.00  1000.00   594.70     0.00  1100.00   595.5
BT      0.00   1123.00   595.40     0.00  1200.00   597.10     0.00  1300.00   598.00     0.0
BT   1400.00    598.20     0.00  1500.00   598.40     0.00  1600.00   598.00     0.00  1700.0
BT    597.70      0.00  1800.00   597.30     0.00  1900.00   596.90     0.00


GR    597.70      0.00   597.60   100.00   597.30   200.00   597.10   300.00   596.50   400.0
GR    596.70    500.00   597.00   600.00   595.50   700.00   595.10   772.00   594.30   786.0
GR    594.30    805.00   593.50   815.00   590.00   897.50   588.90   900.00   586.20   905.0
GR    585.70    910.00   585.10   914.00   585.50   918.00   588.60   922.00   589.80   922.0
GR    589.80    922.50   590.40  1000.00   593.90  1100.00   596.30  1200.00   597.50  1300.0
GR    597.80   1400.00
******************LISTING OF TOP AND BOTTOM SECTIONS OF ORIFICE******************

 900.00  588.90  900.00  592.00  922.00  592.00  922.00  589.80


 900.00  588.90  905.00  586.20  910.00  585.70  914.00  585.10  918.00  585.50
 922.00  588.60  922.00  589.80
************* LISTING OF COORDINATES OF ORIFICE********************

 900.00  588.90  900.00  592.00  922.00  592.00  922.00  589.80  922.00  588.60
 918.00  585.50  914.00  585.10  910.00  585.70  905.00  586.20  900.00  588.90


 ORIFICE AREA      123.6 WETTED PERIMETER     51.6  29.1/R**1.333      9.1216
```



SECTION 122



SECTION 122

15 May 76
P.M.

Stage-Discharge Relationships

Elev. (Backwater computations)	Q Spillway	Q Clinton River below Spillway	Q Clinton River above Spillway	Elev. U.S.G.S. Rating	Difference
578.0	4900	2300	7200	578.4	-0.4
580.0	9000	3700	12,700	580.1	-0.1
582.0	13,400	5700	19,100	581.9	+0.1
584.0	18,100	8300	26,400	583.7	+0.3
586.0	22,900	11,400	34,300	585.8	+0.2
588.0	28,000	14,800	42,800	588.1	-0.1

Rating Curve to 581, extrapolated beyond.

Exhibit B-4 (cont'd)

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Clinton Twp.

3) WATERCOURSE: Clinton River
Upstream of Forks

4) DOCUMENT TYPE: Encroached
Clinton Twp Restudy

00BREAK00

```
**************************************************
*  WATER SURFACE PROFILES                        *
*  VERSION OF NOVEMBER 1976                      *
*  UPDATED MAY 1984                              *
*                                                *
*  RUN DATE  16 MAY 90 TIME   16:32:19           *
**************************************************
```

```
****************************************
*  U.S. ARMY CORPS OF ENGINEERS        *
*  THE HYDROLOGIC ENGINEERING CENTER   *
*  609 SECOND STREET, SUITE D          *
*  DAVIS, CALIFORNIA 95616             *
*  (916) 440-2105 (FTS) 448-2105       *
****************************************
```

```
X     X  XXXXXXX   XXXXX             XXXXX
X     X  X        X     X           X     X
X     X  X        X                       X
XXXXXXX  XXXX     X         XXXXX    XXXXX
X     X  X        X                 X
X     X  X        X     X           X
X     X  XXXXXXX   XXXXX            XXXXXXX
```

LMMP
CLINTON TOWNSHIP RESTUDY
CLINTON RIVER U/S OF FORKS
ENCROACHED RUN

THIS RUN EXECUTED 16 MAY 90 16:32:19

****
HEC2 RELEASE DATED NOV 76 UPDATED MAY 1984
ERROR CORR - 01,02,03,04,05,06
MODIFICATION - 50,51,52,53,54,55,56
****

T1 CLINTON TOWNSHIP FLOOD INSURANCE RESTUDY
T2 ENCROACHED RUN
T3 CLINTON RIVER U/S OF THE FORKS, NEW 100-YEAR DISCHARGE

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	4.	0.	0.	0.000000	0.00	0.0	0.	593.174	0.000

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	1.000	0.000	-1.000	0.000	0.000	1.200	0.000	0.000	0.000	0.000

J3 VARIABLE CODES FOR SUMMARY PRINTOUT

110.000	150.000	200.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

NC	0.090	0.090	0.040	0.300	0.500	0.000	0.000	0.000	0.000	0.000
NH	4.000	0.040	530.000	0.100	571.000	0.040	685.000	0.110	2520.000	0.000
QT	4.000	12600.000	19000.000	21300.000	21300.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	6.100	8.100	550.000	2520.000	550.000	2050.000	0.000
X1	11.052	56.000	569.000	691.000	750.000	330.000	750.000	0.000	0.000	0.000
GR	589.000	0.000	599.900	100.000	595.300	200.000	591.000	300.000	591.600	394.000
GR	591.300	400.000	591.100	500.000	590.400	530.000	582.000	556.000	578.500	569.000
GR	574.300	571.000	572.000	580.000	571.700	590.000	571.400	600.000	571.200	610.000
GR	570.800	620.000	570.800	630.000	570.900	640.000	571.600	650.000	572.800	660.000
GR	573.000	670.000	572.900	680.000	575.300	685.000	584.100	691.000	583.000	700.000
GR	584.500	700.000	587.400	750.000	589.100	785.000	585.400	800.000	584.900	800.000
GR	578.800	820.000	582.900	900.000	585.500	900.000	585.800	1000.000	582.600	1000.100
GR	582.100	1050.000	585.600	1050.000	586.000	1100.000	587.800	1150.000	587.500	1250.000
GR	587.000	1350.000	587.800	1450.000	590.100	1550.000	591.000	1710.000	581.200	1750.000
GR	584.900	1850.000	584.100	1950.000	582.100	2010.000	588.400	2020.000	588.800	2050.000
GR	590.600	2150.000	590.700	2250.000	591.200	2354.000	593.300	2375.000	596.600	2450.000
GR	600.200	2520.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

QT	4.000	8580.000	13300.000	10400.000	10400.000	0.000	0.000	0.000	0.000	0.000
NH	5.000	0.100	41.000	0.040	126.000	0.110	1802.000	0.060	2032.000	0.030
NH	2302.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000	0.000	0.000
X1	11.292	39.000	41.000	126.000	1350.000	500.000	1268.000	0.000	0.000	0.000
GR	594.200	0.000	593.800	16.000	593.200	41.000	575.600	72.000	575.200	82.000
GR	573.500	87.000	571.200	92.000	569.400	102.000	569.900	112.000	574.500	122.000
GR	581.700	126.000	584.500	162.000	584.200	232.000	584.400	332.000	584.400	432.000
GR	585.200	532.000	585.600	632.000	588.700	732.000	585.600	832.000	586.000	382.000
GR	586.000	882.000	587.800	932.000	587.500	1032.000	587.000	1132.000	587.800	1232.000
GR	590.100	1332.000	591.000	1492.000	581.200	1532.000	584.900	1632.000	584.100	1732.000

GR	582.100	1792.000	588.400	1802.000	588.800	1832.000	590.600	1932.000	590.700	2032.000
GR	591.200	2136.000	593.300	2157.000	596.600	2232.000	600.200	2302.000	0.000	0.000
NH	5.000	0.100	272.400	0.040	358.100	0.110	1764.300	0.060	2008.800	0.030
NH	2192.200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	11.393	90.000	272.400	358.100	478.700	36.500	528.700	0.000	0.000	0.000
GR	594.800	0.000	594.700	9.300	594.700	18.700	594.600	28.100	594.500	37.500
GR	594.500	46.900	594.400	56.300	594.300	65.700	594.200	75.100	594.100	84.500
GR	593.600	93.900	593.500	103.300	593.400	112.700	593.300	122.100	593.300	131.500
GR	593.300	140.900	593.300	150.300	593.100	159.700	593.100	169.100	593.100	178.500
GR	593.200	187.800	593.000	197.200	592.900	206.600	592.700	216.000	592.400	225.400
GR	592.400	234.800	592.200	244.200	592.100	253.600	591.800	263.000	591.200	272.400
GR	588.900	275.300	587.300	278.100	585.900	281.000	584.500	283.800	583.200	286.700
GR	581.900	289.500	580.500	292.400	579.100	295.300	577.800	298.100	576.400	301.000
GR	575.100	303.800	575.000	306.700	574.800	309.500	574.700	312.400	574.200	315.300
GR	573.400	318.100	572.400	321.000	571.400	323.800	571.000	326.700	570.600	329.500
GR	570.200	332.400	569.950	335.300	570.100	338.100	570.400	341.000	570.700	343.800
GR	572.000	346.700	573.500	349.600	575.000	352.400	577.700	355.300	582.300	358.100
GR	584.700	419.300	584.800	480.400	585.100	541.500	585.300	602.700	585.800	663.800
GR	586.300	724.900	586.700	786.100	588.600	847.200	588.100	908.400	587.000	969.500
GR	588.500	1030.600	588.600	1091.800	588.400	1152.900	588.200	1214.000	588.700	1275.200
GR	589.900	1336.300	591.000	1397.400	591.500	1458.600	589.400	1519.700	585.300	1580.900
GR	587.000	1642.000	586.700	1703.100	586.300	1764.300	591.100	1825.400	592.100	1886.500
GR	592.200	1947.700	592.500	2008.800	594.400	2069.900	597.000	2131.000	600.100	2192.200
NC	0.000	0.000	0.000	0.100	0.300	0.000	0.000	0.000	0.000	0.000
NH	5.000	0.050	433.400	0.120	966.800	0.045	1045.900	0.060	1054.700	0.040
NH	1863.100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	11.695	90.000	966.800	1054.700	1486.300	109.500	1586.300	0.000	0.000	0.000
GR	596.900	0.000	596.700	33.300	596.500	66.600	596.300	100.000	596.100	133.300
GR	596.000	166.600	595.800	200.000	595.600	233.300	595.300	266.700	594.800	300.000
GR	593.200	333.300	592.700	366.700	592.400	400.000	592.100	433.400	592.200	466.700
GR	592.400	500.000	592.300	533.400	591.900	566.700	591.700	600.100	592.000	633.400
GR	592.300	666.700	591.900	700.100	591.600	733.400	590.600	766.700	589.500	800.100
GR	589.600	833.400	589.200	866.800	588.600	900.100	587.800	933.400	585.200	966.800
GR	581.200	969.700	579.400	972.600	578.700	975.600	578.100	978.500	577.600	981.400
GR	577.000	984.400	576.400	987.300	575.700	990.200	575.100	993.200	574.500	996.100
GR	573.900	999.000	573.600	1001.900	573.400	1004.900	573.300	1007.800	573.100	1010.700
GR	572.700	1013.700	572.400	1016.600	572.200	1019.500	572.100	1022.500	572.000	1025.400
GR	571.800	1028.300	571.700	1031.300	571.590	1034.200	572.400	1037.100	573.500	1040.000
GR	574.800	1043.000	576.900	1045.900	578.900	1048.800	581.400	1051.800	584.400	1054.700
GR	585.900	1081.600	586.600	1108.600	587.400	1135.500	588.100	1162.500	589.000	1189.400
GR	589.500	1216.400	589.900	1243.300	590.800	1270.300	591.000	1297.200	590.900	1324.200
GR	591.800	1351.100	591.900	1378.100	591.700	1405.000	591.700	1431.900	592.000	1458.900
GR	592.600	1485.800	593.400	1512.800	594.100	1539.700	593.900	1566.700	593.000	1593.600
GR	594.100	1620.600	594.500	1647.500	594.800	1674.500	596.500	1701.400	596.900	1728.400
GR	597.000	1755.300	597.200	1782.300	597.900	1809.200	598.800	1836.100	599.900	1863.100
NH	5.000	0.050	500.000	0.120	1311.000	0.045	1388.000	0.060	1400.000	0.040
NH	1700.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	11.845	34.000	1311.000	1400.000	735.000	54.000	785.000	0.000	0.000	0.000
GR	598.000	0.000	597.400	100.000	596.900	200.000	596.400	300.000	595.500	400.000
GR	591.800	477.000	592.400	500.000	591.500	600.000	592.100	700.000	590.900	800.000
GR	591.900	900.000	590.900	1000.000	587.700	1100.000	588.400	1135.000	586.500	1250.000
GR	584.400	1300.000	582.300	1311.000	575.700	1315.000	575.200	1320.000	574.500	1330.000
GR	573.600	1340.000	572.700	1350.000	572.400	1360.000	572.800	1370.000	572.500	1380.000
GR	576.200	1388.000	585.500	1400.000	590.600	1450.000	593.600	1514.000	593.300	1532.000
GR	594.000	1561.000	596.900	1600.000	599.100	1630.000	599.900	1700.000	0.000	0.000

NH	5.000	0.040	518.000	0.110	1251.900	0.045	1329.200	0.060	1341.200	0.045
NH	1666.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	11.860	90.000	1251.900	1341.200	77.200	75.600	78.900	0.000	0.000	0.000
GR	597.800	0.000	597.500	43.100	597.300	86.300	597.100	129.500	596.800	172.600
GR	596.600	215.800	596.400	259.000	596.200	302.100	595.800	345.300	595.200	388.500
GR	593.200	431.600	592.600	474.800	592.300	518.000	591.900	561.100	592.000	604.300
GR	592.200	647.500	592.100	690.700	591.500	733.800	591.300	777.000	591.600	820.200
GR	591.900	863.300	591.500	906.500	590.900	949.700	589.700	992.800	588.200	1036.000
GR	588.400	1079.200	587.800	1122.300	587.000	1165.500	585.600	1208.700	582.200	1251.900
GR	577.500	1254.800	575.600	1257.800	575.200	1260.800	575.000	1263.800	574.700	1266.700
GR	574.500	1269.700	574.200	1272.700	573.900	1275.700	573.700	1278.600	573.500	1281.600
GR	573.200	1284.600	573.000	1287.600	572.800	1290.500	572.700	1293.500	572.600	1296.500
GR	572.500	1299.500	572.480	1302.500	572.600	1305.400	572.700	1308.400	572.800	1311.400
GR	572.800	1314.400	572.700	1317.300	572.600	1320.300	573.600	1323.300	574.900	1326.300
GR	576.200	1329.200	578.500	1332.200	580.800	1335.200	583.200	1338.200	585.600	1341.200
GR	586.500	1352.000	587.400	1362.800	588.300	1373.700	589.200	1384.500	590.100	1395.300
GR	590.600	1406.200	591.000	1417.000	591.500	1427.900	591.800	1438.700	592.100	1449.500
GR	592.600	1460.400	592.600	1471.200	592.400	1482.100	592.500	1492.900	592.700	1503.700
GR	593.000	1514.600	593.800	1525.400	594.600	1536.300	595.300	1547.100	596.100	1557.900
GR	596.900	1568.800	597.700	1579.600	598.500	1590.500	598.700	1601.300	599.000	1612.100
GR	599.100	1623.000	599.300	1633.800	599.500	1644.700	599.600	1655.500	599.800	1666.400

NH	5.000	0.045	534.700	0.100	1192.800	0.045	1270.400	0.070	1282.400	0.050
NH	1632.800	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	11.875	90.000	1192.800	1282.400	77.300	75.600	78.900	0.000	0.000	0.000
GR	597.600	0.000	597.400	41.100	597.200	82.200	597.000	123.400	596.800	164.500
GR	596.600	205.600	596.400	246.800	596.200	287.900	595.800	329.000	595.300	370.200
GR	593.500	411.300	592.900	452.400	592.600	493.600	592.300	534.700	592.400	575.800
GR	592.500	617.000	592.400	658.100	591.900	699.200	591.600	740.400	591.900	781.500
GR	592.100	822.600	591.600	863.800	591.000	904.900	589.800	946.000	588.400	987.200
GR	588.500	1028.300	587.900	1069.400	587.200	1110.600	585.500	1151.700	582.200	1192.800
GR	577.700	1195.800	575.700	1198.800	575.300	1201.800	575.100	1204.800	574.800	1207.800
GR	574.500	1210.700	574.200	1213.700	573.900	1216.700	573.700	1219.700	573.500	1222.700
GR	573.300	1225.700	573.100	1228.600	572.900	1231.600	572.800	1234.600	572.700	1237.600
GR	572.700	1240.600	572.570	1243.600	572.800	1246.500	572.900	1249.500	573.000	1252.500
GR	572.900	1255.500	572.800	1258.500	572.800	1261.500	573.700	1264.400	574.900	1267.400
GR	576.200	1270.400	578.400	1273.400	580.800	1276.400	583.300	1279.400	585.700	1282.400
GR	586.500	1294.000	587.300	1305.700	588.100	1317.400	588.900	1329.100	589.700	1340.800
GR	590.200	1352.400	590.600	1364.100	591.000	1375.800	591.200	1387.500	591.400	1399.200
GR	591.800	1410.800	591.800	1422.500	591.600	1434.200	591.700	1445.900	591.800	1457.600
GR	592.200	1469.200	593.000	1480.900	593.800	1492.600	594.600	1504.300	595.500	1516.000
GR	596.300	1527.600	597.200	1539.300	598.000	1551.000	598.300	1562.700	598.700	1574.400
GR	598.900	1586.000	599.100	1597.700	599.400	1609.400	599.600	1621.100	599.800	1632.800

NH	5.000	0.045	539.800	0.090	978.400	0.040	1056.800	0.070	1068.900	0.060
NH	1510.300	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	11.929	90.000	978.400	1068.900	238.500	274.700	286.800	0.000	0.000	0.000
GR	597.000	0.000	596.900	33.700	596.700	67.400	596.600	101.200	596.500	134.900
GR	596.400	168.700	596.300	202.400	596.100	236.100	595.900	269.900	595.600	303.600
GR	594.400	337.400	594.000	371.100	593.800	404.800	593.600	438.600	593.600	472.300
GR	593.700	506.100	593.500	539.800	593.000	573.500	592.800	607.300	592.900	641.000
GR	592.600	674.800	592.000	708.500	591.300	742.200	590.100	776.000	589.000	809.700
GR	588.800	843.500	588.300	877.200	587.700	910.900	585.100	944.700	582.000	978.400
GR	578.300	981.400	576.200	984.500	575.600	987.500	575.300	990.500	574.900	993.500
GR	574.500	996.500	574.000	999.500	573.800	1002.500	573.600	1005.600	573.400	1008.600
GR	573.300	1011.600	573.300	1014.600	573.300	1017.600	573.300	1020.600	573.200	1023.600
GR	573.200	1026.700	572.890	1029.700	573.200	1032.700	573.300	1035.700	573.400	1038.700
GR	573.300	1041.700	573.300	1044.700	573.300	1047.800	574.000	1050.800	575.000	1053.800
GR	576.100	1056.800	578.200	1059.800	580.800	1062.800	583.500	1065.800	586.100	1068.900
GR	586.500	1083.600	586.900	1098.300	587.300	1113.000	587.800	1127.800	588.200	1142.500
GR	588.600	1157.200	589.100	1172.000	589.200	1186.700	589.000	1201.400	588.800	1216.200
GR	588.900	1230.900	588.800	1245.600	588.600	1260.300	588.500	1275.100	588.500	1289.800
GR	589.200	1304.500	590.100	1319.300	591.000	1334.000	592.000	1348.700	593.000	1363.500
GR	594.000	1378.200	595.000	1392.900	596.100	1407.600	596.800	1422.400	597.500	1437.100
GR	598.000	1451.800	598.400	1466.600	598.900	1481.300	599.300	1496.000	599.800	1510.300

NH	6.000	0.040	576.000	0.080	615.000	0.040	689.000	0.080	700.000	0.100
NH	1059.000	0.030	1300.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	12.023	28.000	608.000	700.000	437.000	474.300	495.400	0.000	0.000	0.000
GR	596.000	0.000	596.100	100.000	596.100	200.000	595.900	300.000	594.500	400.000
GR	590.000	500.000	588.800	563.000	587.800	576.000	584.500	586.000	581.800	608.000
GR	576.300	615.000	575.900	620.000	573.700	630.000	573.400	640.000	574.100	650.000
GR	574.100	660.000	574.100	670.000	574.400	680.000	576.200	689.000	586.800	700.000
GR	585.600	800.000	586.700	850.000	584.300	900.000	582.800	1000.000	586.200	1059.000
GR	588.700	1100.000	595.600	1200.000	599.700	1300.000	0.000	0.000	0.000	0.000

NH	5.000	0.050	1000.000	0.100	1104.000	0.045	1117.000	0.080	1165.000	0.040
NH	1300.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	12.339	24.000	1104.000	1200.000	1600.000	1600.000	1670.000	0.000	0.000	0.000
GR	596.700	0.000	596.000	100.000	594.900	200.000	592.100	300.000	591.900	400.000
GR	590.800	436.000	591.500	460.000	587.300	500.000	585.500	600.000	586.100	700.000
GR	587.200	800.000	587.700	850.000	586.900	900.000	586.000	1000.000	585.800	1104.000
GR	577.200	1117.000	574.100	1130.000	573.800	1140.000	573.000	1150.000	573.600	1160.000
GR	575.700	1165.000	578.900	1167.000	593.900	1200.000	600.000	1300.000	0.000	0.000

NH	7.000	0.060	400.000	0.100	598.000	0.060	607.000	0.045	680.000	0.060
NH	692.000	0.120	941.000	0.040	1050.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	6.100	0.000	250.000	1000.000	0.000	0.000	0.000
X1	12.544	26.000	598.000	692.000	1020.000	1050.000	1080.000	0.000	0.000	0.000
GR	597.100	0.000	595.500	100.000	594.400	200.000	591.600	300.000	592.200	400.000
GR	591.700	422.000	586.700	500.000	587.000	598.000	577.200	607.000	576.000	610.000
GR	575.700	620.000	574.700	630.000	575.200	640.000	575.300	650.000	575.500	660.000
GR	575.600	670.000	576.400	680.000	584.400	692.000	584.500	700.000	585.000	710.000
GR	588.100	720.000	586.300	800.000	586.800	900.000	586.400	941.000	593.300	1000.000
GR	602.000	1050.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

NC	0.000	0.000	0.000	0.100	0.500	0.000	0.000	0.000	0.000	0.000
NH	6.000	0.040	400.000	0.100	1420.000	0.045	1494.000	0.060	1504.000	0.080
NH	1570.000	0.040	1600.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	6.100	0.000	0.100	1600.000	0.000	0.000	0.000
X1	12.799	30.000	1420.000	1504.000	1300.000	1200.000	1350.000	0.000	0.000	0.000
GR	597.200	0.000	596.500	100.000	594.200	200.000	594.000	300.000	592.800	320.000
GR	590.900	400.000	590.900	500.000	590.400	600.000	588.900	700.000	587.800	800.000
GR	587.600	900.000	587.400	1000.000	588.600	1100.000	587.900	1200.000	585.800	1300.000
GR	584.100	1400.000	583.600	1420.000	578.200	1427.000	577.700	1430.000	576.400	1440.000
GR	575.000	1450.000	574.400	1460.000	573.500	1470.000	573.700	1480.000	576.000	1490.000
GR	578.100	1494.000	584.000	1504.000	587.700	1549.000	599.400	1570.000	601.000	1600.000
NC	0.090	0.090	0.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	6.100	0.000	250.000	1250.000	0.000	0.000	0.000
X1	13.144	37.000	400.000	463.000	1781.000	1800.000	1820.000	0.000	0.000	0.000
GR	597.800	0.000	598.100	100.000	597.500	200.000	598.200	250.000	597.700	268.000
GR	597.200	300.000	596.900	310.000	585.700	363.000	584.200	400.000	578.500	406.000
GR	576.100	410.000	574.400	420.000	574.800	430.000	575.600	440.000	576.000	450.000
GR	579.200	461.000	582.400	463.000	584.000	480.000	586.300	600.000	585.800	659.000
GR	587.700	700.000	586.200	800.000	585.200	900.000	585.900	1000.000	587.200	1100.000
GR	592.100	1123.000	593.800	1200.000	592.700	1300.000	595.400	1400.000	596.300	1500.000
GR	597.800	1600.000	597.100	1700.000	597.900	1800.000	598.600	1900.000	599.100	2000.000
GR	599.800	2100.000	601.200	2200.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	7.000	0.040	255.000	0.075	462.200	0.050	468.700	0.045	522.600	0.050
NH	527.000	0.090	1190.300	0.040	2185.400	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	6.100	8.100	0.100	1275.000	410.000	1275.000	0.000
X1	13.163	90.000	462.200	527.000	64.700	78.700	100.100	0.000	0.000	0.000
GR	597.800	0.000	597.900	15.900	597.900	31.800	597.900	47.800	597.700	63.700
GR	597.400	79.600	597.300	95.600	597.300	111.500	597.300	127.500	597.200	143.400
GR	597.200	159.300	597.100	175.300	597.100	191.200	597.000	207.200	596.900	223.100
GR	597.000	239.000	597.200	255.000	597.400	270.900	597.600	286.900	597.300	302.800
GR	597.000	318.700	596.800	334.700	596.500	350.600	594.800	366.600	592.000	382.500
GR	589.300	398.400	586.500	414.400	585.300	430.300	584.800	446.300	584.300	462.200
GR	582.200	464.400	580.100	466.500	578.200	468.700	577.000	470.800	576.000	473.000
GR	575.700	475.100	575.400	477.300	575.000	479.500	574.700	481.600	574.580	483.800
GR	574.600	485.900	574.700	488.100	574.800	490.300	574.900	492.400	575.000	494.600
GR	575.100	496.700	575.300	498.900	575.500	501.000	575.700	503.200	575.800	505.400
GR	575.800	507.500	575.900	509.700	576.000	511.800	576.200	514.000	576.800	516.200
GR	577.400	518.300	578.000	520.500	578.600	522.600	579.300	524.800	582.400	527.000
GR	584.800	582.200	586.000	637.500	586.300	692.800	587.900	748.100	587.400	803.400
GR	586.600	858.600	586.100	913.900	586.000	969.200	586.400	1024.500	587.000	1079.800
GR	587.700	1135.100	593.100	1190.300	593.800	1245.600	593.200	1300.900	593.800	1356.200
GR	595.200	1411.500	595.900	1466.800	596.400	1522.000	597.300	1577.300	597.600	1632.600
GR	597.300	1687.900	597.400	1743.200	597.800	1798.400	598.300	1853.700	598.600	1909.000
GR	598.900	1964.300	599.200	2019.600	599.600	2074.900	600.300	2130.100	601.000	2185.400
NH	7.000	0.040	245.600	0.075	508.900	0.060	513.300	0.040	570.500	0.060
NH	575.000	0.080	1161.400	0.040	2174.500	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	6.100	8.100	0.100	1275.000	445.000	1275.000	0.000

X1	13.191	90.000	508.900	575.000	48.500	59.100	75.100	0.000	0.000	0.000
GR	597.800	0.000	597.900	17.500	597.900	35.000	597.900	52.600	597.500	70.100
GR	596.900	87.700	596.800	105.200	596.800	122.800	596.700	140.300	596.700	157.900
GR	596.700	175.400	596.600	193.000	596.600	210.500	596.500	228.100	596.500	245.600
GR	596.600	263.200	596.800	280.700	597.000	298.300	597.100	315.800	596.900	333.400
GR	596.600	350.900	596.400	368.500	596.000	386.000	594.400	403.600	591.700	421.100
GR	589.100	438.700	586.500	456.200	585.300	473.800	584.900	491.300	584.400	508.900
GR	582.200	511.100	580.000	513.300	578.200	515.500	577.000	517.800	576.000	519.900
GR	575.700	522.100	575.400	524.300	575.100	526.500	574.700	528.700	574.680	530.900
GR	574.700	533.100	574.800	535.300	574.800	537.500	575.000	539.700	575.000	541.900
GR	575.200	544.100	575.400	546.300	575.600	548.500	575.800	550.700	575.800	552.900
GR	575.900	555.100	576.000	557.300	576.100	559.500	576.300	561.700	576.900	563.900
GR	577.400	566.100	578.000	568.300	578.700	570.500	579.400	572.700	582.400	575.000
GR	584.800	628.300	586.100	681.600	586.600	734.900	588.200	788.200	587.700	841.500
GR	587.000	894.900	586.500	948.200	586.500	1001.500	586.900	1054.800	587.500	1108.100
GR	588.100	1161.400	593.300	1214.800	594.000	1268.100	593.400	1321.400	594.000	1374.700
GR	595.300	1428.000	596.000	1481.300	596.500	1534.700	597.300	1588.000	597.600	1641.300
GR	597.300	1694.600	597.400	1747.900	597.800	1801.200	598.300	1854.600	598.600	1907.900
GR	598.900	1961.200	599.200	2014.500	599.500	2067.800	600.200	2121.200	600.900	2174.500
NH	6.000	0.040	246.200	0.070	649.000	0.060	656.000	0.040	709.700	0.060
NH	719.000	0.060	2141.900	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	6.100	8.100	360.000	1350.000	500.000	1270.000	0.000
X1	13.220	90.000	649.000	719.000	145.600	177.200	225.300	0.000	0.000	0.000
GR	597.900	0.000	598.100	22.300	598.100	44.700	598.000	67.100	597.100	89.500
GR	595.700	111.900	595.400	134.200	595.300	156.600	595.300	179.000	595.300	201.400
GR	595.300	223.800	595.300	246.200	595.300	268.500	595.300	290.900	595.300	313.300
GR	595.500	335.700	595.700	358.100	595.800	380.400	595.900	402.800	595.800	425.200
GR	595.600	447.600	595.200	470.000	594.800	492.400	593.400	514.700	591.000	537.100
GR	588.800	559.500	586.500	581.900	585.500	604.300	585.200	626.600	584.800	649.000
GR	582.400	651.400	580.000	653.700	578.200	656.000	577.100	658.400	576.200	660.700
GR	576.000	663.000	575.700	665.400	575.400	667.700	575.100	670.000	575.030	672.300
GR	575.100	674.700	575.100	677.000	575.200	679.300	575.300	681.700	575.400	684.000
GR	575.500	686.300	575.700	688.700	575.900	691.000	576.100	693.300	576.200	695.700
GR	576.300	698.000	576.400	700.300	576.500	702.700	576.700	705.000	577.200	707.300
GR	577.700	709.700	578.300	712.000	579.100	714.300	579.900	716.700	582.700	719.000
GR	584.900	766.400	586.500	813.900	587.500	861.300	589.400	908.700	589.000	956.100
GR	588.400	1003.600	588.000	1051.000	588.000	1098.400	588.400	1145.900	589.000	1193.300
GR	589.600	1240.700	594.100	1288.200	594.700	1335.600	594.200	1383.000	594.600	1430.400
GR	595.800	1477.900	596.400	1525.300	596.800	1572.700	597.500	1620.200	597.800	1667.600
GR	597.500	1715.000	597.700	1762.500	598.000	1809.900	598.400	1857.300	598.700	1904.700
GR	599.000	1952.200	599.300	1999.600	599.600	2047.000	600.200	2094.500	600.800	2141.900
NH	8.000	0.040	157.000	0.050	235.000	0.030	1242.000	0.035	1507.000	0.070
NH	1514.000	0.040	1571.000	0.070	1601.000	0.050	1942.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	6.100	1.400	0.100	1750.000	0.000	0.000	0.000
X1	13.481	33.000	1507.000	1601.000	891.200	1085.600	1379.500	0.000	0.000	0.000
GR	598.300	0.000	599.400	42.000	598.600	157.000	595.400	203.000	588.600	235.000
GR	585.700	342.000	586.400	442.000	587.200	542.000	587.200	642.000	588.100	742.000
GR	588.900	842.000	588.400	942.000	589.200	1042.000	587.000	1142.000	586.400	1242.000
GR	586.200	1342.000	586.800	1442.000	587.200	1507.000	578.700	1514.000	577.200	1521.000
GR	577.300	1531.000	577.200	1541.000	577.200	1551.000	577.400	1561.000	578.300	1571.000
GR	578.600	1581.000	579.600	1591.000	583.900	1601.000	585.900	1617.000	596.000	1642.000
GR	598.500	1742.000	598.700	1842.000	599.800	1942.000	0.000	0.000	0.000	0.000

NC	0.000	0.000	0.000	0.100	0.500	0.000	0.000	0.000	0.000	0.000
NH	7.000	0.035	213.000	0.050	416.000	0.060	428.000	0.040	495.000	0.060
NH	513.000	0.080	913.000	0.040	1873.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	6.100	8.100	0.100	1010.000	190.000	930.000	0.000
X1	13.799	33.000	416.000	513.000	800.000	1050.000	1680.000	0.000	0.000	0.000
GR	600.500	0.000	600.500	13.000	601.700	113.000	593.900	213.000	587.300	292.000
GR	586.900	313.000	587.300	363.000	586.900	416.000	579.800	428.000	578.000	433.000
GR	577.500	443.000	576.300	453.000	575.900	463.000	576.800	473.000	578.200	483.000
GR	579.500	495.000	587.200	513.000	587.000	613.000	586.500	713.000	586.500	735.000
GR	593.200	758.000	592.700	813.000	594.600	913.000	599.100	1013.000	596.900	1113.000
GR	599.200	1213.000	598.000	1313.000	598.500	1413.000	599.700	1513.000	598.300	1613.000
GR	598.600	1713.000	598.100	1813.000	601.500	1873.000	0.000	0.000	0.000	0.000

NH	9.000	0.040	200.000	0.080	720.000	0.060	733.000	0.045	780.000	0.060
NH	800.000	0.080	1140.000	0.060	1427.000	0.050	1700.000	0.035	1900.000	0.000
ET	0.000	0.000	0.000	6.100	8.100	200.000	1400.000	345.000	1245.000	0.000
X1	14.061	36.000	720.000	828.000	1100.000	1100.000	1380.000	0.000	0.000	0.000
GR	601.100	0.000	599.600	100.000	598.200	155.000	598.700	200.000	598.100	273.000
GR	593.100	300.000	587.000	360.000	585.800	400.000	589.300	500.000	589.200	609.000
GR	589.200	700.000	589.600	720.000	579.700	733.000	578.000	740.000	577.500	750.000
GR	578.200	760.000	578.700	770.000	579.500	780.000	580.500	790.000	581.000	796.000
GR	585.100	800.000	584.900	813.000	588.500	828.000	585.300	900.000	586.600	1000.000
GR	584.900	1100.000	586.900	1140.000	588.800	1200.000	588.200	1300.000	591.000	1400.000
GR	595.900	1427.000	595.300	1500.000	594.100	1600.000	596.200	1700.000	597.200	1800.000
GR	599.500	1900.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

NH	7.000	0.035	777.000	0.050	1006.000	0.060	1015.000	0.045	1080.000	0.060
NH	1084.000	0.070	1200.000	0.040	1400.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	6.100	8.100	400.000	1400.000	520.000	1310.000	0.000
X1	14.258	34.000	726.000	1105.000	1040.000	950.000	1040.000	0.000	0.000	0.000
GR	599.300	0.000	597.200	100.000	596.700	200.000	598.400	270.000	597.800	300.000
GR	598.900	400.000	597.700	500.000	591.300	600.000	589.100	645.000	592.600	700.000
GR	593.400	726.000	592.200	777.000	586.900	802.000	586.500	890.000	584.800	897.000
GR	584.500	901.000	587.100	909.000	588.000	960.000	587.700	1006.000	581.200	1015.000
GR	579.400	1020.000	578.700	1030.000	578.500	1040.000	578.000	1050.000	579.100	1060.000
GR	580.400	1070.000	580.800	1080.000	581.300	1084.000	588.300	1105.000	589.200	1200.000
GR	591.000	1260.000	594.100	1300.000	599.900	1335.000	601.500	1400.000	0.000	0.000

NC	0.000	0.000	0.000	0.100	0.300	0.000	0.000	0.000	0.000	0.000
NH	3.000	0.030	995.000	0.040	1065.000	0.050	1276.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	6.100	1.400	0.100	1300.000	0.000	0.000	0.000
X1	14.523	28.000	990.000	1085.000	1350.000	1400.000	1400.000	0.000	0.000	0.000
GR	600.200	0.000	597.500	87.000	597.100	100.000	594.400	200.000	594.100	300.000
GR	593.200	400.000	591.300	500.000	588.200	600.000	588.100	700.000	588.400	800.000
GR	588.700	900.000	591.100	984.000	590.800	990.000	580.200	995.000	579.100	1000.000
GR	578.400	1010.000	578.900	1020.000	579.100	1030.000	579.400	1040.000	579.700	1050.000
GR	581.300	1060.000	581.600	1065.000	588.500	1078.000	589.700	1085.000	588.800	1100.000
GR	587.700	1200.000	589.000	1245.000	602.200	1276.000	0.000	0.000	0.000	0.000

NH	6.000	0.040	300.000	0.030	600.000	0.070	610.000	0.040	665.000	0.050
NH	680.000	0.100	1500.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	6.100	0.000	250.000	1500.000	0.000	0.000	0.000
X1	15.057	33.000	600.000	680.000	2600.000	2300.000	2820.000	0.000	0.000	0.000
GR	599.800	0.000	600.800	100.000	598.200	200.000	596.600	300.000	596.900	335.000
GR	593.700	400.000	593.000	500.000	592.700	600.000	583.400	610.000	581.900	615.000
GR	581.300	620.000	579.000	630.000	579.000	640.000	580.000	650.000	581.300	655.000
GR	583.000	660.000	583.900	665.000	586.600	668.000	588.400	680.000	590.000	700.000
GR	589.100	800.000	591.500	865.000	585.800	875.000	586.100	884.000	591.500	904.000
GR	590.700	1000.000	590.500	1100.000	590.300	1200.000	591.500	1300.000	591.500	1329.000
GR	598.000	1363.000	598.700	1400.000	599.700	1500.000	0.000	0.000	0.000	0.000
NH	5.000	0.040	1079.000	0.100	1111.000	0.040	1180.000	0.100	2030.000	0.040
NH	2565.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	6.100	8.100	1000.000	2200.000	1100.000	2050.000	0.000
X1	15.722	41.000	1079.000	1200.000	2100.000	2700.000	3510.000	0.000	0.000	0.000
GR	601.500	0.000	600.100	100.000	600.300	200.000	597.900	300.000	596.500	368.000
GR	589.200	383.000	589.200	385.000	596.200	400.000	597.800	500.000	598.900	600.000
GR	599.600	700.000	599.500	776.000	599.300	800.000	600.200	900.000	601.400	1000.000
GR	600.700	1079.000	582.700	1111.000	579.300	1120.000	579.600	1130.000	578.700	1140.000
GR	578.200	1150.000	578.000	1160.000	580.000	1170.000	582.300	1180.000	594.100	1200.000
GR	592.600	1300.000	591.200	1400.000	591.600	1500.000	589.200	1600.000	590.200	1700.000
GR	590.200	1800.000	591.300	1900.000	593.400	2000.000	593.400	2030.000	596.600	2075.000
GR	596.800	2100.000	598.100	2200.000	599.400	2300.000	600.100	2400.000	598.100	2500.000
GR	598.700	2565.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	0.300	0.500	0.000	0.000	0.000	0.000	0.000
NH	5.000	0.040	1079.000	0.100	1115.000	0.040	1195.000	0.100	2030.000	0.040
NH	2565.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	6.100	8.100	1000.000	2400.000	1100.000	2050.000	0.000
X1	15.736	52.000	1085.000	1231.000	80.000	80.000	80.000	0.000	0.000	0.000
GR	601.500	0.000	600.100	100.000	600.300	200.000	597.900	300.000	596.500	368.000
GR	589.200	383.000	589.200	385.000	596.200	400.000	597.800	500.000	598.900	600.000
GR	599.600	700.000	599.500	776.000	599.300	800.000	600.200	900.000	601.000	1000.000
GR	600.700	1079.000	595.300	1085.000	592.500	1086.000	592.000	1095.000	590.800	1105.000
GR	587.700	1115.000	584.900	1125.000	582.300	1132.000	582.300	1132.100	582.300	1134.900
GR	582.300	1135.000	582.400	1145.000	581.500	1155.000	581.300	1165.000	579.900	1175.000
GR	576.700	1182.000	576.700	1182.100	577.200	1184.900	577.200	1185.000	578.200	1195.000
GR	591.200	1225.000	592.200	1230.000	592.200	1231.000	592.600	1300.000	591.200	1400.000
GR	591.600	1500.000	589.200	1600.000	590.200	1700.000	590.200	1800.000	591.300	1900.000
GR	593.400	2000.000	593.400	2030.000	596.600	2075.000	596.800	2100.000	598.100	2200.000
GR	599.400	2300.000	600.100	2400.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	2.100	3.040	0.000	115.000	0.000	1512.000	0.000	0.000	0.000
NH	3.000	0.090	1085.000	0.040	1231.000	0.090	2565.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	6.110	6.110	1000.000	2400.000	0.000	0.000	0.000
X1	15.748	0.000	0.000	0.000	71.000	71.000	71.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	595.300	596.200	0.000	0.000	0.000	0.000	0.000
BT	-29.000	0.000	601.500	0.000	100.000	600.100	0.000	200.000	600.300	0.000
BT	0.000	300.000	597.900	0.000	400.000	596.200	0.000	500.000	597.800	0.000
BT	0.000	600.000	598.900	0.000	700.000	599.600	0.000	776.000	599.500	0.000
BT	0.000	800.000	599.300	0.000	900.000	600.200	0.000	1000.000	601.000	0.000
BT	0.000	1085.000	601.700	595.300	1086.000	601.700	597.000	1132.000	601.700	597.000

BT	0.000	1132.100	601.700	582.300	1134.900	601.700	582.300	1135.000	601.700	597.000
BT	0.000	1182.000	601.700	597.000	1182.100	601.700	576.700	1184.900	601.700	577.200
BT	0.000	1185.000	601.700	597.000	1230.000	601.800	597.000	1231.000	601.800	592.200
BT	0.000	1300.000	601.000	0.000	1400.000	599.300	0.000	1500.000	599.000	0.000
BT	0.000	2200.000	598.100	0.000	2300.000	599.400	0.000	2400.000	600.100	0.000
NH	6.000	0.050	412.000	0.055	445.000	0.045	520.000	0.060	525.000	0.050
NH	825.000	0.035	925.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	6.100	410.000	780.000	0.000	0.000	0.000
X1	16.063	25.000	325.000	525.000	1694.000	1694.000	1749.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	601.300	0.000	600.400	29.000	599.700	125.000	601.000	225.000	601.600	325.000
GR	599.100	412.000	591.900	429.000	586.100	435.000	584.200	445.000	583.200	455.000
GR	581.600	465.000	580.100	475.000	578.200	485.000	576.400	495.000	577.000	505.000
GR	580.400	515.000	583.900	520.000	589.400	525.000	591.300	534.000	589.200	625.000
GR	593.300	714.000	592.900	725.000	597.800	825.000	600.700	875.000	601.700	925.000
NC	0.000	0.000	0.000	0.100	0.500	0.000	0.000	0.000	0.000	0.000
NH	5.000	1.000	107.000	0.060	566.000	0.040	634.000	0.100	760.000	0.070
NH	1038.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	6.100	1.400	50.000	800.000	0.000	0.000	0.000
X1	16.396	24.000	560.000	641.000	1700.000	1650.000	1760.000	0.000	0.000	0.000
GR	601.200	0.000	600.200	53.000	600.200	66.000	591.400	107.000	589.400	160.000
GR	589.100	260.000	588.700	360.000	588.200	460.000	589.700	560.000	584.300	566.000
GR	584.200	580.000	583.300	590.000	582.300	600.000	581.800	610.000	582.100	620.000
GR	581.400	630.000	583.300	634.000	591.300	641.000	593.700	664.000	594.600	733.000
GR	598.300	760.000	599.500	860.000	598.900	960.000	600.900	1038.000	0.000	0.000
NH	7.000	1.000	700.000	0.100	1300.000	0.080	1704.000	0.100	1711.000	0.040
NH	1730.000	0.100	1781.000	0.040	2120.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	6.100	0.000	800.000	1900.000	0.000	0.000	0.000
X1	16.866	35.000	1704.000	1792.000	2400.000	2300.000	2480.000	0.000	0.000	0.000
GR	603.900	0.000	602.800	100.000	602.000	200.000	600.900	300.000	599.800	400.000
GR	599.800	500.000	598.800	600.000	598.700	700.000	597.900	800.000	597.800	900.000
GR	597.300	1000.000	595.900	1100.000	593.000	1200.000	593.400	1300.000	593.900	1400.000
GR	593.600	1500.000	593.000	1600.000	593.400	1704.000	584.800	1711.000	582.100	1720.000
GR	582.300	1730.000	582.400	1740.000	582.200	1750.000	582.000	1760.000	582.200	1765.000
GR	584.700	1773.000	591.000	1781.000	595.500	1792.000	596.000	1800.000	600.100	1893.000
GR	600.600	1947.000	600.200	2000.000	600.600	2055.000	604.100	2100.000	605.100	2120.000
NH	6.000	0.040	1000.000	0.100	1308.000	0.075	1319.000	0.040	1371.000	0.075
NH	1396.000	0.040	1625.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	6.100	8.100	950.000	1500.000	950.000	1400.000	0.000
X1	17.089	29.000	1308.000	1396.000	1100.000	1100.000	1180.000	0.000	0.000	0.000
GR	601.800	0.000	601.300	100.000	599.300	200.000	598.900	300.000	598.900	400.000
GR	598.500	500.000	598.400	600.000	598.000	700.000	598.100	800.000	597.800	822.000
GR	593.400	900.000	591.900	1000.000	592.000	1100.000	592.400	1200.000	593.200	1300.000
GR	593.400	1308.000	586.800	1319.000	585.700	1325.000	584.900	1330.000	582.600	1340.000
GR	583.200	1350.000	583.200	1360.000	584.800	1371.000	589.400	1378.000	589.800	1387.000
GR	595.000	1396.000	598.900	1425.000	599.800	1500.000	601.300	1625.000	0.000	0.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN        SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID       ENDST


*PROF 1

CCHV=    0.300 CEHV=    0.500
1490 NH CARD USED
*SECNO 11.052

3470 ENCROACHMENT STATIONS=      550.0     2520.0  TYPE=       1  TARGET=     1970.000
     11.05     22.37    593.17      0.00      0.00    593.38      0.20      0.00      0.00    578.50
    21300.      272.    12024.     9004.      229.     2541.    10296.        0.        0.    584.10
      0.00      1.19      4.73      0.87     0.120     0.047     0.132     0.000    570.80    550.00
  0.000431      750.      750.      330.         0         0         0      0.00   1823.74   2373.74


1490 NH CARD USED
*SECNO 11.292
     11.29     24.23    593.63      0.00      0.00    593.66      0.03      0.23      0.05    593.20
    10400.        0.     3110.     7290.        4.     1421.    13568.      198.       25.    581.70
      0.23      0.05      2.19      0.54     0.120     0.048     0.124     0.000    569.40     23.18
  0.000137     1350.     1268.      500.         1         0         0      0.00   2141.27   2164.45


1490 NH CARD USED
*SECNO 11.393
     11.39     23.70    593.65      0.00      0.00    593.72      0.06      0.04      0.02    591.20
    10400.       29.     4415.     5956.      140.     1472.     9432.      226.       29.    582.30
      0.26      0.21      3.00      0.63     0.120     0.048     0.128     0.000    569.95     92.91
  0.000243      479.      529.       37.         2         0         0      0.00   1952.96   2045.87


CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 11.695

3265 DIVIDED FLOW

     11.69     22.29    593.88      0.00      0.00    594.03      0.15      0.29      0.02    585.20
    10400.      957.     6117.     3326.     1799.     1630.     1813.      330.       49.    584.40
      0.35      0.53      3.75      1.83     0.137     0.054     0.048     0.000    571.59    319.06
  0.000421     1486.     1586.      110.         2         0         0      0.00   1260.48   1615.30


1490 NH CARD USED
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 11.845

11.84	21.74	594.14	0.00	0.00	594.33	0.20	0.29	0.02	582.30
10400.	2294.	7246.	860.	3386.	1721.	461.	405.	64.	585.50
0.41	0.68	4.21	1.86	0.141	0.054	0.048	0.000	572.40	428.36
0.000503	735.	785.	54.	2	0	0	0.00	1134.48	1562.85

1490 NH CARD USED
*SECNO 11.860

11.86	21.71	594.19	0.00	0.00	594.37	0.18	0.04	0.00	582.20
10400.	2358.	7035.	1007.	3184.	1731.	622.	415.	66.	585.60
0.41	0.74	4.07	1.62	0.128	0.054	0.054	0.000	572.48	410.16
0.000463	77.	79.	76.	2	0	0	0.00	1120.62	1530.78

1490 NH CARD USED
*SECNO 11.875

11.88	21.67	594.24	0.00	0.00	594.41	0.17	0.04	0.00	582.20
10400.	2329.	6917.	1154.	2888.	1732.	791.	425.	68.	585.70
0.42	0.81	3.99	1.46	0.116	0.054	0.060	0.000	572.57	394.58
0.000453	77.	79.	76.	0	0	0	0.00	1104.34	1498.92

1490 NH CARD USED
*SECNO 11.929

11.93	21.47	594.36	0.00	0.00	594.52	0.16	0.11	0.00	582.00
10400.	1595.	6777.	2027.	1987.	1741.	1644.	457.	74.	586.10
0.45	0.80	3.89	1.23	0.106	0.048	0.072	0.000	572.89	340.55
0.000343	239.	287.	275.	0	0	0	0.00	1042.98	1383.53

1490 NH CARD USED
*SECNO 12.023

12.02	21.17	594.57	0.00	0.00	594.66	0.09	0.13	0.01	581.80
10400.	1144.	5410.	3847.	976.	1747.	3952.	523.	83.	586.80
0.51	1.17	3.10	0.97	0.064	0.049	0.098	0.000	573.40	394.65
0.000225	437.	495.	474.	2	0	0	0.00	790.49	1185.14

1490 NH CARD USED
*SECNO 12.339

12.34	21.99	594.99	0.00	0.00	595.02	0.03	0.35	0.01	585.80
10400.	7801.	2596.	3.	6067.	1490.	10.	787.	117.	593.90
0.83	1.29	1.74	0.30	0.066	0.073	0.048	0.000	573.00	191.92
0.000211	1600.	1670.	1600.	2	0	0	0.00	1025.93	1217.85

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

1490 NH CARD USED
*SECNO 12.544

3470 ENCROACHMENT STATIONS= 250.0 1000.0 TYPE= 1 TARGET= 750.000

12.54	20.51	595.21	0.00	0.00	595.34	0.13	0.29	0.03	587.00
10400.	1670.	6310.	2420.	1839.	1735.	2456.	949.	138.	584.40
0.95	0.91	3.64	0.99	0.108	0.054	0.121	0.000	574.70	250.00
0.000393	1020.	1080.	1050.	0	0	0	0.00	750.00	1000.00

CCHV= 0.100 CEHV= 0.500
1490 NH CARD USED
*SECNO 12.799

3470 ENCROACHMENT STATIONS= 0.1 1600.0 TYPE= 1 TARGET= 1599.900

12.80	22.16	595.66	0.00	0.00	595.71	0.05	0.35	0.01	583.60
10400.	5655.	4280.	465.	8164.	1618.	498.	1191.	170.	584.00
1.19	0.69	2.65	0.93	0.114	0.055	0.096	0.000	573.50	136.69
0.000196	1300.	1350.	1200.	2	0	0	0.00	1426.59	1563.28

*SECNO 13.144

3470 ENCROACHMENT STATIONS= 250.0 1250.0 TYPE= 1 TARGET= 1000.000

13.14	21.61	596.01	0.00	0.00	596.07	0.06	0.36	0.00	584.20
10400.	544.	3720.	6136.	661.	1228.	6924.	1584.	219.	582.40
1.49	0.82	3.03	0.89	0.108	0.048	0.108	0.000	574.40	314.21
0.000204	1781.	1820.	1800.	2	0	0	0.00	935.79	1250.00

1490 NH CARD USED
*SECNO 13.163

3470 ENCROACHMENT STATIONS= 0.1 1275.0 TYPE= 1 TARGET= 1274.900

13.16	21.46	596.04	0.00	0.00	596.09	0.05	0.02	0.00	584.30
10400.	843.	3611.	5946.	784.	1259.	6424.	1600.	220.	582.40
1.51	1.08	2.87	0.93	0.090	0.053	0.106	0.000	574.58	355.05
0.000224	65.	100.	79.	0	0	0	0.00	919.95	1275.00

1490 NH CARD USED
*SECNO 13.191

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3470 ENCROACHMENT STATIONS= 0.1 1275.0 TYPE= 1 TARGET= 1274.900

13.19	21.37	596.05	0.00	0.00	596.10	0.06	0.01	0.00	584.40
10400.	870.	3751.	5779.	882.	1282.	5944.	1612.	222.	582.40
1.52	0.99	2.92	0.97	0.090	0.048	0.092	0.000	574.68	383.89
0.000191	49.	75.	59.	0	0	0	0.00	891.11	1275.00

1490 NH CARD USED
*SECNO 13.220

3470 ENCROACHMENT STATIONS= 360.0 1350.0 TYPE= 1 TARGET= 990.000

13.22	21.05	596.08	0.00	0.00	596.14	0.06	0.04	0.00	584.80
10400.	1229.	3792.	5380.	1238.	1339.	4650.	1643.	225.	582.70
1.55	0.99	2.83	1.16	0.084	0.050	0.072	0.000	575.03	360.00
0.000191	146.	225.	177.	0	0	0	0.00	990.00	1350.00

1490 NH CARD USED
*SECNO 13.481

3470 ENCROACHMENT STATIONS= 0.1 1750.0 TYPE= 1 TARGET= 1749.900

13.48	18.99	596.19	0.00	0.00	596.20	0.01	0.05	0.00	587.20
10400.	8899.	1355.	146.	11382.	1654.	312.	1882.	253.	583.90
1.93	0.78	0.82	0.47	0.037	0.054	0.060	0.000	577.20	191.70
0.000021	891.	1380.	1086.	2	0	0	0.00	1457.76	1649.46

CCHV= 0.100 CEHV= 0.500
1490 NH CARD USED
*SECNO 13.799

3470 ENCROACHMENT STATIONS= 0.1 1010.0 TYPE= 1 TARGET= 1009.900

13.80	20.30	596.20	0.00	0.00	596.29	0.09	0.06	0.04	586.90
10400.	2580.	5143.	2677.	1606.	1645.	2678.	2101.	277.	587.20
2.06	1.61	3.13	1.00	0.060	0.050	0.096	0.000	575.90	183.46
0.000268	800.	1680.	1050.	2	0	0	0.00	765.18	948.64

1490 NH CARD USED
*SECNO 14.061

3470 ENCROACHMENT STATIONS= 200.0 1400.0 TYPE= 1 TARGET= 1200.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

14.06	19.02	596.52	0.00	0.00	596.54	0.02	0.24	0.01	589.60
10400.	2517.	2916.	4966.	3321.	1618.	5263.	2315.	301.	588.50
2.36	0.76	1.80	0.94	0.096	0.060	0.086	0.000	577.50	281.55
0.000153	1100.	1380.	1100.	2	0	0	0.00	1118.45	1400.00

1490 NH CARD USED
*SECNO 14.258

3470 ENCROACHMENT STATIONS= 400.0 1400.0 TYPE= 1 TARGET= 1000.000

14.26	18.69	596.69	0.00	0.00	596.73	0.05	0.18	0.01	593.40
10400.	1413.	7372.	1615.	935.	3898.	1335.	2503.	323.	588.30
2.52	1.51	1.89	1.21	0.042	0.054	0.065	0.000	578.00	515.84
0.000216	1040.	1040.	950.	2	0	0	0.00	799.76	1315.61

CCHV= 0.100 CEHV= 0.300
1490 NH CARD USED
*SECNO 14.523

3470 ENCROACHMENT STATIONS= 0.1 1300.0 TYPE= 1 TARGET= 1299.900

14.52	18.47	596.87	0.00	0.00	596.90	0.03	0.17	0.00	590.80
10400.	6636.	2490.	1274.	5062.	1484.	1433.	2727.	354.	589.70
2.81	1.31	1.68	0.89	0.036	0.046	0.060	0.000	578.40	108.37
0.000078	1350.	1400.	1400.	2	0	0	0.00	1155.12	1263.49

1490 NH CARD USED
*SECNO 15.057

3470 ENCROACHMENT STATIONS= 250.0 1500.0 TYPE= 1 TARGET= 1250.000

15.06	18.22	597.22	0.00	0.00	597.32	0.10	0.40	0.02	592.70
10400.	1993.	4200.	4207.	977.	1152.	4548.	3151.	419.	588.40
3.13	2.04	3.64	0.93	0.036	0.048	0.120	0.000	579.00	261.26
0.000430	2600.	2820.	2300.	2	0	0	0.00	1097.66	1358.92

1490 NH CARD USED
*SECNO 15.722

3470 ENCROACHMENT STATIONS= 1000.0 2200.0 TYPE= 1 TARGET= 1200.000

15.72	20.34	598.34	0.00	0.00	598.43	0.08	1.10	0.00	600.70
10400.	0.	5384.	5016.	0.	1724.	6097.	3620.	487.	594.10
3.54	0.00	3.12	0.82	0.000	0.048	0.116	0.000	578.00	1083.19
0.000315	2100.	3510.	2700.	2	0	0	0.00	1116.81	2200.00

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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


 CCHV=    0.300 CEHV=    0.500
 1490 NH CARD USED
 *SECNO 15.736

 3470 ENCROACHMENT STATIONS=    1000.0     2400.0  TYPE=      1  TARGET=    1400.000
     15.74     21.69    598.39      0.00      0.00    598.46      0.06      0.02      0.01    595.30
    10400.        1.     5432.     4967.        5.     2029.     6061.     3635.      489.    592.20
      3.56      0.24      2.68      0.82     0.120     0.054     0.116     0.000    576.70   1081.56
  0.000303       80.       80.       80.         2         0         0      0.00   1140.96   2222.52


 SPECIAL BRIDGE

 5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
 SB  XK          XKOR        COFQ        RDLEN       BWC         BWP         BAREA       SS          ELCHU       ELCHD
      0.00        2.10        3.04        0.00      115.00        0.00     1512.00        0.00      576.70      576.70

 1490 NH CARD USED
 *SECNO 15.748
      3700.   BRIDGE STENCL=    1000.00    STENCR=    2400.00
 PRESSURE AND WEIR FLOW


  EGPRS      EGLWC        H3        QWEIR       QPR        BAREA     TRAPEZOID      ELLC       ELTRD
                                                                       AREA
     599.94     598.46      0.00      1892.      8435.      1512.      2139.       595.30     596.20


 3470 ENCROACHMENT STATIONS=    1000.0     2400.0  TYPE=      1  TARGET=    1400.000
     15.75     22.66    599.36      0.00      0.00    599.41      0.05      0.95      0.00    595.30
    10400.        2.     5274.     5123.        9.     2170.     7053.     3649.      491.    592.20
      3.57      0.24      2.43      0.73     0.108     0.048     0.108     0.000    576.70   1080.49
  0.000180       71.       71.       71.         2         0         2      0.00   1216.20   2296.69


 1490 NH CARD USED
 *SECNO 16.063

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       601.60 ELREA=       589.40

     16.06     23.35    599.75      0.00      0.00    599.87      0.13      0.43      0.04    601.60
    10400.        0.     6186.     4214.        0.     1838.     2251.     3910.      524.    589.40
      3.74      0.00      3.37      1.87     0.000     0.046     0.060     0.000    576.40    389.45
  0.000367     1694.     1749.     1694.         2         0         0      0.00    469.14    858.59
```

```
 SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
 Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
 TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
 SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST

CCHV=   0.100 CEHV=    0.500
1490 NH CARD USED
*SECNO 16.396

3470 ENCROACHMENT STATIONS=       50.0      800.0  TYPE=      1  TARGET=      750.000
    16.40     18.84    600.24      0.00      0.00    600.29      0.05      0.40      0.01    589.70
   10400.     6710.     3297.      393.     5246.     1355.      769.     4134.      547.    591.30
     4.04      1.28      2.43      0.51     0.073     0.049     0.118     0.000    581.40     50.78
 0.000164     1700.     1760.     1650.         2         0         0      0.00    749.22    800.00

1490 NH CARD USED
*SECNO 16.866

3470 ENCROACHMENT STATIONS=      800.0     1900.0  TYPE=      1  TARGET=     1100.000
    16.87     18.90    600.90      0.00      0.00    600.95      0.05      0.66      0.00    593.40
   10400.     6276.     3656.      468.     5475.     1407.      310.     4537.      598.    595.50
     4.44      1.15      2.60      1.51     0.104     0.079     0.048     0.000    582.00    800.00
 0.000532     2400.     2480.     2300.         1         0         0      0.00   1100.00   1900.00

1490 NH CARD USED
*SECNO 17.089
3280 CROSS SECTION      17.09 EXTENDED       0.16 FEET

3470 ENCROACHMENT STATIONS=      950.0     1500.0  TYPE=      1  TARGET=      550.000
    17.09     18.86    601.46      0.00      0.00    601.60      0.13      0.61      0.04    593.40
   10400.     4834.     5125.      441.     3269.     1324.      289.     4692.      619.    595.00
     4.56      1.48      3.87      1.52     0.101     0.052     0.048     0.000    582.60    950.00
 0.000540     1100.     1180.     1100.         2         0         0      0.00    550.00   1500.00
```

THIS RUN EXECUTED 16 MAY 90 16:32:30

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
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T1 CLINTON TOWNSHIP FLOOD INSURANCE RESTUDY
T2 RECREATION OF ORIGINAL MODEL
T3 CLINTON RIVER U/S OF THE FORKS, 100-YEAR DISCHARGE

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	5.	0.	0.	0.000000	0.00	0.0	0.	593.274	0.000

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	15.000	0.000	-1.000	0.000	0.000	1.200	0.000	0.000	0.000	0.000

```
     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

  *PROF 2

  CCHV=   0.300 CEHV=   0.500
  1490 NH CARD USED
  *SECNO 11.052

  3470 ENCROACHMENT STATIONS=      550.0     2050.0  TYPE=      1  TARGET=     1500.000
      11.05     22.47    593.27      0.00    593.17    593.48      0.21      0.00      0.00    578.50
     21300.      277.    12184.     8840.      231.     2553.     9581.        0.        0.    584.10
       0.00      1.20      4.77      0.92     0.120     0.047     0.132     0.000    570.80    550.00
   0.000436      750.      750.      330.         0         0         0      0.00   1500.00   2050.00

  1490 NH CARD USED
  *SECNO 11.292
   2800 NAT Q1=    8874.62  WSEL=     593.63  ENC Q1=    8874.62  WSEL=     593.73  RATIO=  0.0000
   NAT Q1=    9064.  RATIOS LOB,CH,ROB=  0.0000  0.2958  0.7041  WSEL=     593.73

  3470 ENCROACHMENT STATIONS=       41.0     2058.5  TYPE=      4  TARGET=        0.021
      11.29     24.34    593.74      0.00    593.63    593.77      0.03      0.23      0.05    593.20
     10400.        0.     3132.     7268.        0.     1430.    13559.      194.       22.    581.70
       0.23      0.00      2.19      0.54     0.000     0.048     0.127     0.000    569.40     41.00
   0.000137     1350.     1268.      500.         2         0         0      0.00   2017.46   2058.46

  1490 NH CARD USED
  *SECNO 11.393
   2800 NAT Q1=    6672.99  WSEL=     593.65  ENC Q1=    6672.99  WSEL=     593.75  RATIO=  0.0000
   NAT Q1=    6809.  RATIOS LOB,CH,ROB=  0.0032  0.4200  0.5768  WSEL=     593.75

  3470 ENCROACHMENT STATIONS=      272.4     1820.0  TYPE=      4  TARGET=        0.020
      11.39     23.81    593.76      0.00    593.65    593.83      0.06      0.04      0.02    591.20
     10400.        0.     4408.     5992.        0.     1481.     9261.      222.       25.    582.30
       0.26      0.00      2.98      0.65     0.000     0.048     0.129     0.000    569.95    272.40
   0.000246      479.      529.       37.         2         0         0      0.00   1547.63   1820.03

  CCHV=   0.100 CEHV=   0.300
  1490 NH CARD USED
  *SECNO 11.695
   2800 NAT Q1=    5067.46  WSEL=     593.88  ENC Q1=    5067.46  WSEL=     593.98  RATIO=  0.0000
   NAT Q1=    5177.  RATIOS LOB,CH,ROB=  0.0948  0.5808  0.3244  WSEL=     593.98
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


3470 ENCROACHMENT STATIONS=      465.9    1440.3  TYPE=     4  TARGET=        0.021
     11.69     22.40    593.99      0.00    593.88    594.14      0.15      0.29      0.03    585.20
    10400.      897.     6166.     3337.     1662.     1640.     1726.      321.       39.    584.40
      0.35      0.54      3.76      1.93     0.144     0.054     0.048     0.000    571.59    465.94
  0.000420     1486.     1586.      110.         2         0         0      0.00    974.33   1440.27

1490 NH CARD USED
*SECNO 11.845
  2800 NAT Q1=   4638.99  WSEL=    594.14  ENC Q1=   4638.99  WSEL=     594.24  RATIO=  0.0000
  NAT Q1=    4720.  RATIOS LOB,CH,ROB=  0.2249  0.6905  0.0846  WSEL=     594.24

3470 ENCROACHMENT STATIONS=      508.3    1468.5  TYPE=     4  TARGET=        0.017
     11.84     21.85    594.25      0.00    594.14    594.45      0.20      0.29      0.02    582.30
    10400.     2289.     7308.      803.     3348.     1730.      369.      395.       52.    585.50
      0.40      0.68      4.22      2.18     0.144     0.054     0.048     0.000    572.40    508.31
  0.000503      735.      785.       54.         1         0         0      0.00    960.16   1468.47

1490 NH CARD USED
*SECNO 11.860
  2800 NAT Q1=   4833.65  WSEL=    594.19  ENC Q1=   4833.65  WSEL=     594.29  RATIO=  0.0000
  NAT Q1=    4921.  RATIOS LOB,CH,ROB=  0.2311  0.6701  0.0989  WSEL=     594.29

3470 ENCROACHMENT STATIONS=      495.6    1455.0  TYPE=     4  TARGET=        0.018
     11.86     21.82    594.30      0.00    594.19    594.49      0.18      0.04      0.00    582.20
    10400.     2357.     7089.      954.     3166.     1741.      529.      404.       53.    585.60
      0.41      0.74      4.07      1.80     0.130     0.054     0.054     0.000    572.48    495.60
  0.000461       77.       79.       76.         2         0         0      0.00    959.40   1455.00

1490 NH CARD USED
*SECNO 11.875
  2800 NAT Q1=   4883.67  WSEL=    594.24  ENC Q1=   4883.67  WSEL=     594.34  RATIO=  0.0000
  NAT Q1=    4981.  RATIOS LOB,CH,ROB=  0.2286  0.6581  0.1133  WSEL=     594.34

3470 ENCROACHMENT STATIONS=      504.0    1437.1  TYPE=     4  TARGET=        0.019
     11.88     21.78    594.35      0.00    594.24    594.52      0.17      0.04      0.00    582.20
    10400.     2324.     6978.     1098.     2838.     1742.      700.      414.       55.    585.70
      0.42      0.82      4.01      1.57     0.119     0.054     0.060     0.000    572.57    504.04
  0.000453       77.       79.       76.         1         0         0      0.00    933.03   1437.07
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     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA     LEFT/RIGHT
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN        SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID       ENDST

 1490 NH CARD USED
 *SECNO 11.929
  2800 NAT Q1=    5619.01  WSEL=      594.36  ENC Q1=    5619.01  WSEL=      594.46  RATIO=  0.0000
  NAT Q1=    5713.  RATIOS LOB,CH,ROB=  0.1564  0.6463  0.1973  WSEL=      594.46

 3470 ENCROACHMENT STATIONS=       604.5      1327.4  TYPE=      4  TARGET=         0.016
     11.93      21.58     594.47       0.00     594.36     594.63       0.16       0.11       0.00     582.00
    10400.      1567.      6833.      2000.      1823.      1750.      1563.       445.        60.      586.10
      0.44       0.86       3.90       1.28      0.108      0.048      0.072      0.000     572.89     604.49
  0.000342       239.       287.       275.          1          0          0       0.00     722.92    1327.41

 1490 NH CARD USED
 *SECNO 12.023
  2800 NAT Q1=    6934.14  WSEL=      594.57  ENC Q1=    6934.14  WSEL=      594.67  RATIO=  0.0000
  NAT Q1=    7043.  RATIOS LOB,CH,ROB=  0.1118  0.5164  0.3717  WSEL=      594.67

 3470 ENCROACHMENT STATIONS=       473.0      1130.5  TYPE=      4  TARGET=         0.016
     12.02      21.29     594.69       0.00     594.57     594.77       0.09       0.13       0.01     581.80
    10400.      1100.      5454.      3846.       865.      1758.      3896.       508.        67.      586.80
      0.51       1.27       3.10       0.99      0.065      0.049      0.100      0.000     573.40     472.98
  0.000224       437.       495.       474.          2          0          0       0.00     657.48    1130.46

 1490 NH CARD USED
 *SECNO 12.339
  2800 NAT Q1=    7160.49  WSEL=      594.99  ENC Q1=    7160.49  WSEL=      595.09  RATIO=  0.0000
  NAT Q1=    7301.  RATIOS LOB,CH,ROB=  0.7522  0.2475  0.0003  WSEL=      595.09

 3470 ENCROACHMENT STATIONS=       351.5      1200.0  TYPE=      4  TARGET=         0.019
     12.34      22.10     595.10       0.00     594.99     595.13       0.03       0.35       0.01     585.80
    10400.      7786.      2614.         0.      5849.      1501.         0.       766.        95.      593.90
      0.82       1.33       1.74       0.00      0.066      0.073      0.000      0.000     573.00     351.53
  0.000211      1600.      1670.      1600.          2          0          0       0.00     848.47    1200.00

 1490 NH CARD USED
 *SECNO 12.544
  2800 NAT Q1=    5244.43  WSEL=      595.21  ENC Q1=    5244.43  WSEL=      595.31  RATIO=  0.0000
  NAT Q1=    5358.  RATIOS LOB,CH,ROB=  0.1666  0.5989  0.2345  WSEL=      595.31

 3470 ENCROACHMENT STATIONS=       279.2       978.9  TYPE=      4  TARGET=         0.021
     12.54      20.62     595.32       0.00     595.21     595.46       0.13       0.29       0.03     587.00
    10400.      1657.      6357.      2386.      1796.      1745.      2420.       925.       113.      584.40
      0.93       0.92       3.64       0.99      0.109      0.054      0.123      0.000     574.70     279.19
  0.000392      1020.      1080.      1050.          2          0          0       0.00     699.72     978.90
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

 CCHV=    0.100 CEHV=    0.500
 1490 NH CARD USED
 *SECNO 12.799
  2800 NAT Q1=    7437.02  WSEL=     595.66  ENC Q1=    7437.02  WSEL=     595.76  RATIO=  0.0000
  NAT Q1=    7571.   RATIOS LOB,CH,ROB=  0.5475  0.4078  0.0447  WSEL=     595.76

 3470 ENCROACHMENT STATIONS=      275.1     1546.9  TYPE=      4   TARGET=        0.018
     12.80     22.27    595.77      0.00    595.66    595.82      0.05      0.35      0.01    583.60
    10400.     5705.     4313.      382.     8128.     1627.      429.     1164.      142.    584.00
      1.17      0.70      2.65      0.89     0.115     0.055     0.096     0.000    573.50    275.13
  0.000195     1300.     1350.     1200.         2         0         0      0.00   1271.74   1546.87


 *SECNO 13.144
  2800 NAT Q1=    7287.17  WSEL=     596.01  ENC Q1=    7287.17  WSEL=     596.11  RATIO=  0.0000
  NAT Q1=    7487.   RATIOS LOB,CH,ROB=  0.0518  0.3511  0.5970  WSEL=     596.11

 3470 ENCROACHMENT STATIONS=      362.1     1243.2  TYPE=      4   TARGET=        0.027
     13.14     21.72    596.12      0.00    596.01    596.18      0.06      0.36      0.00    584.20
    10400.      407.     3753.     6240.      422.     1234.     6987.     1552.      187.    582.40
      1.47      0.96      3.04      0.89     0.108     0.048     0.108     0.000    574.40    362.14
  0.000204     1781.     1820.     1800.         0         0         0      0.00    881.10   1243.25


 1490 NH CARD USED
 *SECNO 13.163

 3470 ENCROACHMENT STATIONS=      410.0     1275.0  TYPE=      1   TARGET=      865.000
     13.16     21.56    596.14      0.00    596.04    596.20      0.05      0.02      0.00    584.30
    10400.      663.     3653.     6084.      565.     1266.     6506.     1568.      188.    582.40
      1.49      1.17      2.88      0.94     0.090     0.053     0.106     0.000    574.58    410.00
  0.000225       65.      100.       79.         0         0         0      0.00    865.00   1275.00


 1490 NH CARD USED
 *SECNO 13.191

 3470 ENCROACHMENT STATIONS=      445.0     1275.0  TYPE=      1   TARGET=      830.000
     13.19     21.48    596.16      0.00    596.05    596.21      0.06      0.01      0.00    584.40
    10400.      715.     3784.     5900.      675.     1290.     6020.     1579.      189.    582.40
      1.50      1.06      2.93      0.98     0.090     0.048     0.092     0.000    574.68    445.00
  0.000191       49.       75.       59.         0         0         0      0.00    830.00   1275.00
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG         HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH        AROB      VOL       TWA     LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH       XNR       WTN       ELMIN        SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC        ICONT     CORAR     TOPWID       ENDST


1490 NH CARD USED
*SECNO 13.220

3470 ENCROACHMENT STATIONS=      500.0     1270.0  TYPE=      1  TARGET=      770.000
     13.22     21.16    596.19      0.00    596.08    596.25      0.06      0.04      0.00    584.80
    10400.     1227.     3795.     5377.     1177.     1347.     4557.     1611.      193.    582.70
      1.53      1.04      2.82      1.18     0.084     0.050     0.072     0.000    575.03    500.00
  0.000187      146.      225.      177.         0         0         0      0.00    770.00   1270.00


1490 NH CARD USED
*SECNO 13.481
 2800 NAT Q1=  22624.28  WSEL=    596.19  ENC Q1=  22624.28  WSEL=     596.29  RATIO=  0.0000
 NAT Q1=  23025.  RATIOS LOB,CH,ROB=  0.8567  0.1292  0.0140  WSEL=     596.29

3470 ENCROACHMENT STATIONS=      237.3     1613.9  TYPE=      4  TARGET=        0.017
     13.48     19.09    596.29      0.00    596.19    596.30      0.01      0.05      0.00    587.20
    10400.     8976.     1366.       58.    11372.     1665.      150.     1845.      217.    583.90
      1.90      0.79      0.82      0.39     0.037     0.054     0.060     0.000    577.20    237.31
  0.000021      891.     1380.     1086.         1         0         0      0.00   1376.59   1613.90


CCHV=   0.100 CEHV=    0.500
1490 NH CARD USED
*SECNO 13.799

3470 ENCROACHMENT STATIONS=      190.0      930.0  TYPE=      1  TARGET=      740.000
     13.80     20.41    596.31      0.00    596.20    596.40      0.09      0.06      0.04    586.90
    10400.     2598.     5107.     2695.     1629.     1655.     2716.     2063.      239.    587.20
      2.04      1.60      3.09      0.99     0.060     0.050     0.096     0.000    575.90    190.00
  0.000258      800.     1680.     1050.         2         0         0      0.00    740.00    930.00


1490 NH CARD USED
*SECNO 14.061

3470 ENCROACHMENT STATIONS=      345.0     1245.0  TYPE=      1  TARGET=      900.000
     14.06     19.14    596.64      0.00    596.52    596.67      0.03      0.27      0.01    589.60
    10400.     2682.     3312.     4406.     3080.     1631.     4176.     2262.      261.    588.50
      2.30      0.87      2.03      1.05     0.096     0.060     0.090     0.000    577.50    345.00
  0.000192     1100.     1380.     1100.         2         0         0      0.00    900.00   1245.00
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  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

1490 NH CARD USED
*SECNO 14.258

3470 ENCROACHMENT STATIONS=      520.0     1310.0  TYPE=      1  TARGET=       790.000
     14.26     18.84    596.84      0.00    596.69    596.88      0.05      0.20      0.01    593.40
    10400.     1450.     7321.     1629.      966.     3954.     1363.     2437.      280.    588.30
      2.47      1.50      1.85      1.20     0.042     0.054     0.065     0.000    578.00    520.00
  0.000204     1040.     1040.      950.         2         0         0      0.00    790.00   1310.00

CCHV=   0.100 CEHV=   0.300
1490 NH CARD USED
*SECNO 14.523
 2800 NAT Q1=  11806.98  WSEL=    596.87  ENC Q1=  11806.98  WSEL=     596.97  RATIO=  0.0000
 NAT Q1=  12054.  RATIOS LOB,CH,ROB=  0.6407  0.2369  0.1224  WSEL=     596.97

3470 ENCROACHMENT STATIONS=      228.8     1240.7  TYPE=      4  TARGET=         0.020
     14.52     18.62    597.02      0.00    596.87    597.05      0.03      0.16      0.00    590.80
    10400.     6704.     2503.     1193.     4988.     1498.     1349.     2661.      309.    589.70
      2.75      1.34      1.67      0.88     0.036     0.046     0.060     0.000    578.40    228.78
  0.000076     1350.     1400.     1400.         1         0         0      0.00   1011.90   1240.68

1490 NH CARD USED
*SECNO 15.057
 2800 NAT Q1=   5016.24  WSEL=    597.22  ENC Q1=   5016.24  WSEL=     597.32  RATIO=  0.0000
 NAT Q1=   5133.  RATIOS LOB,CH,ROB=  0.1960  0.3989  0.4050  WSEL=     597.32

3470 ENCROACHMENT STATIONS=      386.8     1316.6  TYPE=      4  TARGET=         0.023
     15.06     18.35    597.35      0.00    597.22    597.46      0.10      0.39      0.02    592.70
    10400.     1974.     4232.     4194.      895.     1163.     4476.     3076.      364.    588.40
      3.06      2.21      3.64      0.94     0.036     0.048     0.120     0.000    579.00    386.83
  0.000424     2600.     2820.     2300.         2         0         0      0.00    929.79   1316.63

1490 NH CARD USED
*SECNO 15.722

3470 ENCROACHMENT STATIONS=     1100.0     2050.0  TYPE=      1  TARGET=       950.000
     15.72     20.47    598.47      0.00    598.34    598.56      0.09      1.10      0.00100000.00
    10400.        0.     5384.     5016.        0.     1657.     6006.     3536.      423.    594.10
      3.46      0.00      3.25      0.84     0.000     0.048     0.118     0.000    578.00   1100.00
  0.000316     2100.     3510.     2700.         2         0         0      0.00    950.00   2050.00
```

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

CCHV=    0.300 CEHV=    0.500
1490 NH CARD USED
*SECNO 15.736

3470 ENCROACHMENT STATIONS=     1100.0     2050.0  TYPE=      1   TARGET=       950.000
    15.74     21.82    598.52      0.00    598.39    598.59      0.07      0.02      0.01100000.00
   10400.        0.     5435.     4965.        0.     1952.     5958.     3550.      425.    592.20
     3.48      0.00      2.78      0.83     0.000     0.053     0.118     0.000    576.70   1100.00
 0.000305       80.       80.       80.         2         0         0      0.00    950.00   2050.00


SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
SB  XK          XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
     0.00        2.10       3.04       0.00     115.00       0.00    1512.00       0.00     576.70     576.70

1490 NH CARD USED
*SECNO 15.748
     3700.    BRIDGE STENCL=    1000.00     STENCR=    2400.00
PRESSURE AND WEIR FLOW

 EGPRS      EGLWC        H3        QWEIR       QPR        BAREA    TRAPEZOID       ELLC       ELTRD
                                                                     AREA
   600.06     598.59      0.00      2155.      8204.      1512.      2139.      595.30     596.20


3470 ENCROACHMENT STATIONS=     1000.0     2400.0  TYPE=      1   TARGET=      1400.000
    15.75     22.73    599.43      0.00    599.36    599.48      0.05      0.89      0.00    595.30
   10400.        2.     5254.     5143.        9.     2180.     7131.     3564.      426.    592.20
     3.49      0.24      2.41      0.72     0.108     0.048     0.108     0.000    576.70   1080.41
 0.000176       71.       71.       71.         2         0         2      0.00   1223.87   2304.28

1490 NH CARD USED
*SECNO 16.063

3470 ENCROACHMENT STATIONS=      410.0      780.0  TYPE=      1   TARGET=       370.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=   100000.00 ELREA=       589.40

    16.06     23.41    599.81      0.00    599.75    599.95      0.13      0.43      0.04100000.00
   10400.        0.     6263.     4137.        0.     1839.     2098.     3825.      457.    589.40
     3.66      0.00      3.40      1.97     0.000     0.051     0.060     0.000    576.40    410.00
 0.000372     1694.     1749.     1694.         2         0         0      0.00    370.00    780.00
```

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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

CCHV=    0.100 CEHV=    0.500
1490 NH CARD USED
*SECNO 16.396
 2800 NAT Q1=    8117.77  WSEL=     600.24  ENC Q1=    8117.77  WSEL=     600.34  RATIO=  0.0000
 NAT Q1=    8273.   RATIOS LOB,CH,ROB=  0.6426  0.3141  0.0434  WSEL=     600.34

3470 ENCROACHMENT STATIONS=      109.4      742.8  TYPE=     4   TARGET=        0.019
     16.40     18.92    600.32      0.00    600.24    600.36      0.05      0.41      0.01    589.70
    10400.     6710.     3331.      358.     5075.     1361.      655.     4041.      477.    591.30
      3.95      1.32      2.45      0.55     0.072     0.049     0.120     0.000    581.40    109.41
  0.000165     1700.     1760.     1650.         2         0         0      0.00    633.43    742.84

1490 NH CARD USED
*SECNO 16.866
 2800 NAT Q1=    4509.01  WSEL=     600.90  ENC Q1=    4509.01  WSEL=     601.00  RATIO=  0.0000
 NAT Q1=    4712.   RATIOS LOB,CH,ROB=  0.6098  0.3402  0.0500  WSEL=     601.00

3470 ENCROACHMENT STATIONS=      830.2     1828.0  TYPE=     4   TARGET=        0.043
     16.87     18.98    600.98      0.00    600.90    601.03      0.05      0.66      0.00    593.40
    10400.     6389.     3706.      305.     5461.     1415.      164.     4431.      522.    595.50
      4.34      1.17      2.62      1.86     0.104     0.079     0.048     0.000    582.00    830.25
  0.000537     2400.     2480.     2300.         2         0         0      0.00    997.79   1828.03

1490 NH CARD USED
*SECNO 17.089
3280 CROSS SECTION      17.09 EXTENDED       0.26 FEET

3470 ENCROACHMENT STATIONS=      950.0     1400.0  TYPE=     1   TARGET=      450.000
     17.09     18.96    601.56      0.00    601.46    601.70      0.14      0.63      0.05    593.40
    10400.     5050.     5316.       34.     3302.     1332.       25.     4582.      540.    595.00
      4.45      1.53      3.99      1.36     0.101     0.052     0.048     0.000    582.60    950.00
  0.000570     1100.     1180.     1100.         2         0         0      0.00    450.00   1400.00
```

THIS RUN EXECUTED 16 MAY 90 16:32:36

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

CLINTON RIVER U/S OF THE

SUMMARY PRINTOUT TABLE 110

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
11.052	593.17	0.00	593.38	1823.74	271.81	12023.80	9004.39	1970.00	550.00	569.00	691.00	2520.00
11.052	593.27	0.10	593.48	1500.00	276.77	12183.55	8839.68	1500.00	550.00	569.00	691.00	2050.00
11.292	593.63	0.00	593.66	2141.27	0.20	3109.67	7290.14	0.00	0.00	41.00	126.00	0.00
11.292	593.74	0.11	593.77	2017.46	0.00	3131.71	7268.28	0.02	41.00	41.00	126.00	2058.46
11.393	593.65	0.00	593.72	1952.96	29.11	4414.77	5956.12	0.00	0.00	272.40	358.10	0.00
11.393	593.76	0.11	593.83	1547.63	0.00	4407.65	5992.35	0.02	272.40	272.40	358.10	1820.03
11.695	593.88	0.00	594.03	1260.48	956.99	6116.90	3326.11	0.00	0.00	966.80	1054.70	0.00
11.695	593.99	0.11	594.14	974.33	896.77	6165.99	3337.24	0.02	465.94	966.80	1054.70	1440.27
11.845	594.14	0.00	594.33	1134.48	2294.21	7245.85	859.94	0.00	0.00	1311.00	1400.00	0.00
11.845	594.25	0.11	594.45	960.16	2289.44	7307.89	802.68	0.02	508.31	1311.00	1400.00	1468.47
11.860	594.19	0.00	594.37	1120.62	2357.68	7035.31	1007.01	0.00	0.00	1251.90	1341.20	0.00
11.860	594.30	0.11	594.49	959.40	2356.67	7089.07	954.26	0.02	495.60	1251.90	1341.20	1455.00
11.875	594.24	0.00	594.41	1104.34	2329.28	6916.92	1153.80	0.00	0.00	1192.80	1282.40	0.00
11.875	594.35	0.11	594.52	933.03	2323.86	6977.86	1098.29	0.02	504.04	1192.80	1282.40	1437.07
11.929	594.36	0.00	594.52	1042.98	1595.08	6777.44	2027.48	0.00	0.00	978.40	1068.90	0.00
11.929	594.47	0.11	594.63	722.92	1566.91	6833.02	2000.07	0.02	604.49	978.40	1068.90	1327.41
12.023	594.57	0.00	594.66	790.49	1143.62	5409.86	3846.52	0.00	0.00	608.00	700.00	0.00
12.023	594.69	0.11	594.77	657.48	1099.98	5453.83	3846.19	0.02	472.98	608.00	700.00	1130.46
12.339	594.99	0.00	595.02	1025.93	7801.09	2596.00	2.91	0.00	0.00	1104.00	1200.00	0.00
12.339	595.10	0.11	595.13	848.47	7786.18	2613.82	0.00	0.02	351.53	1104.00	1200.00	1200.00
12.544	595.21	0.00	595.34	750.00	1670.23	6309.67	2420.10	750.00	250.00	598.00	692.00	1000.00
12.544	595.32	0.11	595.46	699.72	1656.83	6357.15	2386.02	0.02	279.19	598.00	692.00	978.90

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
12.799	595.66	0.00	595.71	1426.59	5654.74	4280.38	464.88	1599.90	0.10	1420.00	1504.00	1600.00
12.799	595.77	0.11	595.82	1271.74	5705.26	4312.82	381.93	0.02	275.13	1420.00	1504.00	1546.87
13.144	596.01	0.00	596.07	935.79	544.07	3720.22	6135.71	1000.00	250.00	400.00	463.00	1250.00
13.144	596.12	0.11	596.18	881.10	406.50	3753.09	6240.41	0.03	362.14	400.00	463.00	1243.25
13.163	596.04	0.00	596.09	919.95	843.24	3611.10	5945.66	1274.90	0.10	462.20	527.00	1275.00
13.163	596.14	0.11	596.20	865.00	662.99	3653.37	6083.64	865.00	410.00	462.20	527.00	1275.00
13.191	596.05	0.00	596.10	891.11	870.29	3750.68	5779.03	1274.90	0.10	508.90	575.00	1275.00
13.191	596.16	0.11	596.21	830.00	715.24	3784.50	5900.26	830.00	445.00	508.90	575.00	1275.00
13.220	596.08	0.00	596.14	990.00	1228.64	3791.65	5379.71	990.00	360.00	649.00	719.00	1350.00
13.220	596.19	0.11	596.25	770.00	1227.35	3795.46	5377.19	770.00	500.00	649.00	719.00	1270.00
13.481	596.19	0.00	596.20	1457.76	8899.06	1355.27	145.67	1749.90	0.10	1507.00	1601.00	1750.00
13.481	596.29	0.11	596.30	1376.59	8976.32	1365.81	57.88	0.02	237.31	1507.00	1601.00	1613.91
13.799	596.20	0.00	596.29	765.18	2579.96	5142.60	2677.44	1009.90	0.10	416.00	513.00	1010.00
13.799	596.31	0.11	596.40	740.00	2597.95	5107.03	2695.03	740.00	190.00	416.00	513.00	930.00
14.061	596.52	0.00	596.54	1118.45	2517.38	2916.42	4966.19	1200.00	200.00	720.00	828.00	1400.00
14.061	596.64	0.13	596.67	900.00	2681.94	3312.07	4405.99	900.00	345.00	720.00	828.00	1245.00
14.258	596.69	0.00	596.73	799.76	1413.43	7371.90	1614.66	1000.00	400.00	726.00	1105.00	1400.00
14.258	596.84	0.15	596.88	790.00	1449.74	7321.38	1628.88	790.00	520.00	726.00	1105.00	1310.00
14.523	596.87	0.00	596.90	1155.12	6636.07	2489.61	1274.32	1299.90	0.10	990.00	1085.00	1300.00
14.523	597.02	0.14	597.05	1011.90	6704.09	2502.94	1192.97	0.02	228.78	990.00	1085.00	1240.68
15.057	597.22	0.00	597.32	1097.66	1992.82	4199.73	4207.46	1250.00	250.00	600.00	680.00	1500.00
15.057	597.35	0.13	597.46	929.79	1974.23	4231.64	4194.13	0.02	386.83	600.00	680.00	1316.63
15.722	598.34	0.00	598.43	1116.81	0.00	5384.15	5015.85	1200.00	1000.00	1079.00	1200.00	2200.00
15.722	598.47	0.12	598.56	950.00	0.00	5384.39	5015.61	950.00	1100.00	1079.00	1200.00	2050.00
15.736	598.39	0.00	598.46	1140.96	1.26	5431.98	4966.76	1400.00	1000.00	1085.00	1231.00	2400.00
15.736	598.52	0.13	598.59	950.00	0.00	5434.98	4965.02	950.00	1100.00	1085.00	1231.00	2050.00
15.748	599.36	0.00	599.41	1216.20	2.22	5274.38	5123.40	1400.00	1000.00	1085.00	1231.00	2400.00
15.748	599.43	0.07	599.48	1223.87	2.30	5254.45	5143.25	1400.00	1000.00	1085.00	1231.00	2400.00
16.063	599.75	0.00	599.87	469.14	0.00	6185.93	4214.07	0.00	0.00	325.00	525.00	0.00
16.063	599.81	0.07	599.95	370.00	0.00	6262.52	4137.48	370.00	410.00	325.00	525.00	780.00
16.396	600.24	0.00	600.29	749.22	6710.02	3296.65	393.33	750.00	50.00	560.00	641.00	800.00
16.396	600.32	0.07	600.36	633.43	6710.40	3331.48	358.12	0.02	109.41	560.00	641.00	742.84
16.866	600.90	0.00	600.95	1100.00	6275.87	3656.44	467.69	1100.00	800.00	1704.00	1792.00	1900.00
16.866	600.98	0.08	601.03	997.79	6388.91	3705.94	305.15	0.04	830.25	1704.00	1792.00	1828.04

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
17.089	601.46	0.00	601.60	550.00	4833.96	5125.30	440.74	550.00	950.00	1308.00	1396.00	1500.00
17.089	601.56	0.09	601.70	450.00	5049.74	5316.02	34.24	450.00	950.00	1308.00	1396.00	1400.00

CLINTON RIVER U/S OF THE

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
11.052	0.00	0.00	0.00	570.80	21300.00	593.17	0.00	593.38	4.31	4.73	13066.03	10254.75
11.052	0.00	0.00	0.00	570.80	21300.00	593.27	0.00	593.48	4.36	4.77	12365.44	10200.00
11.292	1268.00	0.00	0.00	569.40	10400.00	593.63	0.00	593.66	1.37	2.19	14992.84	8874.62
11.292	1268.00	0.00	0.00	569.40	10400.00	593.74	0.00	593.77	1.37	2.19	14989.41	8880.44
11.393	528.70	0.00	0.00	569.95	10400.00	593.65	0.00	593.72	2.43	3.00	11043.88	6672.99
11.393	528.70	0.00	0.00	569.95	10400.00	593.76	0.00	593.83	2.46	2.98	10742.47	6637.03
11.695	1586.30	0.00	0.00	571.59	10400.00	593.88	0.00	594.03	4.21	3.75	5242.16	5067.46
11.695	1586.30	0.00	0.00	571.59	10400.00	593.99	0.00	594.14	4.20	3.76	5026.96	5075.55
11.845	785.00	0.00	0.00	572.40	10400.00	594.14	0.00	594.33	5.03	4.21	5568.94	4638.99
11.845	785.00	0.00	0.00	572.40	10400.00	594.25	0.00	594.45	5.03	4.22	5447.46	4638.68
11.860	78.90	0.00	0.00	572.48	10400.00	594.19	0.00	594.37	4.63	4.07	5536.93	4833.65
11.860	78.90	0.00	0.00	572.48	10400.00	594.30	0.00	594.49	4.61	4.07	5435.69	4841.41
11.875	78.90	0.00	0.00	572.57	10400.00	594.24	0.00	594.41	4.53	3.99	5410.46	4883.67
11.875	78.90	0.00	0.00	572.57	10400.00	594.35	0.00	594.52	4.53	4.01	5280.43	4886.85
11.929	286.80	0.00	0.00	572.89	10400.00	594.36	0.00	594.52	3.43	3.89	5371.78	5619.01
11.929	286.80	0.00	0.00	572.89	10400.00	594.47	0.00	594.63	3.42	3.90	5135.65	5620.35
12.023	495.40	0.00	0.00	573.40	10400.00	594.57	0.00	594.66	2.25	3.10	6674.85	6934.14
12.023	495.40	0.00	0.00	573.40	10400.00	594.69	0.00	594.77	2.24	3.10	6519.17	6942.77
12.339	1670.00	0.00	0.00	573.00	10400.00	594.99	0.00	595.02	2.11	1.74	7567.12	7160.49
12.339	1670.00	0.00	0.00	573.00	10400.00	595.10	0.00	595.13	2.11	1.74	7350.30	7166.15
12.544	1080.00	0.00	0.00	574.70	10400.00	595.21	0.00	595.34	3.93	3.64	6029.60	5244.43
12.544	1080.00	0.00	0.00	574.70	10400.00	595.32	0.00	595.46	3.92	3.64	5960.97	5253.94
12.799	1350.00	0.00	0.00	573.50	10400.00	595.66	0.00	595.71	1.96	2.65	10279.40	7437.02
12.799	1350.00	0.00	0.00	573.50	10400.00	595.77	0.00	595.82	1.95	2.65	10183.72	7450.33
13.144	1820.00	0.00	0.00	574.40	10400.00	596.01	0.00	596.07	2.04	3.03	8812.72	7287.17
13.144	1820.00	0.00	0.00	574.40	10400.00	596.12	0.00	596.18	2.04	3.04	8642.98	7287.58
13.163	100.10	0.00	0.00	574.58	10400.00	596.04	0.00	596.09	2.24	2.87	8467.40	6948.51
13.163	100.10	0.00	0.00	574.58	10400.00	596.14	0.00	596.20	2.25	2.88	8337.22	6931.31
13.191	75.10	0.00	0.00	574.68	10400.00	596.05	0.00	596.10	1.91	2.92	8108.56	7529.33
13.191	75.10	0.00	0.00	574.68	10400.00	596.16	0.00	596.21	1.91	2.93	7985.09	7530.52
13.220	225.30	0.00	0.00	575.03	10400.00	596.08	0.00	596.14	1.91	2.83	7226.88	7534.33
13.220	225.30	0.00	0.00	575.03	10400.00	596.19	0.00	596.25	1.87	2.82	7081.01	7596.63

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
13.481	1379.50	0.00	0.00	577.20	10400.00	596.19	0.00	596.20	0.21	0.82	13348.38	22624.28
13.481	1379.50	0.00	0.00	577.20	10400.00	596.29	0.00	596.30	0.21	0.82	13186.56	22687.92
13.799	1680.00	0.00	0.00	575.90	10400.00	596.20	0.00	596.29	2.68	3.13	5928.46	6358.40
13.799	1680.00	0.00	0.00	575.90	10400.00	596.31	0.00	596.40	2.58	3.09	5999.78	6468.54
14.061	1380.00	0.00	0.00	577.50	10400.00	596.52	0.00	596.54	1.53	1.80	10201.88	8412.01
14.061	1380.00	0.00	0.00	577.50	10400.00	596.64	0.00	596.67	1.92	2.03	8888.04	7504.44
14.258	1040.00	0.00	0.00	578.00	10400.00	596.69	0.00	596.73	2.16	1.89	6167.65	7081.61
14.258	1040.00	0.00	0.00	578.00	10400.00	596.84	0.00	596.88	2.04	1.85	6282.92	7290.23
14.523	1400.00	0.00	0.00	578.40	10400.00	596.87	0.00	596.90	0.78	1.68	7978.40	11806.98
14.523	1400.00	0.00	0.00	578.40	10400.00	597.02	0.00	597.05	0.76	1.67	7834.82	11921.83
15.057	2820.00	0.00	0.00	579.00	10400.00	597.22	0.00	597.32	4.30	3.64	6677.12	5016.24
15.057	2820.00	0.00	0.00	579.00	10400.00	597.35	0.00	597.46	4.24	3.64	6533.86	5050.79
15.722	3510.00	0.00	0.00	578.00	10400.00	598.34	0.00	598.43	3.15	3.12	7820.33	5862.48
15.722	3510.00	0.00	0.00	578.00	10400.00	598.47	0.00	598.56	3.16	3.25	7662.97	5852.95
15.736	80.00	0.00	0.00	576.70	10400.00	598.39	0.00	598.46	3.03	2.68	8095.08	5971.20
15.736	80.00	0.00	0.00	576.70	10400.00	598.52	0.00	598.59	3.05	2.78	7910.03	5953.02
15.748	71.00	596.20	595.30	576.70	10400.00	599.36	0.00	599.41	1.80	2.43	9231.43	7756.90
15.748	71.00	596.20	595.30	576.70	10400.00	599.43	0.00	599.48	1.76	2.41	9320.46	7850.18
16.063	1749.00	0.00	0.00	576.40	10400.00	599.75	0.00	599.87	3.67	3.37	4088.74	5427.06
16.063	1749.00	0.00	0.00	576.40	10400.00	599.81	0.00	599.95	3.72	3.40	3937.04	5392.69
16.396	1760.00	0.00	0.00	581.40	10400.00	600.24	0.00	600.29	1.64	2.43	7369.55	8117.77
16.396	1760.00	0.00	0.00	581.40	10400.00	600.32	0.00	600.36	1.65	2.45	7090.73	8090.77
16.866	2480.00	0.00	0.00	582.00	10400.00	600.90	0.00	600.95	5.32	2.60	7192.19	4509.01
16.866	2480.00	0.00	0.00	582.00	10400.00	600.98	0.00	601.03	5.37	2.62	7040.01	4489.01
17.089	1180.00	0.00	0.00	582.60	10400.00	601.46	0.00	601.60	5.40	3.87	4881.78	4475.79
17.089	1180.00	0.00	0.00	582.60	10400.00	601.56	0.00	601.70	5.70	3.99	4659.38	4356.83

CLINTON RIVER U/S OF THE

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
11.052	21300.00	593.17	0.00	0.00	0.00	1823.74	0.00
11.052	21300.00	593.27	0.10	0.00	0.10	1500.00	0.00
11.292	10400.00	593.63	0.00	0.46	0.00	2141.27	1268.00
11.292	10400.00	593.74	0.11	0.47	0.11	2017.46	1268.00
11.393	10400.00	593.65	0.00	0.02	0.00	1952.96	528.70
11.393	10400.00	593.76	0.11	0.02	0.11	1547.63	528.70
11.695	10400.00	593.88	0.00	0.23	0.00	1260.48	1586.30
11.695	10400.00	593.99	0.11	0.23	0.11	974.33	1586.30
11.845	10400.00	594.14	0.00	0.25	0.00	1134.48	785.00
11.845	10400.00	594.25	0.11	0.25	0.11	960.16	785.00
11.860	10400.00	594.19	0.00	0.06	0.00	1120.62	78.90
11.860	10400.00	594.30	0.11	0.06	0.11	959.40	78.90
11.875	10400.00	594.24	0.00	0.05	0.00	1104.34	78.90
11.875	10400.00	594.35	0.11	0.05	0.11	933.03	78.90
11.929	10400.00	594.36	0.00	0.12	0.00	1042.98	286.80
11.929	10400.00	594.47	0.11	0.12	0.11	722.92	286.80
12.023	10400.00	594.57	0.00	0.21	0.00	790.49	495.40
12.023	10400.00	594.69	0.11	0.22	0.11	657.48	495.40
12.339	10400.00	594.99	0.00	0.41	0.00	1025.93	1670.00
12.339	10400.00	595.10	0.11	0.41	0.11	848.47	1670.00
12.544	10400.00	595.21	0.00	0.23	0.00	750.00	1080.00
12.544	10400.00	595.32	0.11	0.22	0.11	699.72	1080.00
12.799	10400.00	595.66	0.00	0.44	0.00	1426.59	1350.00
12.799	10400.00	595.77	0.11	0.44	0.11	1271.74	1350.00
13.144	10400.00	596.01	0.00	0.35	0.00	935.79	1820.00
13.144	10400.00	596.12	0.11	0.35	0.11	881.10	1820.00
13.163	10400.00	596.04	0.00	0.02	0.00	919.95	100.10
13.163	10400.00	596.14	0.11	0.02	0.11	865.00	100.10
13.191	10400.00	596.05	0.00	0.01	0.00	891.11	75.10
13.191	10400.00	596.16	0.11	0.01	0.11	830.00	75.10
13.220	10400.00	596.08	0.00	0.04	0.00	990.00	225.30
13.220	10400.00	596.19	0.11	0.04	0.11	770.00	225.30

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
13.481	10400.00	596.19	0.00	0.10	0.00	1457.76	1379.50
13.481	10400.00	596.29	0.11	0.10	0.11	1376.59	1379.50
13.799	10400.00	596.20	0.00	0.02	0.00	765.18	1680.00
13.799	10400.00	596.31	0.11	0.02	0.11	740.00	1680.00
14.061	10400.00	596.52	0.00	0.31	0.00	1118.45	1380.00
14.061	10400.00	596.64	0.13	0.33	0.13	900.00	1380.00
14.258	10400.00	596.69	0.00	0.17	0.00	799.76	1040.00
14.258	10400.00	596.84	0.15	0.19	0.15	790.00	1040.00
14.523	10400.00	596.87	0.00	0.19	0.00	1155.12	1400.00
14.523	10400.00	597.02	0.14	0.18	0.14	1011.90	1400.00
15.057	10400.00	597.22	0.00	0.35	0.00	1097.66	2820.00
15.057	10400.00	597.35	0.13	0.34	0.13	929.79	2820.00
15.722	10400.00	598.34	0.00	1.12	0.00	1116.81	3510.00
15.722	10400.00	598.47	0.12	1.11	0.12	950.00	3510.00
15.736	10400.00	598.39	0.00	0.05	0.00	1140.96	80.00
15.736	10400.00	598.52	0.13	0.05	0.13	950.00	80.00
15.748	10400.00	599.36	0.00	0.96	0.00	1216.20	71.00
15.748	10400.00	599.43	0.07	0.91	0.07	1223.87	71.00
16.063	10400.00	599.75	0.00	0.39	0.00	469.14	1749.00
16.063	10400.00	599.81	0.07	0.38	0.07	370.00	1749.00
16.396	10400.00	600.24	0.00	0.49	0.00	749.22	1760.00
16.396	10400.00	600.32	0.07	0.50	0.07	633.43	1760.00
16.866	10400.00	600.90	0.00	0.65	0.00	1100.00	2480.00
16.866	10400.00	600.98	0.08	0.66	0.08	997.79	2480.00
17.089	10400.00	601.46	0.00	0.57	0.00	550.00	1180.00
17.089	10400.00	601.56	0.09	0.58	0.09	450.00	1180.00

FLOODWAY DATA, CLINTON RIVER U/S OF THE
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WATER SURFACE ELEVATION WITHOUT FLOODWAY	DIFFERENCE
11.052	1500.	12365.	1.7	593.3	593.2	0.1
11.292	2017.	14989.	0.7	593.7	593.6	0.1
11.393	1548.	10742.	1.0	593.8	593.7	0.1
11.695	974.	5027.	2.1	594.0	593.9	0.1
11.845	960.	5447.	1.9	594.2	594.1	0.1
11.860	959.	5436.	1.9	594.3	594.2	0.1
11.875	933.	5280.	2.0	594.3	594.2	0.1
11.929	723.	5136.	2.0	594.5	594.4	0.1
12.023	657.	6519.	1.6	594.7	594.6	0.1
12.339	848.	7350.	1.4	595.1	595.0	0.1
12.544	700.	5961.	1.7	595.3	595.2	0.1
12.799	1272.	10184.	1.0	595.8	595.7	0.1
13.144	881.	8643.	1.2	596.1	596.0	0.1
13.163	865.	8337.	1.2	596.1	596.0	0.1
13.191	830.	7985.	1.3	596.1	596.0	0.1
13.220	770.	7081.	1.5	596.2	596.1	0.1
13.481	1377.	13187.	0.8	596.3	596.2	0.1
13.799	740.	6000.	1.7	596.3	596.2	0.1
14.061	900.	8888.	1.2	596.6	596.5	0.1
14.258	790.	6283.	1.7	596.8	596.7	0.1
14.523	1012.	7835.	1.3	597.0	596.9	0.1
15.057	930.	6534.	1.6	597.3	597.2	0.1
15.722	950.	7663.	1.4	598.4	598.3	0.1
15.736	950.	7910.	1.3	598.5	598.4	0.1
15.748	1224.	9320.	1.1	599.5	599.4	0.1
16.063	370.	3937.	2.6	599.8	599.7	0.1
16.396	633.	7091.	1.5	600.3	600.2	0.1
16.866	998.	7040.	1.5	601.0	600.9	0.1
17.089	450.	4659.	2.2	601.6	601.5	0.1

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: ~~[illegible]~~ Clinton Twp

3) WATERCOURSE: Clinton River

4) DOCUMENT TYPE: Multiple Run - Current
Lk St. Clair to
Confluence with
Red Run

00BREAK00

```
                $$              $$$$$$$$  $$$$$$$$   $$$$$$$$   $       $$   $$       $$
  $$$$     $$   $$                 $$          $$    $$      $  $$      $$   $$       $$
 $$             $$                 $$          $$    $$    $$$  $$$     $$   $$       $$
 $$             $$                 $$          $$    $$   $ $$  $$$$    $$   $$$$$$$$$$
 $$             $$                 $$          $$    $$ $$  $$  $$  $$  $$   $$       $$
 $$             $$                 $$          $$    $$ $   $$  $$   $$$$    $$       $$
 $$             $$                 $$          $$    $$$    $$  $$    $$$    $$       $$
 $$        $$   $$                 $$     $$   $$    $      $$  $$     $$    $$       $$
  $$$$$$        $$$$$$$$$   $$$$$$$$$     $$$        $ $$$$$    $$     $$    $$       $$
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03 7

CLINTON TOWNSHIP

CLINTON RIVER

MULTIPLE RUN PROFILE current

run starts @ Lk St Clair

Moravian Drive & ends @ confluence with Red Run

sect 6057 — sect 10.153 is for

the City of Mt. Clemens

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*****************************************
HEC2 VERSION UPDATED JAN 1976
ERROR CORRECTIONS 01,02,03,04,05,06,07,08,09
MODIFICATIONS 52,53,54,55,56,57,58
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C
1        CLINTON TOWNSHIP - JOB NO. 5670-02  PROJECT MANAGER  WILLIAM ROSSOW
T2        10 YEAR FLOOD = 3900 CFS
T3        CLINTON RIVER

J1  ICHECK      INQ       NINV      IDIR       STRT      METRIC     HVINS       Q         WSEL       FQ

      -1.        2.        0.        0.   0.000000     0.00       0.0         0.    578.270     0.000

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH       FN       ALLDC       IBW       CHNIM     ITRACE

     1.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

J3      1.000    10.000    11.000    12.000    14.000     8.000     4.000     0.000     0.000     0.000
QT      4.000  3600.000  5900.000  6800.000 10000.000     0.000     0.000     0.000     0.000     0.000
NC       .040      .040      .030      .100      .300     0.000     0.000     0.000     0.000     0.000
NH      5.000      .050    80.000      .080   104.000      .035   283.000      .050   291.000      .040
NH    450.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1      6.057    27.000    80.000   291.000  1260.000  1260.000  1260.000     0.000     0.000     0.000
X3      0.000     0.000     0.000     0.000     0.000   291.000     0.000     0.000     0.000     0.000
GR    587.900     0.000   585.500    80.000   578.600   100.000   576.500   104.000   574.300   120.000
GR    573.800   130.000   573.200   140.000   572.800   150.000   571.800   160.000   570.700   170.000
GR    569.300   180.000   567.500   190.000   565.800   200.000   564.600   210.000   564.900   220.000
GR    565.400   230.000   565.800   240.000   567.600   250.000   570.500   260.000   573.700   270.000
GR    576.000   280.000   576.500   283.000   579.700   291.000   571.000   300.000   572.600   321.000
GR    571.900   400.000   574.300   450.000     0.000     0.000     0.000     0.000     0.000     0.000
NH      3.000      .020    44.000      .035   199.000      .100   282.000     0.000     0.000     0.000

X1      6.489    25.000    44.000   231.000  2070.000  2400.000  2280.000     0.000     0.000     0.000
X3     10.000     0.000     0.000     0.000     0.000   282.000     0.000     0.000     0.000     0.000
GR    582.600     0.000   581.800    24.000   581.100    44.000   574.600    44.000   573.000    52.000
GR    570.300    62.000   567.600    72.000   567.200    82.000   566.600    92.000   566.400   102.000
GR    566.100   112.000   565.400   122.000   568.900   132.000   571.000   142.000   573.600   152.000
GR    574.200   162.000   574.200   172.000   574.600   182.000   576.100   192.000   577.000   199.000
GR    580.500   202.000   584.400   212.000   585.200   231.000   579.000   242.000   578.900   282.000
NH      5.000      .030   118.000      .015   119.000      .035   299.000      .015   300.000      .040
NH    360.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1      6.883    27.000   118.000   300.000  2300.000  1950.000  2080.000     0.000     0.000     0.000
X3      0.000     0.000     0.000   100.000     0.000     0.000     0.000     0.000     0.000     0.000
GR    582.200     0.000   581.800   100.000   578.900   114.000   578.900   118.000   574.800   119.000
GR    574.000   120.000   572.600   130.000   572.600   140.000   572.600   150.000   572.600   160.000
GR    572.000   170.000   571.100   180.000   570.400   190.000   569.800   200.000   569.600   210.000
GR    569.400   220.000   569.200   230.000   569.600   240.000   569.900   250.000   570.300   260.000
GR    571.300   270.000   571.900   280.000   572.400   290.000   572.600   299.000   579.400   300.000
GR    585.100   350.000   585.100   360.000     0.000     0.000     0.000     0.000     0.000     0.000
NH      5.000      .030    28.000      .080    48.000      .035   165.000      .080   188.000      .030
NH    238.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1      7.096    19.000    28.000   188.000  1125.000  1125.000  1125.000     0.000     0.000     0.000
GR    589.900     0.000   589.700    28.000   576.400    48.000   572.800    56.000   569.600    58.000
GR    565.900    68.000   563.600    78.000   563.100    88.000   563.400    98.000   564.200   108.000
GR    565.600   118.000   571.600   128.000   573.400   138.000   575.000   148.000   575.400   158.000
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GR	578.500	168.000	577.000	166.000	585.100	168.000	587.400	238.000	0.000	0.000
NH	3.000	.080	106.000	.035	243.000	.080	482.000	0.000	0.000	0.000
X1	7.142	26.000	82.000	290.000	250.000	250.000	250.000	.966	0.000	0.000
GR	595.000	0.000	594.000	82.000	587.900	82.000	582.100	106.000	576.200	106.000
GR	575.800	112.000	574.200	122.000	574.100	132.000	572.600	142.000	569.000	145.000
GR	566.500	152.000	565.700	162.000	565.900	172.000	566.600	182.000	567.500	192.000
GR	567.900	202.000	569.100	212.000	570.500	228.000	573.600	231.000	574.400	243.000
GR	582.000	243.000	586.700	280.000	587.800	290.000	591.200	290.000	588.700	382.000
GR	587.300	482.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.030	.030	.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	7.143	30.000	82.000	290.000	1.000	1.000	1.000	.966	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.966	0.000
BT	9.000	0.000	595.000	0.000	82.000	594.000	590.600	142.000	593.100	589.700
BT	145.000	593.100	589.700	228.000	592.000	588.600	231.000	592.000	588.600	290.000
BT	591.200	587.800	382.000	588.700	0.000	482.000	587.300	0.000	0.000	0.000
GR	595.000	0.000	594.000	82.000	587.900	82.000	582.100	106.000	576.200	106.000
GR	575.800	112.000	574.200	122.000	574.100	132.000	572.600	142.000	589.700	142.000
GR	589.700	145.000	569.000	145.000	566.500	152.000	565.700	162.000	565.900	172.000
GR	566.600	182.000	567.500	192.000	567.900	202.000	569.100	212.000	570.500	228.000
GR	588.600	228.000	588.600	231.000	573.600	231.000	574.400	243.000	582.000	243.000
GR	586.700	280.000	587.800	290.000	591.200	290.000	588.700	382.000	587.300	482.000
X1	7.154	0.000	0.000	0.000	58.000	58.000	58.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NH	3.000	.030	106.000	.040	243.000	.030	482.000	0.000	0.000	0.000
X1	7.155	26.000	82.000	290.000	1.000	1.000	1.000	.966	0.000	0.000
GR	595.000	0.000	594.000	82.000	587.900	82.000	582.100	106.000	576.200	106.000
GR	575.800	112.000	574.200	122.000	574.100	132.000	572.600	142.000	569.000	145.000
GR	566.500	152.000	565.700	162.000	565.900	172.000	566.600	182.000	567.500	192.000
GR	567.900	202.000	569.100	212.000	570.500	228.000	573.600	231.000	574.400	243.000
GR	582.000	243.000	586.700	280.000	587.800	290.000	591.200	290.000	588.700	382.000
GR	587.300	482.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	3.000	.030	72.000	.040	193.000	.030	343.000	0.000	0.000	0.000
X1	7.163	22.000	72.000	193.000	40.000	40.000	40.000	0.000	-2.000	0.000
GR	585.500	0.000	585.000	25.000	578.900	72.000	573.100	73.000	572.900	75.000
GR	572.300	85.000	571.300	95.000	569.400	105.000	568.700	115.000	568.500	125.000
GR	568.300	135.000	567.900	145.000	568.100	155.000	568.700	165.000	569.600	175.000
GR	569.600	185.000	569.300	192.000	581.100	193.000	580.800	213.000	600.300	285.000
GR	599.900	295.000	600.100	343.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	3.000	.030	72.000	.040	193.000	.030	343.000	0.000	0.000	0.000
X1	7.222	0.000	0.000	0.000	315.000	315.000	315.000	0.000	2.000	0.000
NH	3.000	.030	72.000	.040	193.000	.030	343.000	0.000	0.000	0.000
X1	7.253	0.000	0.000	0.000	165.000	165.000	165.000	0.000	-1.900	0.000
NH	3.000	.030	163.000	.040	273.000	.030	417.000	0.000	0.000	0.000
X1	7.288	33.000	130.000	327.000	185.000	185.000	185.000	0.000	0.000	0.000
GR	606.100	0.000	606.200	32.000	601.900	130.000	595.300	130.000	594.800	137.000
GR	594.100	140.000	591.300	147.000	587.800	157.000	586.600	163.000	572.900	163.000
GR	572.200	167.000	568.400	177.000	568.500	187.000	566.600	193.000	563.900	196.000
GR	564.900	207.000	565.300	217.000	565.900	227.000	566.400	237.000	568.400	247.000
GR	570.400	257.000	571.300	261.000	574.500	264.000	573.900	267.000	573.900	273.000
GR	586.800	273.000	586.600	277.000	586.200	297.000	588.800	307.000	589.600	317.000
GR	589.900	327.000	595.500	327.000	592.400	417.000	0.000	0.000	0.000	0.000
NC	.026	.026	.026	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	7.289	37.000	130.000	327.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	29.000	0.000	606.100	0.000	32.000	606.200	0.000	130.000	601.900	597.900
BT	137.000	601.700	597.700	140.000	601.600	597.600	147.000	601.400	597.300	157.000
BT	601.000	597.000	163.000	600.700	596.700	167.000	600.400	596.400	177.000	600.300
BT	596.300	187.000	600.000	596.000	193.000	599.800	595.800	196.000	599.700	595.700

BT	207.000	599.400	595.400	217.000	599.100	595.100	227.000	598.700	594.700	237.000
BT	598.400	594.400	247.000	598.100	594.100	257.000	597.700	593.700	261.000	597.600
BT	593.700	264.000	597.500	593.500	267.000	597.300	593.300	273.000	597.300	593.300
BT	277.000	597.100	593.100	297.000	596.400	592.400	307.000	596.200	592.200	317.000
BT	595.800	591.800	327.000	595.500	591.500	417.000	592.400	0.000	0.000	0.000
GR	606.100	0.000	606.200	32.000	601.900	130.000	595.300	130.000	594.800	137.000
GR	594.100	140.000	591.300	147.000	587.800	157.000	586.600	163.000	572.900	163.000
GR	572.200	167.000	568.400	177.000	568.500	187.000	566.600	193.000	595.800	193.000
GR	595.700	196.000	563.900	196.000	564.900	207.000	565.300	217.000	565.900	227.000
GR	566.400	237.000	568.400	247.000	570.400	257.000	571.300	261.000	593.700	261.000
GR	593.500	264.000	574.500	264.000	573.900	267.000	573.900	273.000	586.800	273.000
GR	586.600	277.000	586.200	297.000	588.800	307.000	589.600	317.000	589.900	327.000
GR	595.500	327.000	592.400	417.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	7.296	0.000	0.000	0.000	42.000	42.000	42.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NH	4.000	.040	130.000	.070	167.000	.040	273.000	.040	417.000	0.000
X1	7.297	33.000	130.000	327.000	1.000	1.000	1.000	0.000	0.000	0.000
GR	606.100	0.000	606.200	32.000	601.900	130.000	595.300	130.000	594.800	137.000
GR	594.100	140.000	591.300	147.000	587.800	157.000	586.600	163.000	572.900	163.000
GR	572.200	167.000	568.400	177.000	568.500	187.000	566.600	193.000	563.900	196.000
GR	564.900	207.000	565.300	217.000	565.900	227.000	566.400	237.000	568.400	247.000
GR	570.400	257.000	571.300	261.000	574.500	264.000	573.900	267.000	573.900	273.000
GR	586.800	273.000	586.600	277.000	586.200	297.000	588.800	307.000	589.600	317.000
GR	589.900	327.000	595.500	327.000	592.400	417.000	0.000	0.000	0.000	0.000
NH	4.000	.040	72.000	.070	85.000	.040	185.000	.040	343.000	0.000
X1	7.300	22.000	72.000	193.000	70.000	70.000	70.000	0.000	-3.900	0.000
X3	0.000	0.000	0.000	1.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	585.500	0.000	585.000	25.000	578.900	72.000	573.100	73.000	572.900	75.000
GR	572.300	85.000	571.300	95.000	569.400	105.000	568.700	115.000	568.500	125.000
GR	568.300	135.000	567.900	145.000	568.100	155.000	568.700	165.000	569.600	175.000
GR	569.600	185.000	569.300	192.000	581.100	193.000	580.800	213.000	600.300	285.000
GR	599.900	295.000	600.100	343.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.040	.100	.050	.100	.300	0.000	0.000	0.000	0.000	0.000
NH	4.000	.040	20.000	.070	39.000	.040	163.000	.040	411.000	0.000
X1	7.731	22.000	20.000	166.000	2330.000	2130.000	2225.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	411.000	0.000	0.000	0.000	0.000
GR	587.900	0.000	586.200	20.000	576.600	39.000	576.000	40.000	571.100	50.000
GR	568.300	60.000	566.500	70.000	566.500	80.000	567.100	90.000	568.600	100.000
GR	570.000	110.000	571.300	120.000	573.200	130.000	575.200	140.000	575.700	150.000
GR	576.100	160.000	576.400	163.000	578.400	166.000	578.700	220.000	578.300	300.000
GR	581.700	320.000	585.400	411.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	4.000	.040	442.000	.035	556.000	.080	1256.000	.040	1297.000	0.000
ET	0.000	6.100	8.100	8.100	8.100	80.000	700.000	80.000	1279.000	0.000
X1	8.023	35.000	440.000	580.000	1300.000	1700.000	1541.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	582.000	0.000
GR	582.600	0.000	585.300	80.000	583.800	180.000	581.800	280.000	580.900	380.000
GR	580.200	415.000	577.500	440.000	576.500	442.000	571.400	450.000	567.700	460.000
GR	564.400	470.000	564.700	480.000	565.200	490.000	568.100	500.000	572.900	510.000
GR	574.200	520.000	575.300	530.000	575.200	540.000	575.600	550.000	576.500	556.000
GR	577.000	565.000	579.500	580.000	580.500	645.000	582.000	680.000	580.900	780.000
GR	579.900	810.000	578.600	880.000	580.100	945.000	579.800	980.000	578.000	1080.000
GR	578.100	1105.000	575.900	1135.000	577.700	1180.000	579.300	1256.000	590.600	1297.000
NH	7.000	.030	228.000	.060	984.000	.080	988.000	.035	1113.000	.080
NH	1124.000	.090	1728.000	.030	1747.000	0.000	0.000	0.000	0.000	0.000
X1	8.278	40.000	984.000	1124.000	1300.000	1150.000	1345.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	288.000	0.000	1245.000	0.000	0.000	0.000	0.000
GR	584.300	0.000	584.500	28.000	585.000	128.000	585.800	228.000	587.100	288.000
GR	581.400	310.000	579.600	328.000	581.000	428.000	582.200	528.000	583.000	628.000
GR	583.000	728.000	582.100	828.000	581.000	928.000	579.500	984.000	576.400	988.000
GR	575.700	998.000	573.600	1008.000	571.000	1018.000	570.500	1028.000	570.700	1038.000
GR	[illegible]	1048.000	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

GR	570.800	1048.000	570.500	1058.000	569.400	1068.000	569.500	1078.000	570.200	1088.000
GR	571.500	1098.000	575.300	1108.000	576.500	1113.000	576.900	1117.000	579.100	1118.000
GR	581.400	1124.000	581.200	1214.000	586.700	1245.000	584.600	1328.000	584.400	1428.000
GR	583.900	1528.000	578.800	1628.000	579.100	1698.000	581.100	1728.000	588.800	1747.000
NH	5.000	.040	545.000	.050	574.000	.035	743.000	.050	748.000	.030
NH	1823.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	8.713	53.000	545.000	748.000	1400.000	2200.000	2295.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	1153.000	0.000	0.000	0.000	0.000
GR	587.200	0.000	578.300	26.000	579.500	123.000	578.500	223.000	580.000	323.000
GR	581.500	423.000	584.100	523.000	583.000	545.000	579.800	560.000	577.700	572.000
GR	576.500	574.000	575.700	578.000	573.900	588.000	573.200	598.000	573.400	608.000
GR	572.700	718.000	572.600	728.000	573.300	738.000	576.400	743.000	582.200	748.000
GR	581.900	823.000	582.400	848.000	582.800	923.000	582.800	997.000	582.300	1023.000
GR	582.400	1055.000	576.400	1069.000	576.800	1077.000	583.400	1093.000	584.600	1123.000
GR	585.400	1138.000	590.400	1153.000	585.300	1169.000	585.300	1223.000	586.100	1240.000
GR	593.300	1262.000	584.900	1282.000	584.900	1292.000	584.700	1300.000	584.700	1340.000
GR	574.700	1340.000	574.700	1393.000	574.700	1447.000	574.700	1501.000	574.700	1556.000
GR	584.700	1556.000	584.700	1594.000	591.100	1615.000	593.900	1723.000	594.600	1738.000
GR	594.400	1783.000	592.400	1807.000	592.600	1823.000	0.000	0.000	0.000	0.000
QT	4.000	12600.000	19000.000	21300.000	28900.000	0.000	0.000	0.000	0.000	0.000
NC	.040	.040	.030	.300	.500	0.000	0.000	0.000	0.000	0.000
NH	5.000	.035	523.000	.070	574.000	.030	887.000	.070	908.000	.035
NH	1287.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	8.717	41.000	523.000	908.000	20.000	20.000	20.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X5	4.000	581.300	583.500	584.400	586.750	0.000	0.000	0.000	0.000	0.000
GR	587.200	0.000	578.300	26.000	579.500	123.000	578.500	223.000	580.000	323.000
GR	581.500	423.000	584.100	523.000	583.000	545.000	579.800	560.000	577.700	572.000
GR	576.500	574.000	575.700	578.000	573.900	588.000	573.200	598.000	573.400	608.000
GR	572.700	718.000	572.600	728.000	573.300	738.000	570.600	748.000	568.600	758.000
GR	568.500	768.000	568.300	778.000	568.200	788.000	567.800	798.000	567.800	808.000
GR	567.900	818.000	568.200	828.000	568.500	838.000	568.700	848.000	568.900	858.000
GR	571.500	868.000	573.300	878.000	576.500	887.000	580.500	888.000	585.700	908.000
GR	584.400	926.000	591.400	978.000	591.500	1008.000	592.100	1108.000	593.000	1212.000
GR	593.000	1287.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	5.000	.032	445.000	.063	475.000	.027	725.900	.063	746.000	.032
NH	996.600	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	8.922	85.000	445.000	746.000	1001.000	1106.000	1087.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	355.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	587.000	0.000	583.400	15.300	581.500	30.600	581.200	46.000	580.900	61.300
GR	580.600	76.700	580.600	92.000	580.700	107.400	580.500	122.700	580.300	138.100
GR	580.300	153.400	580.200	168.700	580.200	184.100	580.300	199.400	580.500	214.800
GR	580.800	230.100	581.000	245.500	581.200	260.800	581.400	276.200	581.700	291.500
GR	581.900	306.800	582.100	322.200	582.300	337.500	582.600	352.900	582.800	368.200
GR	583.200	383.600	583.500	398.900	583.900	414.300	584.200	429.600	584.600	445.000
GR	582.300	455.000	579.700	465.000	577.000	475.000	573.900	485.100	571.900	495.100
GR	571.100	505.100	570.800	575.400	570.800	575.400	570.700	585.400	570.900	595.400
GR	570.800	605.500	570.700	615.500	568.800	625.500	568.300	635.600	568.100	645.600
GR	567.900	655.600	567.900	665.700	568.100	675.700	568.700	685.700	569.500	695.800
GR	570.700	705.800	573.500	715.800	576.600	725.900	582.400	735.900	585.700	746.000
GR	585.200	754.300	585.600	762.700	586.700	771.000	587.800	779.400	588.800	787.700
GR	589.400	796.100	589.500	804.400	589.600	812.800	589.700	821.100	589.700	829.500
GR	589.800	837.800	589.900	846.200	590.000	854.500	590.100	862.900	590.200	871.200
GR	590.300	879.600	590.400	888.000	590.500	896.300	590.600	904.700	590.700	913.000
GR	590.800	921.400	590.900	929.700	591.100	938.100	591.200	946.400	591.200	954.800
GR	591.300	963.100	591.300	971.500	591.300	979.800	591.400	988.200	591.400	996.600
NH	5.000	.032	406.000	.063	431.800	.027	647.700	.063	665.000	.032
NH	851.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	8.972	85.000	406.000	665.000	240.000	268.000	258.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	154.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	587.000	0.000	584.500	14.000	583.000	28.000	582.500	42.000	581.900	55.900
GR	581.400	69.900	581.300	83.900	581.300	97.900	581.100	111.900	581.000	125.900
GR	581.000	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

GR	581.600	209.900	581.800	223.900	582.000	237.900	582.200	251.900	582.400	265.900
GR	582.600	279.900	582.800	293.900	583.000	307.900	583.200	321.900	583.400	335.900
GR	583.700	349.900	584.000	363.900	584.200	377.900	584.600	391.900	584.900	406.000
GR	581.700	414.600	578.400	423.200	575.700	431.800	572.700	440.500	570.800	449.100
GR	570.000	457.700	569.900	518.200	569.900	518.200	569.900	526.800	570.000	535.400
GR	570.000	544.100	569.900	552.700	568.600	561.300	568.200	570.000	568.100	578.600
GR	567.900	587.200	567.900	595.900	568.200	604.500	569.000	613.100	569.900	621.800
GR	571.700	630.400	574.400	639.000	577.500	647.700	582.500	656.300	585.800	665.000
GR	585.500	671.200	585.800	677.400	586.500	683.600	587.300	689.800	588.000	696.000
GR	588.500	702.200	588.500	708.400	588.600	714.700	588.700	720.900	588.800	727.100
GR	588.900	733.300	589.000	739.500	589.100	745.700	589.200	751.900	589.300	758.100
GR	589.400	764.400	589.500	770.600	589.600	776.800	589.700	783.000	589.800	789.200
GR	589.900	795.400	590.100	801.600	590.200	807.900	590.300	814.100	590.300	820.300
GR	590.400	826.500	590.500	832.700	590.500	838.900	590.600	845.100	590.700	851.400
NH	5.000	.032	367.000	.063	381.400	.027	562.200	.063	584.000	.032
NH	706.200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	9.023	85.000	367.000	584.000	240.000	268.000	258.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	200.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	586.900	0.000	585.700	12.600	584.600	25.300	583.800	37.900	582.900	50.600
GR	582.100	63.200	582.000	75.900	581.900	88.500	581.800	101.200	581.600	113.800
GR	581.700	126.500	581.800	139.200	581.900	151.800	582.000	164.500	582.200	177.100
GR	582.400	189.800	582.600	202.400	582.700	215.100	582.900	227.700	583.100	240.400
GR	583.300	253.100	583.400	265.700	583.600	278.400	583.800	291.000	584.000	303.700
GR	584.200	316.300	584.400	329.000	584.600	341.600	584.900	354.300	585.200	367.000
GR	581.100	374.200	577.200	381.400	574.400	388.600	571.400	395.900	569.800	403.100
GR	568.900	410.300	569.100	461.000	569.100	461.000	569.100	468.200	569.100	475.400
GR	569.100	482.700	569.000	489.900	568.300	497.100	568.100	504.400	568.000	511.600
GR	567.900	518.800	568.000	526.100	568.400	533.300	569.200	540.500	570.400	547.800
GR	572.600	555.000	575.300	562.200	578.400	569.500	582.500	576.700	585.800	584.000
GR	585.700	588.000	585.900	592.100	586.300	596.200	586.800	600.200	587.200	604.300
GR	587.500	608.400	587.600	612.500	587.700	616.500	587.800	620.600	587.900	624.700
GR	588.000	628.800	588.100	632.800	588.200	636.900	588.300	641.000	588.400	645.000
GR	588.500	649.100	588.600	653.200	588.700	657.300	588.800	661.300	588.900	665.400
GR	589.100	669.500	589.200	673.600	589.300	677.600	589.400	681.700	589.500	685.800
GR	589.600	689.900	589.600	693.900	589.700	698.000	589.800	702.100	589.900	706.200
NH	5.000	.032	328.000	.063	339.000	.027	486.000	.063	503.000	.032
NH	561.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	9.074	26.000	328.000	503.000	240.000	268.000	258.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	235.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	586.900	0.000	587.000	14.000	582.800	58.000	582.300	103.000	583.700	203.000
GR	585.000	303.000	585.500	328.000	576.300	339.000	574.500	343.000	569.400	353.000
GR	567.900	363.000	568.200	373.000	568.200	383.000	568.300	393.000	568.300	403.000
GR	568.300	413.000	568.300	423.000	568.100	433.000	568.000	443.000	567.900	453.000
GR	568.600	463.000	570.500	473.000	575.200	483.000	576.400	486.000	585.900	503.000
GR	589.200	561.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	5.000	.032	314.000	.063	332.100	.027	506.700	.063	532.500	.032
NH	630.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	9.106	90.000	314.000	532.500	137.500	137.500	137.500	.903	-.850	0.000
X3	10.000	0.000	0.000	220.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	588.500	0.000	588.600	10.800	588.200	21.600	587.600	32.400	587.000	43.300
GR	586.500	54.100	586.400	64.900	586.300	75.700	586.200	86.600	586.100	97.400
GR	586.200	108.200	586.300	119.100	586.400	129.900	586.500	140.700	586.600	151.500
GR	586.700	162.400	586.800	173.200	586.900	184.000	587.000	194.800	587.100	205.700
GR	587.300	216.500	587.500	227.300	587.700	238.200	587.900	249.000	588.100	259.800
GR	588.300	270.600	588.500	281.500	588.700	292.300	589.000	303.100	589.200	314.000
GR	582.600	316.900	579.800	324.500	576.700	332.100	574.300	339.700	570.800	347.200
GR	568.900	354.800	568.500	362.400	568.600	370.000	568.600	377.600	568.200	385.200
GR	567.000	392.800	567.500	400.400	567.800	408.000	567.800	415.600	567.900	423.200
GR	567.900	430.800	568.100	438.400	568.100	446.000	568.200	453.600	567.700	461.200
GR	567.900	468.800	568.200	476.400	568.600	484.000	569.500	491.600	571.900	499.200
GR	575.300	506.700	578.300	514.300	581.300	521.900	583.800	529.500	589.500	532.500
GR	589.500	535.700	589.600	539.000	589.600	542.200	589.700	545.500	589.700	548.800

GR	589.800	552.000	589.800	555.300	589.900	558.600	589.900	561.800	589.900	565.100
GR	589.900	568.400	589.900	571.600	589.900	574.900	589.900	578.200	589.900	581.400
GR	589.900	584.700	589.900	588.000	589.900	591.200	589.900	594.500	589.900	597.800
GR	589.900	601.000	589.900	604.300	589.900	607.600	589.900	610.800	589.900	614.100
GR	589.900	617.400	589.900	620.600	589.900	623.900	589.900	627.200	589.900	630.500
NH	3.000	.063	320.000	.027	530.000	.063	700.000	0.000	0.000	0.000
X1	9.137	40.000	300.000	562.000	137.500	137.500	137.500	.806	0.000	0.000
X3	0.000	0.000	0.000	300.000	0.000	562.000	0.000	0.000	0.000	0.000
GR	590.300	0.000	590.000	100.000	590.500	200.000	593.000	297.500	593.000	300.000
GR	584.700	300.000	583.600	310.000	579.700	320.000	578.200	330.000	576.500	330.000
GR	571.600	340.000	569.200	350.000	569.000	360.000	569.200	370.000	568.800	380.000
GR	569.000	383.000	565.300	390.000	566.600	400.000	567.300	410.000	567.400	420.000
GR	567.600	430.000	567.600	440.000	568.100	450.000	568.300	460.000	568.600	470.000
GR	567.300	480.000	567.200	483.000	568.400	490.000	568.500	500.000	569.100	510.000
GR	570.100	520.000	576.300	530.000	578.000	538.000	579.100	538.000	582.400	550.000
GR	584.100	555.000	585.100	562.000	593.100	562.000	593.100	600.000	590.700	700.000
NC	.018	.018	.018	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	9.138	47.000	300.000	562.000	1.000	1.000	1.000	.806	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.806	0.000
BT	39.000	0.000	590.300	0.000	100.000	590.000	0.000	200.000	590.500	0.000
BT	297.500	593.000	0.000	297.600	595.700	0.000	300.000	595.700	588.000	310.000
BT	596.000	588.300	320.000	596.200	588.500	330.000	596.500	588.800	340.000	596.700
BT	589.000	350.000	597.000	589.300	360.000	597.200	589.500	370.000	597.400	589.700
BT	380.000	597.600	589.900	383.000	597.700	590.000	390.000	597.700	590.000	400.000
BT	597.900	590.200	410.000	598.000	590.300	420.000	598.000	590.300	430.000	598.100
BT	590.400	440.000	598.100	590.400	450.000	598.100	590.400	460.000	598.100	590.400
BT	470.000	598.100	590.400	480.000	598.100	590.400	483.000	598.000	590.300	490.000
BT	598.000	590.300	500.000	597.900	590.200	510.000	597.800	590.100	520.000	597.700
BT	590.000	530.000	597.500	589.800	538.000	597.300	589.600	550.000	597.100	589.400
BT	555.000	597.000	589.300	562.000	596.800	589.100	566.900	596.700	0.000	567.000
BT	594.200	0.000	600.000	593.100	0.000	700.000	590.700	0.000	0.000	0.000
GR	590.300	0.000	590.000	100.000	590.500	200.000	593.000	297.500	595.700	297.600
GR	595.700	300.000	584.700	300.000	583.600	310.000	579.700	320.000	578.200	330.000
GR	576.500	330.000	571.600	340.000	569.200	350.000	569.000	360.000	569.200	370.000
GR	568.800	380.000	589.900	380.000	590.000	383.000	569.000	383.000	565.300	390.000
GR	566.600	400.000	567.300	410.000	567.400	420.000	567.600	430.000	567.600	440.000
GR	568.100	450.000	568.300	460.000	568.600	470.000	567.300	480.000	590.400	480.000
GR	590.300	483.000	567.200	483.000	568.400	490.000	568.500	500.000	569.100	510.000
GR	570.100	520.000	576.300	530.000	578.000	538.000	579.100	538.000	582.400	550.000
GR	584.100	555.000	585.100	562.000	596.800	562.000	596.700	566.900	594.200	567.000
GR	593.100	600.000	590.700	700.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	9.150	0.000	0.000	0.000	67.000	67.000	67.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NH	3.000	.063	320.000	.027	530.000	.063	700.000	0.000	0.000	0.000
X1	9.151	40.000	300.000	562.000	1.000	1.000	1.000	.806	0.000	0.000
X3	0.000	0.000	0.000	300.000	0.000	562.000	0.000	0.000	0.000	0.000
GR	590.300	0.000	590.000	100.000	590.500	200.000	593.000	297.500	593.000	300.000
GR	584.700	300.000	583.600	310.000	579.700	320.000	578.200	330.000	576.500	330.000
GR	571.600	340.000	569.200	350.000	569.000	360.000	569.200	370.000	568.800	380.000
GR	569.000	383.000	565.300	390.000	566.600	400.000	567.300	410.000	567.400	420.000
GR	567.600	430.000	567.600	440.000	568.100	450.000	568.300	460.000	568.600	470.000
GR	567.300	480.000	567.200	483.000	568.400	490.000	568.500	500.000	569.100	510.000
GR	570.100	520.000	576.300	530.000	578.000	538.000	579.100	538.000	582.400	550.000
GR	584.100	555.000	585.100	562.000	593.100	562.000	593.100	600.000	590.700	700.000
NH	3.000	.063	150.000	.032	361.000	.063	433.000	0.000	0.000	0.000
X1	9.213	29.000	133.000	361.000	333.000	333.000	333.000	.968	0.000	0.000
X3	0.000	0.000	0.000	133.000	0.000	361.000	0.000	0.000	0.000	0.000
GR	594.000	0.000	594.200	33.000	595.600	125.000	598.500	125.100	598.600	133.000
GR	579.800	133.000	576.300	150.000	573.700	167.000	572.500	184.000	572.500	200.000
GR	595.000	200.000	595.500	209.000	572.800	209.000	571.100	223.000	569.100	245.500
GR	569.300	270.000	572.500	282.000	595.000	282.000	595.000	292.000	571.900	292.000
GR	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

GR	572.400	306.000	573.500	328.500	575.200	346.000	576.400	361.000	599.300	361.000
GR	599.300	366.900	596.200	367.000	594.900	433.000	593.500	520.000	0.000	0.000
NC	.018	.018	.018	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	9.214	29.000	133.000	361.000	1.000	1.000	1.000	.968	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.968	0.000
BT	23.000	0.000	594.000	0.000	33.000	594.200	0.000	125.000	595.600	0.000
BT	125.100	598.500	0.000	133.000	598.600	579.800	150.000	598.800	589.900	167.000
BT	599.100	593.100	184.000	599.300	589.200	201.000	599.500	577.800	208.000	599.600
BT	577.800	223.000	599.700	588.100	245.500	599.900	593.400	270.000	599.900	588.400
BT	283.000	599.900	577.900	291.000	599.800	577.600	306.000	599.800	588.400	328.500
BT	599.700	593.000	346.000	599.500	588.900	361.000	599.300	578.100	366.900	599.300
BT	0.000	367.000	596.200	0.000	433.000	594.900	0.000	520.000	593.500	0.000
GR	594.000	0.000	594.200	33.000	595.600	125.000	598.500	125.100	598.600	133.000
GR	579.800	133.000	576.300	150.000	573.700	167.000	572.500	184.000	572.500	201.000
GR	577.800	201.000	577.800	208.000	572.800	208.000	571.100	223.000	569.100	245.500
GR	569.300	270.000	572.500	283.000	577.900	283.000	577.600	291.000	571.900	291.000
GR	572.400	306.000	573.500	328.500	575.200	346.000	576.400	361.000	599.300	361.000
GR	599.300	366.900	596.200	367.000	594.900	433.000	593.500	520.000	0.000	0.000
X1	9.225	0.000	0.000	0.000	62.000	62.000	62.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NH	3.000	.063	150.000	.035	361.000	.063	433.000	0.000	0.000	0.000
X1	9.226	29.000	133.000	361.000	1.000	1.000	1.000	.968	0.000	0.000
X3	0.000	0.000	0.000	128.700	0.000	349.400	0.000	0.000	0.000	0.000
GR	594.000	0.000	594.200	33.000	595.600	125.000	598.500	125.100	598.600	133.000
GR	579.800	133.000	576.300	150.000	573.700	167.000	572.500	184.000	572.500	200.000
GR	595.000	200.000	595.500	209.000	572.800	209.000	571.100	223.000	569.100	245.500
GR	569.300	270.000	572.500	282.000	595.000	282.000	595.000	292.000	571.900	292.000
GR	572.400	306.000	573.500	328.500	575.200	346.000	576.400	361.000	599.300	361.000
GR	599.300	366.900	596.200	367.000	594.900	433.000	593.500	520.000	0.000	0.000
NH	5.000	.027	220.000	.063	225.000	.032	366.000	.063	375.000	.027
NH	575.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	9.250	27.000	205.000	375.000	120.000	120.000	120.000	0.000	1.200	0.000
X3	0.000	0.000	0.000	0.000	0.000	480.000	0.000	0.000	0.000	0.000
GR	607.400	0.000	585.500	48.000	584.700	75.000	579.300	175.000	582.100	205.000
GR	580.800	220.000	578.900	224.000	574.800	225.000	570.800	235.000	567.900	245.000
GR	568.000	255.000	568.100	265.000	568.000	275.000	567.800	285.000	567.900	295.000
GR	568.700	305.000	570.300	315.000	571.100	325.000	571.400	335.000	572.100	345.000
GR	572.600	355.000	576.000	366.000	582.500	375.000	586.000	470.000	586.700	475.000
GR	588.700	533.000	587.200	575.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.020	.020	.020	.100	.300	0.000	0.000	0.000	0.000	0.000
NH	5.000	.027	220.000	.063	225.000	.032	366.000	.063	375.000	.027
NH	575.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	9.371	0.000	0.000	0.000	644.000	644.000	644.000	0.000	-.600	0.000
X3	0.000	0.000	0.000	0.000	0.000	550.000	0.000	0.000	0.000	0.000
NH	5.000	.027	220.000	.063	225.000	.032	366.000	.063	375.000	.027
NH	575.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	9.493	27.000	205.000	375.000	644.000	644.000	644.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	533.000	0.000	0.000	0.000	0.000
GR	607.400	0.000	585.500	48.000	584.700	75.000	579.300	175.000	582.100	205.000
GR	580.800	220.000	578.900	224.000	574.800	225.000	570.800	235.000	567.900	245.000
GR	568.000	255.000	568.100	265.000	568.000	275.000	567.800	285.000	567.900	295.000
GR	568.700	305.000	570.300	315.000	571.100	325.000	571.400	335.000	572.100	345.000
GR	572.600	355.000	576.000	366.000	582.500	375.000	586.000	470.000	586.700	475.000
GR	588.700	533.000	587.200	575.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	5.000	.032	130.500	.063	153.800	.027	293.800	.059	305.500	.027
NH	435.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	9.629	90.000	130.500	305.500	720.000	720.000	720.000	0.000	-.550	0.000
X3	0.000	0.000	0.000	0.000	0.000	410.000	0.000	0.000	0.000	0.000
GR	598.900	0.000	597.100	4.500	595.400	9.000	593.700	13.500	592.000	18.000

GR	590.300	22.400	588.600	26.900	587.200	31.400	587.000	35.900	586.800	40.400
GR	586.500	44.900	586.300	49.400	586.000	53.900	585.700	58.400	585.400	62.900
GR	585.100	67.400	584.800	71.900	584.600	76.400	584.300	80.900	584.000	85.400
GR	583.700	89.900	583.400	94.400	583.100	98.900	582.800	103.400	582.500	107.900
GR	582.300	112.400	582.600	116.900	582.800	121.400	583.000	125.900	583.300	130.500
GR	582.300	136.300	581.400	142.100	580.100	148.000	575.700	153.800	573.100	159.600
GR	571.800	165.500	570.600	171.300	570.100	177.100	570.000	182.900	569.900	188.800
GR	569.600	194.600	569.300	200.400	569.100	206.300	568.900	212.100	568.800	217.900
GR	568.900	223.800	569.100	229.600	569.300	235.400	569.700	241.300	569.900	247.100
GR	570.100	252.900	570.200	258.800	570.100	264.600	570.400	270.400	570.800	276.300
GR	571.600	282.100	573.400	287.900	576.300	293.800	579.500	299.600	583.200	305.500
GR	583.500	309.800	583.800	314.100	584.100	318.500	584.400	322.800	584.600	327.100
GR	584.900	331.400	585.100	335.800	585.200	340.100	585.400	344.400	585.500	348.800
GR	585.700	353.100	585.800	357.400	586.000	361.800	586.100	366.100	586.500	370.400
GR	586.700	374.800	586.800	379.100	586.900	383.400	587.100	387.800	587.200	392.100
GR	587.400	396.400	587.500	400.800	587.600	405.100	587.700	409.400	587.800	413.800
GR	587.900	418.100	588.000	422.400	588.100	426.800	588.200	431.100	588.300	435.500
NH	5.000	.032	56.000	.063	82.000	.027	220.000	.054	236.000	.032
NH	296.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	9.765	23.000	56.000	236.000	720.000	720.000	720.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	296.000	0.000	0.000	0.000	0.000
GR	590.400	0.000	584.500	56.000	579.600	78.000	576.100	82.000	574.800	86.000
GR	573.700	96.000	572.100	106.000	571.900	116.000	570.900	126.000	570.200	136.000
GR	569.800	146.000	570.000	156.000	569.600	166.000	569.300	176.000	569.300	186.000
GR	568.700	196.000	569.600	206.000	571.600	216.000	575.100	220.000	584.000	236.000
GR	586.000	248.000	586.900	284.000	589.400	296.000	0.000	0.000	0.000	0.000
NH	5.000	.032	202.700	.063	232.200	.027	362.200	.054	380.000	.032
NH	445.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	9.856	90.000	202.700	380.000	427.500	427.500	427.500	0.000	-.760	0.000
X3	0.000	0.000	0.000	0.000	0.000	445.000	0.000	0.000	0.000	0.000
GR	593.400	0.000	592.800	6.900	591.900	13.900	590.700	20.900	589.500	27.900
GR	588.600	34.900	588.000	41.900	587.400	48.900	586.900	55.900	586.300	62.900
GR	586.100	69.900	585.900	76.900	585.700	83.800	585.600	90.800	585.500	97.800
GR	585.500	104.800	585.500	111.800	585.500	118.800	585.500	125.800	585.300	132.800
GR	585.200	139.800	585.100	146.800	585.000	153.800	584.900	160.800	585.000	167.700
GR	585.000	174.700	585.000	181.700	585.000	188.700	584.900	195.700	584.700	202.700
GR	583.300	208.600	581.800	214.500	580.400	220.400	578.000	226.300	575.000	232.200
GR	573.900	238.100	572.800	244.100	571.900	250.000	571.500	255.900	571.300	261.800
GR	570.800	267.700	570.200	273.600	569.500	279.500	569.000	285.400	568.800	291.300
GR	569.100	297.200	569.500	303.100	569.600	309.000	569.800	315.000	569.700	320.900
GR	569.600	326.800	569.400	332.700	569.400	338.600	570.400	344.500	571.700	350.400
GR	573.400	356.300	575.700	362.200	579.100	368.100	582.000	374.000	585.000	380.000
GR	585.200	382.100	585.500	384.300	585.800	386.400	586.100	388.600	586.400	390.800
GR	586.700	392.900	586.800	395.100	586.900	397.300	586.900	399.400	587.000	401.600
GR	587.100	403.800	587.200	405.900	587.300	408.100	587.400	410.300	587.400	412.400
GR	587.500	414.600	587.600	416.800	587.700	418.900	587.700	421.100	587.800	423.300
GR	587.900	425.400	588.000	427.600	588.100	429.800	588.500	431.900	589.200	434.100
GR	589.900	436.300	590.500	438.400	591.200	440.600	591.900	442.800	592.500	445.000
NH	5.000	.036	349.500	.068	378.500	.027	500.700	.054	524.000	.027
NH	594.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	9.937	90.000	349.500	524.000	427.500	427.500	427.500	0.000	-.520	0.000
GR	596.400	0.000	595.600	12.000	593.900	24.100	591.700	36.100	589.500	48.200
GR	587.900	60.200	587.000	72.300	586.000	84.300	585.100	96.400	584.200	108.400
GR	584.000	120.500	583.800	132.500	583.600	144.600	583.500	156.600	583.500	168.700
GR	583.700	180.700	583.900	192.800	584.100	204.800	584.300	216.900	584.200	228.900
GR	584.200	241.000	584.200	253.000	584.100	265.100	584.200	277.100	584.500	289.200
GR	584.700	301.200	584.900	313.300	585.200	325.300	585.100	337.400	585.000	349.500
GR	583.500	355.300	581.900	361.100	580.400	366.900	578.200	372.700	575.400	378.500
GR	573.700	384.300	572.400	390.200	571.500	396.000	571.100	401.800	570.900	407.600
GR	570.400	413.400	569.800	419.200	568.800	425.100	568.100	430.900	567.900	436.700
GR	568.300	442.500	569.100	448.300	569.700	454.100	570.200	460.000	570.200	465.800
GR	570.100	471.600	569.700	477.400	570.100	483.200	571.900	489.000	573.800	494.900
GR	576.100	500.700	578.200	506.500	581.000	512.300	583.500	518.100	586.000	524.000

GR	586.200	528.300	586.500	529.600	586.700	531.000	587.000	533.300	587.200	535.600
GR	587.500	538.000	587.600	540.300	587.700	542.600	587.800	544.900	587.900	547.300
GR	588.000	549.600	588.100	551.900	588.300	554.300	588.400	556.600	588.500	558.900
GR	588.600	561.300	588.700	563.600	588.800	565.900	588.900	568.300	589.000	570.600
GR	589.200	572.900	589.300	575.300	589.500	577.600	590.200	579.900	591.100	582.300
GR	592.100	584.600	593.000	586.900	593.900	589.300	594.800	591.600	595.800	594.000
NH	5.000	.036	584.200	.070	606.900	.030	726.000	.054	754.400	.027
NH	832.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	10.068	90.000	584.200	754.400	764.000	764.000	764.000	0.000	-.100	0.000
X3	10.000	0.000	0.000	450.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	601.200	0.000	600.000	20.100	597.100	40.200	593.200	60.400	589.400	80.500
GR	586.700	100.700	585.200	120.800	583.700	141.000	582.200	161.100	580.700	181.300
GR	580.500	201.400	580.300	221.600	580.200	241.700	580.000	261.900	580.200	282.000
GR	580.700	302.100	581.200	322.300	581.800	342.400	582.300	362.600	582.400	382.700
GR	582.500	402.900	582.600	423.000	582.700	443.200	583.000	463.300	583.600	483.500
GR	584.200	503.600	584.800	523.800	585.400	543.900	585.400	564.100	585.400	584.200
GR	583.700	589.900	582.000	595.500	580.300	601.200	578.500	606.900	575.900	612.600
GR	573.300	618.200	571.600	623.900	570.800	629.600	570.400	635.200	570.100	640.900
GR	569.600	646.600	569.000	652.300	567.600	657.900	566.600	663.600	566.300	669.300
GR	567.100	674.900	568.500	680.600	569.700	686.300	570.800	692.000	570.900	697.600
GR	570.700	703.300	570.200	709.000	571.200	714.600	574.100	720.300	577.200	726.000
GR	580.300	731.700	582.200	737.300	584.000	743.000	585.800	748.700	587.600	754.400
GR	587.700	757.000	587.900	759.500	588.100	762.100	588.300	764.700	588.500	767.300
GR	588.700	769.900	588.800	772.500	589.000	775.100	589.100	777.700	589.300	780.300
GR	589.500	782.900	589.700	785.500	589.800	788.100	590.000	790.700	590.100	793.300
GR	590.300	795.900	590.400	798.500	590.600	801.100	590.800	803.700	591.000	806.300
GR	591.100	808.900	591.300	811.500	591.600	814.100	592.900	816.700	594.200	819.300
GR	595.600	821.900	596.900	824.500	598.200	827.100	599.500	829.700	600.900	832.400
NH	5.000	.036	643.000	.072	668.000	.032	780.000	.054	812.000	.027
NH	892.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	10.089	26.000	643.000	812.000	191.000	191.000	191.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	600.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	602.500	0.000	600.700	30.000	587.300	100.000	579.900	200.000	579.200	300.000
GR	581.900	400.000	582.500	500.000	585.600	600.000	585.600	643.000	577.900	668.000
GR	575.600	672.000	571.900	680.000	570.500	690.000	569.900	700.000	569.100	710.000
GR	566.400	720.000	565.900	730.000	568.800	740.000	571.100	750.000	571.100	760.000
GR	570.100	770.000	575.800	780.000	581.800	790.000	588.000	812.000	592.000	873.000
GR	602.200	892.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	5.000	.040	685.700	.070	697.400	.040	803.700	.070	820.000	.030
NH	973.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	10.122	90.000	685.700	820.000	174.800	174.800	174.800	0.000	-1.320	0.000
X3	10.000	0.000	0.000	670.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	602.300	0.000	602.000	23.600	601.200	47.200	600.200	70.900	599.100	94.500
GR	598.400	118.200	597.900	141.800	597.400	165.500	597.000	189.100	596.500	212.800
GR	596.500	236.400	596.400	260.100	596.400	283.700	596.300	307.400	596.400	331.000
GR	596.600	354.600	596.700	378.300	596.900	401.900	597.100	425.600	597.100	449.200
GR	597.100	472.900	597.200	496.500	597.200	520.200	597.300	543.800	597.500	567.500
GR	597.700	591.100	597.900	614.800	598.100	638.400	598.200	662.100	598.200	685.700
GR	589.300	688.100	576.500	692.800	575.900	697.400	574.200	702.000	571.900	706.600
GR	570.200	711.300	569.200	715.900	568.700	720.500	569.100	725.100	569.500	729.800
GR	570.000	734.400	570.400	739.000	569.900	743.600	569.200	748.200	569.900	752.900
GR	570.700	757.500	571.200	762.100	571.700	766.700	572.100	771.400	572.300	776.000
GR	572.300	780.600	572.300	785.200	572.700	789.900	573.700	794.500	574.700	799.100
GR	575.800	803.700	577.000	808.400	577.700	813.000	590.100	817.600	599.000	820.000
GR	599.100	825.100	599.200	830.200	599.200	835.300	599.300	840.400	599.400	845.500
GR	599.400	850.600	599.500	855.700	599.600	860.800	599.600	865.900	599.700	871.000
GR	599.800	876.100	599.800	881.200	599.900	886.300	600.000	891.400	600.000	896.500
GR	600.100	901.600	600.100	906.700	600.200	911.800	600.300	916.900	600.300	922.000
GR	600.400	927.100	600.500	932.200	600.600	937.300	600.900	942.400	601.300	947.500
GR	601.700	952.600	602.100	957.700	602.400	962.800	602.800	967.900	603.200	973.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
NH	3.000	.063	701.500	.036	821.800	.063	1000.000	0.000	0.000	0.000

X1	10.132	29.000	700.000	822.800	58.200	58.200	58.200	0.000	0.000	0.000
GR	602.300	0.000	602.500	100.000	602.200	200.000	602.100	300.000	602.200	400.000
GR	602.200	500.000	602.300	600.000	602.500	700.000	594.100	700.000	575.800	701.500
GR	574.700	705.000	575.000	710.000	569.800	720.000	568.000	730.000	569.500	740.000
GR	571.400	750.000	570.100	756.300	572.000	764.300	572.200	770.000	572.700	780.000
GR	572.900	790.000	573.600	800.000	574.400	810.000	575.600	815.000	575.700	821.800
GR	594.100	822.800	602.800	822.800	603.200	900.000	603.600	1000.000	0.000	0.000
NC	.018	.018	.018	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	10.133	31.000	700.000	822.800	1.000	1.000	1.000	0.000	0.000	0.000
BT	17.000	0.000	602.300	0.000	100.000	602.500	0.000	200.000	602.200	0.000
BT	300.000	602.100	0.000	400.000	602.200	0.000	500.000	602.200	0.000	600.000
BT	602.300	0.000	700.000	602.500	594.100	710.000	602.500	594.100	720.000	602.600
BT	594.100	757.300	602.600	594.100	763.300	602.700	594.100	780.000	602.700	594.100
BT	790.000	602.800	594.100	822.800	602.800	594.100	900.000	603.200	0.000	1000.000
BT	603.600	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	602.300	0.000	602.500	100.000	602.200	200.000	602.100	300.000	602.200	400.000
GR	602.200	500.000	602.300	600.000	602.500	700.000	594.100	700.000	575.800	701.500
GR	574.700	705.000	575.000	710.000	569.800	720.000	568.000	730.000	569.500	740.000
GR	571.400	750.000	570.100	756.300	594.100	757.300	594.100	763.300	572.000	764.300
GR	572.200	770.000	572.700	780.000	572.900	790.000	573.600	800.000	574.400	810.000
GR	575.600	815.000	575.700	821.800	594.100	822.800	602.800	822.800	603.200	900.000
GR	603.600	1000.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	10.139	0.000	0.000	0.000	32.000	32.000	32.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NH	3.000	.063	701.500	.036	821.800	.063	1000.000	0.000	0.000	0.000
X1	10.140	29.000	700.000	822.800	1.000	1.000	1.000	0.000	0.000	0.000
GR	602.300	0.000	602.500	100.000	602.200	200.000	602.100	300.000	602.200	400.000
GR	602.200	500.000	602.300	600.000	602.500	700.000	594.100	700.000	575.800	701.500
GR	574.700	705.000	575.000	710.000	569.800	720.000	568.000	730.000	569.500	740.000
GR	571.400	750.000	570.100	756.300	572.000	764.300	572.200	770.000	572.700	780.000
GR	572.900	790.000	573.600	800.000	574.400	810.000	575.600	815.000	575.700	821.800
GR	594.100	822.800	602.800	822.800	603.200	900.000	603.600	1000.000	0.000	0.000
NH	3.000	.064	654.000	.036	777.600	.064	975.000	0.000	0.000	0.000
X1	10.153	90.000	649.300	782.400	70.000	70.000	70.000	0.000	-.140	0.000
GR	602.000	0.000	602.100	22.300	602.100	44.700	602.100	67.100	602.100	89.500
GR	602.100	111.900	602.000	134.300	601.900	156.700	601.900	179.100	601.800	201.500
GR	601.800	223.800	601.800	246.200	601.800	268.600	601.800	291.000	601.800	313.400
GR	601.800	335.800	601.800	358.200	601.900	380.600	601.800	403.000	601.800	425.400
GR	601.800	447.700	601.800	470.100	601.800	492.500	601.800	514.900	601.800	537.300
GR	601.900	559.700	601.900	582.100	602.000	604.500	602.000	626.900	602.100	649.300
GR	592.100	649.300	575.100	654.000	575.000	658.800	573.300	663.500	570.800	668.300
GR	569.000	673.000	568.300	677.800	567.700	682.500	568.200	687.300	569.000	692.000
GR	569.500	696.800	570.200	701.500	570.100	706.300	569.500	711.000	570.500	715.800
GR	571.100	720.600	571.200	725.300	571.400	730.100	571.500	734.800	571.800	739.600
GR	571.900	744.300	572.100	749.100	572.400	753.800	572.700	758.600	573.500	763.300
GR	574.200	768.100	575.200	772.800	575.600	777.600	595.700	782.300	602.400	782.400
GR	602.300	788.800	602.300	795.200	602.300	801.600	602.400	808.000	602.400	814.400
GR	602.400	820.900	602.500	827.300	602.500	833.700	602.500	840.100	602.500	846.500
GR	602.500	853.000	602.500	859.400	602.500	865.800	602.600	872.200	602.600	878.600
GR	602.600	885.100	602.600	891.500	602.700	897.900	602.700	904.300	602.700	910.700
GR	602.700	917.200	602.800	923.600	602.800	930.000	602.800	936.400	602.800	942.800
GR	602.800	949.300	602.800	955.700	602.800	962.100	602.800	968.500	602.900	975.000
NH	3.000	.065	603.700	.036	736.900	.065	950.000	0.000	0.000	0.000
X1	10.166	90.000	598.600	742.000	70.000	70.000	70.000	0.000	-.290	0.000
GR	601.900	0.000	601.900	20.600	601.900	41.200	601.900	61.900	601.900	82.500
GR	601.900	103.200	601.800	123.800	601.700	144.400	601.700	165.100	601.600	185.700
GR	601.600	206.400	601.600	227.000	601.600	247.600	601.600	268.300	601.600	288.900
GR	601.600	309.600	601.500	330.200	601.600	350.900	601.600	371.300	601.500	392.100
GR	601.500	412.800	601.500	433.400	601.500	454.100	601.500	474.700	601.500	495.300
GR	601.600	516.000	601.600	536.600	601.700	557.300	601.700	577.900	601.800	598.600
GR	590.200	598.600	575.500	603.700	575.100	608.800	573.400	613.900	570.600	619.000

GR	568.700	624.200	568.000	629.300	567.400	634.400	567.800	639.300	568.600	644.700
GR	568.900	649.800	569.500	654.900	569.400	660.000	568.900	665.200	569.700	670.300
GR	570.200	675.400	570.200	680.500	570.400	685.700	570.500	690.800	570.900	695.900
GR	571.100	701.000	571.200	706.200	571.500	711.300	571.900	716.400	573.000	721.500
GR	574.100	726.700	575.200	731.800	575.600	736.900	597.500	742.000	602.000	742.000
GR	601.900	749.000	601.900	755.900	601.900	762.800	602.000	769.800	602.000	776.700
GR	601.900	783.600	602.000	790.600	602.000	797.500	602.000	804.400	602.000	811.300
GR	602.000	818.300	602.000	825.200	602.000	832.100	602.100	839.100	602.100	846.000
GR	602.100	852.900	602.100	859.900	602.100	866.800	602.100	873.700	602.100	880.600
GR	602.100	887.600	602.200	894.500	602.200	901.400	602.200	908.400	602.200	915.300
GR	602.200	922.200	602.200	929.200	602.200	936.100	602.200	943.000	602.300	950.000
NH	3.000	.068	497.200	.036	661.400	.068	900.000	0.000	0.000	0.000
X1	10.192	90.000	497.200	661.400	140.000	140.000	140.000	0.000	-.580	0.000
GR	601.500	0.000	601.500	17.100	601.500	34.200	601.500	51.400	601.500	68.500
GR	601.400	85.700	601.400	102.800	601.300	120.000	601.300	137.100	601.200	154.300
GR	601.200	171.400	601.100	188.600	601.100	205.700	601.100	222.900	601.100	240.000
GR	601.100	257.100	601.000	274.300	601.000	291.400	601.000	308.600	601.000	325.700
GR	600.900	342.900	600.900	360.000	600.900	377.200	600.900	394.300	600.900	411.500
GR	600.900	428.600	601.000	445.800	601.000	462.900	601.100	480.100	601.200	497.200
GR	586.300	497.200	576.100	503.100	575.300	508.900	573.600	514.800	570.300	520.600
GR	568.000	526.500	567.400	532.400	566.800	538.200	566.900	544.100	567.800	550.000
GR	567.600	555.800	568.100	561.700	568.100	567.500	567.600	573.400	568.100	579.300
GR	568.400	585.100	568.300	591.000	568.400	596.900	568.500	602.700	569.100	608.600
GR	569.500	614.400	569.500	620.300	569.700	626.200	570.300	632.000	572.100	637.900
GR	573.900	643.800	575.100	649.600	575.600	655.500	585.700	661.300	601.200	661.400
GR	601.100	669.300	601.100	677.300	601.100	685.200	601.100	693.200	601.100	701.100
GR	601.000	709.100	601.000	717.000	601.000	725.000	601.000	732.900	601.000	740.900
GR	601.000	748.800	601.000	756.800	601.000	764.700	601.000	772.700	601.000	780.600
GR	601.000	788.600	601.000	796.600	601.000	804.500	601.000	812.500	601.000	820.400
GR	601.000	828.400	601.000	836.300	601.000	844.300	601.000	852.200	601.000	860.200
GR	601.000	868.100	601.000	876.100	601.000	884.000	601.000	892.000	601.000	900.000
NH	3.000	.072	304.000	.036	500.000	.072	800.000	0.000	0.000	0.000
X1	10.245	38.000	294.500	500.000	287.000	287.000	287.000	.971	0.000	0.000
GR	600.800	0.000	600.300	100.000	599.800	200.000	599.600	245.000	599.900	294.500
GR	578.600	294.500	577.000	304.000	574.200	316.000	572.200	322.000	570.000	323.000
GR	566.800	330.000	566.100	340.000	565.300	350.000	564.900	355.000	566.400	360.400
GR	565.500	363.600	565.000	370.000	565.500	380.000	565.000	390.000	565.100	400.000
GR	564.600	410.000	564.500	420.000	564.400	425.000	564.400	430.900	565.500	434.000
GR	566.400	440.000	565.900	450.000	566.300	460.000	567.300	465.000	571.000	472.000
GR	574.400	480.000	575.800	494.000	577.500	500.000	599.600	500.000	599.300	540.000
GR	599.000	600.000	598.700	700.000	598.500	800.000	0.000	0.000	0.000	0.000
NC	.018	.018	.018	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	10.246	42.000	294.500	500.000	1.000	1.000	1.000	.971	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.971	0.000
BT	19.000	0.000	600.800	0.000	100.000	600.300	0.000	200.000	599.800	0.000
BT	245.000	599.600	0.000	294.500	599.900	594.100	304.000	599.900	594.100	316.000
BT	599.800	594.100	322.000	599.700	594.100	323.000	599.700	594.100	330.000	599.600
BT	594.100	360.400	599.600	594.100	363.600	599.600	594.100	430.800	599.600	594.100
BT	434.000	599.600	594.100	500.000	599.600	594.100	540.000	599.300	0.000	600.000
BT	599.000	0.000	700.000	598.700	0.000	800.000	598.500	0.000	0.000	0.000
GR	600.800	0.000	600.300	100.000	599.800	200.000	599.600	245.000	599.900	294.500
GR	578.600	294.500	577.000	304.000	574.200	316.000	572.200	322.000	570.000	323.000
GR	566.800	330.000	566.100	340.000	565.300	350.000	564.900	355.000	566.400	360.400
GR	594.100	360.400	594.100	363.600	565.500	363.600	565.000	370.000	565.500	380.000
GR	565.000	390.000	565.100	400.000	564.600	410.000	564.500	420.000	564.400	425.000
GR	564.400	430.800	594.100	430.800	594.100	434.000	565.500	434.000	566.400	440.000
GR	565.900	450.000	566.300	460.000	567.300	465.000	571.000	472.000	574.400	480.000
GR	575.800	494.000	577.500	500.000	599.600	500.000	599.300	540.000	599.000	600.000
GR	598.700	700.000	598.500	800.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	10.261	0.000	0.000	0.000	85.000	85.000	85.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NH	3.000	.072	304.000	.036	500.000	.072	800.000	0.000	0.000	0.000

X1	10.262	38.000	294.500	500.000	1.000	1.000	1.000	.971	0.000	0.000
GR	600.800	0.000	600.300	100.000	599.800	200.000	599.600	245.000	599.900	294.500
GR	578.600	294.500	577.000	304.000	574.200	316.000	572.200	322.000	570.000	323.000
GR	566.800	330.000	566.100	340.000	565.300	350.000	564.900	355.000	566.400	360.400
GR	565.500	363.600	565.000	370.000	565.500	380.000	565.000	390.000	565.100	400.000
GR	564.600	410.000	564.500	420.000	564.400	425.000	564.400	430.800	565.500	434.000
GR	566.400	440.000	565.900	450.000	566.300	460.000	567.300	465.000	571.000	472.000
GR	574.400	480.000	575.800	494.000	577.500	500.000	599.600	500.000	599.300	540.000
GR	599.000	600.000	598.700	700.000	598.500	800.000	0.000	0.000	0.000	0.000
NH	5.000	.027	449.000	.054	464.000	.036	590.000	.063	600.000	.027
NH	878.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	10.317	30.000	449.000	619.000	320.000	330.000	310.000	0.000	-.800	0.000
GR	597.300	0.000	593.600	100.000	589.200	200.000	584.800	228.000	583.700	300.000
GR	584.400	400.000	585.800	449.000	578.900	462.000	576.100	464.000	573.800	470.000
GR	570.600	480.000	567.200	490.000	566.300	500.000	566.200	510.000	566.600	520.000
GR	567.200	530.000	568.000	540.000	568.600	550.000	569.000	560.000	568.800	570.000
GR	571.100	580.000	576.300	590.000	576.700	596.000	582.200	600.000	585.100	619.000
GR	584.100	700.000	583.800	787.000	584.500	800.000	592.000	854.000	595.500	878.000
NC	.020	.020	.020	.100	.300	0.000	0.000	0.000	0.000	0.000
NH	5.000	.027	449.000	.036	464.000	.032	590.000	.054	600.000	.027
NH	878.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	10.381	30.000	449.000	619.000	330.000	340.000	320.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	877.000	0.000	0.000	0.000	0.000
GR	597.300	0.000	593.600	100.000	589.200	200.000	584.800	228.000	583.700	300.000
GR	584.400	400.000	585.800	449.000	578.900	462.000	576.100	464.000	573.800	470.000
GR	570.600	480.000	567.200	490.000	566.300	500.000	566.200	510.000	566.600	520.000
GR	567.200	530.000	568.000	540.000	568.600	550.000	569.000	560.000	568.800	570.000
GR	571.100	580.000	576.300	590.000	576.700	596.000	582.200	600.000	585.100	619.000
GR	584.100	700.000	583.800	787.000	584.500	800.000	592.000	854.000	595.500	878.000
NH	5.000	.027	740.000	.063	749.000	.041	877.000	.063	882.000	.090
NH	927.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	10.695	30.000	740.000	882.000	1530.000	1620.000	1660.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	520.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	599.900	0.000	589.300	82.000	585.700	121.000	585.700	182.000	586.700	282.000
GR	585.800	382.000	586.100	482.000	587.200	551.000	587.900	598.000	587.100	682.000
GR	586.600	722.000	585.500	740.000	576.200	749.000	574.300	752.000	570.500	762.000
GR	570.900	772.000	570.700	782.000	570.400	792.000	570.400	802.000	570.500	812.000
GR	570.600	822.000	570.300	832.000	570.600	842.000	570.600	852.000	571.200	862.000
GR	573.700	872.000	576.300	877.000	576.900	880.000	579.500	882.000	606.000	927.000
NH	5.000	.027	533.000	.063	603.000	.036	725.000	.063	733.000	.027
NH	1433.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Gaging station

X1	10.818	34.000	600.000	733.000	650.000	650.000	650.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	550.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	612.500	0.000	603.600	33.000	593.900	77.000	592.600	133.000	591.500	233.000
GR	588.400	333.000	589.000	413.000	588.100	428.000	587.700	533.000	587.700	576.000
GR	583.400	600.000	575.600	600.000	573.100	603.000	570.500	613.000	569.400	623.000
GR	568.500	633.000	569.400	643.000	568.900	653.000	568.300	663.000	568.100	673.000
GR	568.500	683.000	568.800	693.000	568.400	703.000	568.900	713.000	572.300	723.000
GR	576.000	725.000	583.000	733.000	583.800	833.000	589.800	933.000	588.300	1033.000
GR	590.700	1133.000	595.100	1233.000	600.000	1333.000	600.600	1433.000	0.000	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
NH	3.000	.090	450.100	.040	625.000	.090	1450.000	0.000	0.000	0.000

Moravian

X1	10.846	64.000	586.000	782.500	150.000	150.000	150.000	.950	0.000	0.000
X3	0.000	0.000	0.000	586.000	0.000	782.500	591.000	0.000	0.000	0.000
GR	612.500	0.000	603.600	33.000	593.900	77.000	592.600	133.000	592.000	146.000
GR	591.500	233.000	590.000	286.000	588.400	333.000	588.700	386.000	589.000	413.000
GR	588.100	428.000	587.700	486.000	587.700	533.000	587.700	576.000	585.700	586.000
GR	575.200	586.000	575.300	593.000	572.200	595.000	570.400	601.000	569.500	606.000
GR	567.100	616.000	565.800	626.000	568.100	632.000	589.900	632.000	589.900	636.600
GR	567.000	636.600	565.900	641.000	565.600	646.000	565.400	656.000	565.700	666.000

GR	[illegible]	[illegible]	[illegible]	682.000	589.900	682.000	589.900	686.600	566.600	[illegible]
GR	566.500	691.000	566.100	696.000	566.800	706.000	568.600	716.000	571.800	722.000
GR	574.200	726.000	574.200	731.000	576.000	732.700	589.900	732.700	589.900	736.000
GR	575.800	736.000	575.100	746.000	574.500	756.000	575.200	761.000	578.500	771.000
GR	579.800	776.000	582.300	782.500	583.000	782.500	583.800	832.500	586.800	866.000
GR	589.800	932.500	589.100	986.000	588.300	1032.500	589.500	1086.000	590.700	1132.500
GR	591.100	1143.000	595.100	1232.500	600.000	1332.500	600.600	1432.500	0.000	0.000
SB	0.000	1.550	3.050	0.000	197.500	0.000	3423.900	0.000	565.000	565.000
NC	.090	.040	.090	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	10.853	64.000	586.000	782.500	32.000	32.000	32.000	.950	0.000	0.000
X2	0.000	0.000	1.000	589.900	591.100	0.000	0.000	0.000	.950	0.000
X3	0.000	0.000	0.000	586.000	0.000	782.500	591.000	0.000	0.000	0.000
BT	36.000	33.000	603.600	0.000	133.000	599.200	0.000	186.000	596.800	0.000
BT	286.000	593.600	0.000	386.000	593.000	0.000	428.000	593.100	0.000	436.000
BT	593.500	0.000	586.000	593.100	585.700	586.000	593.700	589.700	593.000	593.700
BT	589.700	595.000	593.700	589.700	601.000	593.700	589.700	606.000	593.800	589.800
BT	616.000	593.800	589.800	626.000	593.900	589.900	632.000	593.900	589.900	636.600
BT	593.900	589.900	682.000	593.900	589.900	686.600	593.900	589.900	732.700	593.900
BT	589.900	736.000	593.900	589.900	746.000	593.800	589.800	761.000	593.800	589.800
BT	771.000	593.700	589.700	782.500	593.700	589.700	782.500	593.700	582.300	832.500
BT	593.400	0.000	886.000	593.700	0.000	986.000	592.300	0.000	1032.500	592.000
BT	0.000	1086.000	591.600	0.000	1132.500	591.400	0.000	1143.000	591.100	0.000
BT	1232.500	595.100	0.000	1332.500	600.000	0.000	1432.500	600.600	0.000	0.000
GR	612.500	0.000	603.600	33.000	593.900	77.000	592.600	133.000	592.000	186.000
GR	591.500	233.000	590.000	236.000	588.400	333.000	588.700	386.000	589.000	413.000
GR	588.100	428.000	587.700	486.000	587.700	533.000	587.700	576.000	585.700	586.000
GR	575.200	586.000	575.300	593.000	572.200	595.000	570.400	601.000	569.500	606.000
GR	567.100	616.000	565.800	626.000	568.100	632.000	589.900	632.000	589.900	636.600
GR	567.000	636.600	565.900	641.000	565.600	646.000	565.400	656.000	565.700	666.000
GR	565.000	676.000	566.500	682.000	589.900	682.000	589.900	686.600	566.600	686.600
GR	566.500	691.000	566.100	696.000	566.800	706.000	568.600	716.000	571.800	722.000
GR	574.200	726.000	574.200	731.000	576.000	732.700	589.900	732.700	589.900	736.000
GR	575.800	736.000	575.100	746.000	574.500	756.000	575.200	761.000	578.500	771.000
GR	579.800	776.000	582.300	782.500	583.000	782.500	583.800	832.500	586.800	866.000
GR	589.800	932.500	589.100	986.000	588.300	1032.500	589.500	1086.000	590.700	1132.500
GR	591.100	1143.000	595.100	1232.500	600.000	1332.500	600.600	1432.500	0.000	0.000
NH	4.000	.040	530.000	.100	571.000	.040	685.000	.110	1785.000	0.000

X1	10.910	56.000	569.000	691.000	300.000	470.000	300.000	0.000	-4.140	0.000
X3	0.000	0.000	0.000	500.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	589.000	0.000	599.900	100.000	595.300	200.000	591.000	300.000	591.600	394.000
GR	591.300	400.000	591.100	500.000	590.400	530.000	582.000	556.000	578.500	569.000
GR	574.300	571.000	572.000	580.000	571.700	590.000	571.400	600.000	571.200	610.000
GR	570.800	620.000	570.800	630.000	570.900	640.000	571.600	650.000	572.800	660.000
GR	573.000	670.000	572.900	680.000	575.300	685.000	584.100	691.000	583.000	700.000
GR	584.500	700.000	587.400	750.000	589.100	785.000	585.400	800.000	584.900	800.000
GR	578.800	820.000	582.900	900.000	585.500	900.000	585.800	1000.000	582.600	1000.000
GR	582.100	1050.000	585.600	1050.000	586.000	1075.000	587.800	1100.000	587.500	1150.000
GR	587.000	1200.000	587.800	1250.000	590.100	1300.000	591.000	1380.000	581.200	1400.000
GR	584.900	1450.000	584.100	1500.000	582.100	1530.000	588.400	1535.000	588.800	1550.000
GR	590.600	1600.000	590.700	1650.000	591.200	1702.000	593.300	1712.000	596.600	1750.000
GR	600.200	1785.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	4.000	.040	530.000	.100	571.000	.040	685.000	.110	2520.000	0.000

X1	11.052	56.000	569.000	691.000	750.000	330.000	750.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	550.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	589.000	0.000	599.900	100.000	595.300	200.000	591.000	300.000	591.600	394.000
GR	591.300	400.000	591.100	500.000	590.400	530.000	582.000	556.000	578.500	569.000
GR	574.300	571.000	572.000	580.000	571.700	590.000	571.400	600.000	571.200	610.000
GR	570.800	620.000	570.800	630.000	570.900	640.000	571.600	650.000	572.800	660.000
GR	573.000	670.000	572.900	680.000	575.300	685.000	584.100	691.000	583.000	700.000
GR	584.500	700.000	587.400	750.000	589.100	785.000	585.400	800.000	584.900	800.000
GR	578.800	820.000	582.900	900.000	585.500	900.000	585.800	1000.000	582.600	1000.000
GR	582.100	1050.000	585.600	1050.000	586.000	1100.000	587.800	1150.000	587.500	1250.000
GR	587.000	1350.000	587.800	1450.000	590.100	1550.000	591.000	1710.000	581.200	1750.000
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

GR	584.900	[illegible]	584.100	1950.000	582.100	2010.000	588.400	2020.000	588.800	2050.000
GR	590.600	2150.000	590.700	2250.000	591.200	2354.000	593.300	2375.000	596.600	2450.000
GR	600.200	2520.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	4.000	8580.000	13300.000	15000.000	19800.000	0.000	0.000	0.000	0.000	0.000
NH	5.000	.100	41.000	.040	126.000	.110	1802.000	.060	2032.000	.030
NH	2302.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	11.292	39.000	41.000	126.000	1350.000	500.000	1268.000	0.000	0.000	0.000
GR	594.200	0.000	593.800	16.000	593.200	41.000	575.600	72.000	575.200	82.000
GR	573.500	87.000	571.200	92.000	569.400	102.000	569.900	112.000	574.500	122.000
GR	581.700	126.000	584.500	162.000	584.200	232.000	584.400	332.000	584.400	432.000
GR	585.200	532.000	585.600	632.000	588.700	732.000	585.600	832.000	586.000	882.000
GR	586.000	882.000	587.800	932.000	587.500	1032.000	587.000	1132.000	587.800	1232.000
GR	590.100	1332.000	591.000	1492.000	581.200	1532.000	584.900	1632.000	584.100	1732.000
GR	582.100	1792.000	588.400	1802.000	588.800	1832.000	590.600	1932.000	590.700	2032.000
GR	591.200	2136.000	593.300	2157.000	596.600	2232.000	600.200	2302.000	0.000	0.000
NH	5.000	.100	272.400	.040	358.100	.110	1764.300	.060	2008.800	.030
NH	2192.200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	11.393	90.000	272.400	358.100	478.700	36.500	528.700	0.000	0.000	0.000
GR	594.800	0.000	594.700	9.300	594.700	18.700	594.600	28.100	594.500	37.500
GR	594.500	46.900	594.400	56.300	594.300	65.700	594.200	75.100	594.100	84.500
GR	593.600	93.900	593.500	103.300	593.400	112.700	593.300	122.100	593.300	131.500
GR	593.300	140.900	593.300	150.300	593.100	159.700	593.100	169.100	593.100	178.500
GR	593.200	187.800	593.000	197.200	592.900	206.600	592.700	216.000	592.400	225.400
GR	592.400	234.800	592.200	244.200	592.100	253.600	591.800	263.000	591.200	272.400
GR	588.900	275.300	587.300	278.100	585.900	281.000	584.500	283.800	583.200	286.700
GR	581.900	289.500	580.500	292.400	579.100	295.300	577.800	298.100	576.400	301.000
GR	575.100	303.800	575.000	306.700	574.800	309.500	574.700	312.400	574.200	315.300
GR	573.400	318.100	572.400	321.000	571.400	323.800	571.000	326.700	570.600	329.500
GR	570.200	332.400	569.950	335.300	570.100	338.100	570.400	341.000	570.700	343.800
GR	572.000	346.700	573.500	349.600	575.000	352.400	577.700	355.300	582.300	358.100
GR	584.700	419.300	584.800	480.400	585.100	541.500	585.300	602.700	585.800	663.800
GR	586.300	724.900	586.700	786.100	588.600	847.200	588.100	908.400	587.000	969.500
GR	588.500	1030.600	588.600	1091.800	588.400	1152.900	588.200	1214.000	588.700	1275.200
GR	589.900	1336.300	591.000	1397.400	591.500	1458.600	589.400	1519.700	585.300	1580.900
GR	587.000	1642.000	586.700	1703.100	586.300	1764.300	591.100	1825.400	592.100	1886.500
GR	592.200	1947.700	592.500	2008.800	594.400	2069.900	597.000	2131.100	600.100	2192.200
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
NH	5.000	.050	433.400	.120	966.800	.045	1045.900	.060	1054.700	.040
NH	1863.100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	11.695	90.000	966.800	1054.700	1486.300	109.500	1586.300	0.000	0.000	0.000
GR	596.900	0.000	596.700	33.300	596.500	66.600	596.300	100.000	596.100	133.300
GR	596.000	166.600	595.800	200.000	595.600	233.300	595.300	266.700	594.300	300.000
GR	593.200	333.300	592.700	366.700	592.400	400.000	592.100	433.400	592.200	466.700
GR	592.400	500.000	592.300	533.400	591.900	566.700	591.700	600.100	592.000	633.400
GR	592.300	666.700	591.900	700.100	591.600	733.400	590.600	766.700	589.500	800.100
GR	589.600	833.400	589.200	866.800	588.600	900.100	587.800	933.400	585.200	966.800
GR	581.200	969.700	579.400	972.600	578.700	975.600	578.100	978.500	577.600	981.400
GR	577.000	984.400	576.400	987.300	575.700	990.200	575.100	993.200	574.500	996.100
GR	573.900	999.000	573.600	1001.900	573.400	1004.900	573.300	1007.800	573.100	1010.700
GR	572.700	1013.700	572.400	1016.600	572.200	1019.500	572.100	1022.500	572.000	1025.400
GR	571.800	1028.300	571.700	1031.300	571.590	1034.200	572.400	1037.100	573.500	1040.000
GR	574.800	1043.000	576.900	1045.900	578.900	1048.800	581.400	1051.800	584.400	1054.700
GR	585.900	1081.600	586.600	1108.600	587.400	1135.500	588.100	1162.500	589.000	1189.400
GR	589.500	1216.400	589.900	1243.300	590.800	1270.300	591.000	1297.200	590.900	1324.200
GR	591.800	1351.100	591.900	1378.100	591.700	1405.000	591.700	1431.900	592.000	1458.900
GR	592.600	1485.800	593.400	1512.800	594.100	1539.700	593.900	1566.700	593.000	1593.600
GR	594.100	1620.600	594.500	1647.500	594.800	1674.500	596.500	1701.400	596.900	1728.400
GR	597.000	1755.300	597.200	1782.300	597.900	1809.200	598.800	1836.100	599.900	1863.100
NH	5.000	.050	500.000	.120	1311.000	.045	1388.000	.060	1400.000	.040
NH	1700.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	11.845	34.000	1311.000	1400.000	735.000	54.000	785.000	0.000	0.000	0.000
GR	598.000	0.000	597.400	100.000	596.900	200.000	596.400	300.000	595.500	400.000

GR	591.800	477.000	592.400	500.000	591.500	600.000	592.100	700.000	590.900	800.000
GR	591.900	900.000	590.900	1000.000	587.700	1100.000	588.400	1135.000	586.500	1250.000
GR	584.400	1300.000	582.300	1311.000	575.700	1315.000	575.200	1320.000	574.500	1330.000
GR	573.600	1340.000	572.700	1350.000	572.400	1360.000	572.800	1370.000	572.500	1380.000
GR	576.200	1388.000	585.500	1400.000	590.600	1450.000	593.600	1514.000	593.300	1532.000
GR	594.000	1561.000	596.900	1600.000	599.100	1630.000	599.900	1700.000	0.000	0.000
QT	4.000	8730.000	13500.000	15200.000	20000.000	0.000	0.000	0.000	0.000	0.000
NH	5.000	.040	518.000	.110	1251.900	.045	1329.200	.060	1341.200	.045
NH	1666.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	11.860	90.000	1251.900	1341.200	77.200	75.600	78.900	0.000	0.000	0.000
GR	597.800	0.000	597.500	43.100	597.300	86.300	597.100	129.500	596.800	172.600
GR	596.600	215.800	596.400	259.000	596.200	302.100	595.800	345.300	595.200	388.500
GR	593.200	431.600	592.600	474.800	592.300	518.000	591.900	561.100	592.000	604.300
GR	592.200	647.500	592.100	690.700	591.500	733.800	591.300	777.000	591.600	820.200
GR	591.900	863.300	591.500	906.500	590.900	949.700	589.700	992.800	588.200	1036.000
GR	588.400	1079.200	587.800	1122.300	587.000	1165.500	585.600	1208.700	582.200	1251.900
GR	577.500	1254.800	575.600	1257.800	575.200	1260.800	575.000	1263.800	574.700	1266.700
GR	574.500	1269.700	574.200	1272.700	573.900	1275.700	573.700	1278.600	573.500	1281.600
GR	573.200	1284.600	573.000	1287.600	572.800	1290.500	572.700	1293.500	572.600	1296.500
GR	572.500	1299.500	572.480	1302.500	572.600	1305.400	572.700	1308.400	572.800	1311.400
GR	572.800	1314.400	572.700	1317.300	572.600	1320.300	573.600	1323.300	574.900	1326.300
GR	576.200	1329.200	578.500	1332.200	580.800	1335.200	583.200	1338.200	585.600	1341.200
GR	586.500	1352.000	587.400	1362.800	588.300	1373.700	589.200	1384.500	590.100	1395.300
GR	590.600	1406.200	591.000	1417.000	591.500	1427.900	591.800	1438.700	592.100	1449.500
GR	592.600	1460.400	592.600	1471.200	592.400	1482.100	592.500	1492.900	592.700	1503.700
GR	593.000	1514.600	593.800	1525.400	594.600	1536.300	595.300	1547.100	596.100	1557.900
GR	596.900	1568.800	597.700	1579.600	598.500	1590.500	598.700	1601.300	599.000	1612.100
GR	599.100	1623.000	599.300	1633.800	599.500	1644.700	599.600	1655.500	599.800	1666.400
NH	5.000	.045	534.700	.100	1192.800	.045	1270.400	.070	1282.400	.050
NH	1632.800	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	11.875	90.000	1192.800	1282.400	77.300	75.600	78.900	0.000	0.000	0.000
GR	597.600	0.000	597.400	41.100	597.200	82.200	597.000	123.400	596.800	164.500
GR	596.600	205.600	596.400	246.800	596.200	287.900	595.800	329.000	595.300	370.200
GR	593.500	411.300	592.900	452.400	592.600	493.600	592.300	534.700	592.400	575.800
GR	592.500	617.000	592.400	658.100	591.900	699.200	591.600	740.400	591.900	781.500
GR	592.100	822.600	591.600	863.800	591.000	904.900	589.800	946.000	588.400	937.200
GR	588.500	1028.300	587.900	1069.400	587.200	1110.600	585.500	1151.700	582.200	1192.800
GR	577.700	1195.800	575.700	1198.800	575.300	1201.800	575.100	1204.800	574.800	1207.800
GR	574.500	1210.700	574.200	1213.700	573.900	1216.700	573.700	1219.700	573.500	1222.700
GR	573.300	1225.700	573.100	1228.600	572.900	1231.600	572.800	1234.600	572.700	1237.600
GR	572.700	1240.600	572.570	1243.600	572.800	1246.500	572.900	1249.500	573.000	1252.500
GR	572.900	1255.500	572.800	1258.500	572.800	1261.500	573.700	1264.400	574.900	1267.400
GR	576.200	1270.400	578.400	1273.400	580.800	1276.400	583.300	1279.400	585.700	1282.400
GR	586.500	1294.000	587.300	1305.700	588.100	1317.400	588.900	1329.100	589.700	1340.800
GR	590.200	1352.400	590.600	1364.100	591.000	1375.800	591.200	1387.500	591.400	1399.200
GR	591.800	1410.800	591.800	1422.500	591.600	1434.200	591.700	1445.900	591.800	1457.600
GR	592.200	1469.200	593.000	1480.900	593.800	1492.600	594.600	1504.300	595.500	1516.000
GR	596.300	1527.600	597.200	1539.300	598.000	1551.000	598.300	1562.700	598.700	1574.400
GR	598.900	1586.000	599.100	1597.700	599.400	1609.400	599.600	1621.100	599.800	1632.800
NH	5.000	.045	539.800	.090	978.400	.040	1056.800	.070	1068.900	.060
NH	1510.800	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	11.929	90.000	978.400	1068.900	238.500	274.700	286.800	0.000	0.000	0.000
GR	597.000	0.000	596.900	33.700	596.700	67.400	596.600	101.200	596.500	134.900
GR	596.400	168.700	596.300	202.400	596.100	236.100	595.900	269.900	595.600	303.600
GR	594.400	337.400	594.000	371.100	593.800	404.800	593.600	438.600	593.600	472.300
GR	593.700	506.100	593.500	539.800	593.000	573.500	592.800	607.300	592.900	641.000
GR	592.600	674.800	592.000	708.500	591.300	742.200	590.100	776.000	589.000	809.700
GR	588.800	843.500	588.300	877.200	587.700	910.900	585.100	944.700	582.000	978.400
GR	578.300	981.400	576.200	984.500	575.600	987.500	575.300	990.500	574.900	993.500
GR	574.500	996.500	574.000	999.500	573.800	1002.500	573.600	1005.600	573.400	1008.600
GR	573.300	1011.600	573.300	1014.600	573.300	1017.600	573.300	1020.600	573.200	1023.600
GR	573.200	1026.700	572.890	1029.700	573.200	1032.700	573.300	1035.700	573.400	1038.700
GR	573.300	1041.700	573.300	1044.700	573.300	1047.800	574.000	1050.800	575.000	1053.800

GR	578.100	1056.800	578.200	1059.800	580.800	1062.800	583.500	1065.800	586.100	1068.900
GR	586.500	1083.600	586.900	1098.300	587.300	1113.000	587.800	1127.800	588.200	1142.500
GR	588.600	1157.200	589.100	1172.000	589.200	1186.700	589.000	1201.400	588.800	1216.200
GR	588.900	1230.900	588.800	1245.600	588.600	1260.300	588.500	1275.100	588.500	1289.800
GR	589.200	1304.500	590.100	1319.300	591.000	1334.000	592.000	1348.700	593.000	1363.500
GR	594.000	1378.200	595.000	1392.900	596.100	1407.600	596.800	1422.400	597.500	1437.100
GR	598.000	1451.800	598.400	1466.600	598.900	1481.300	599.300	1496.000	599.800	1510.500
NH	6.000	.040	576.000	.080	615.000	.040	689.000	.080	700.000	.100
NH	1059.000	.030	1300.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	12.023	28.000	608.000	700.000	437.000	474.300	495.400	0.000	0.000	0.000
GR	596.000	0.000	596.100	100.000	596.100	200.000	595.900	300.000	594.500	400.000
GR	590.000	500.000	588.800	563.000	587.800	576.000	584.500	586.000	581.800	608.000
GR	576.300	615.000	575.900	620.000	573.700	630.000	573.400	640.000	574.100	650.000
GR	574.100	660.000	574.100	670.000	574.400	680.000	576.200	689.000	586.800	700.000
GR	585.600	800.000	586.700	850.000	584.300	900.000	582.800	1000.000	586.200	1039.000
GR	588.700	1100.000	595.600	1200.000	599.700	1300.000	0.000	0.000	0.000	0.000
NH	5.000	.050	1000.000	.100	1104.000	.045	1117.000	.080	1165.000	.040
NH	1300.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	12.339	24.000	1104.000	1200.000	1600.000	1600.000	1670.000	0.000	0.000	0.000
GR	596.700	0.000	596.000	100.000	594.900	200.000	592.100	300.000	591.900	400.000
GR	590.800	436.000	591.500	460.000	587.300	500.000	585.500	600.000	586.100	700.000
GR	587.200	800.000	587.700	850.000	586.900	900.000	586.000	1000.000	585.800	1104.000
GR	577.200	1117.000	574.100	1130.000	573.800	1140.000	573.000	1150.000	573.600	1160.000
GR	575.700	1165.000	578.900	1167.000	593.900	1200.000	600.000	1300.000	0.000	0.000
NH	7.000	.060	400.000	.100	598.000	.060	607.000	.045	630.000	.060
NH	692.000	.120	941.000	.040	1050.000	0.000	0.000	0.000	0.000	0.000
X1	12.544	26.000	598.000	692.000	1020.000	1050.000	1080.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	250.000	0.000	1000.000	0.000	0.000	0.000	0.000
GR	597.100	0.000	595.500	100.000	594.400	200.000	591.600	300.000	592.200	400.000
GR	591.700	422.000	586.700	500.000	587.000	598.000	577.200	607.000	576.000	610.000
GR	575.700	620.000	574.700	630.000	575.200	640.000	575.300	650.000	575.500	660.000
GR	575.600	670.000	576.400	680.000	584.400	692.000	584.500	700.000	585.000	710.000
GR	588.100	720.000	586.300	800.000	586.800	900.000	586.400	941.000	593.300	1000.000
GR	602.000	1050.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.100	.500	0.000	0.000	0.000	0.000	0.000
NH	6.000	.040	400.000	.100	1420.000	.045	1494.000	.060	1504.000	.080
NH	1570.000	.040	1600.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	12.799	30.000	1420.000	1504.000	1300.000	1200.000	1350.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	1600.000	0.000	0.000	0.000	0.000
GR	597.200	0.000	596.500	100.000	594.200	200.000	594.000	300.000	592.800	320.000
GR	590.900	400.000	590.900	500.000	590.400	600.000	588.900	700.000	587.800	800.000
GR	587.600	900.000	587.400	1000.000	588.600	1100.000	587.900	1200.000	585.800	1300.000
GR	584.100	1400.000	583.600	1420.000	578.200	1427.000	577.700	1430.000	576.400	1440.000
GR	575.000	1450.000	574.400	1460.000	573.500	1470.000	573.700	1480.000	576.000	1490.000
GR	578.100	1494.000	584.000	1504.000	587.700	1549.000	599.400	1570.000	601.000	1600.000
X1	13.144	37.000	400.000	463.000	1781.000	1800.000	1820.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	250.000	0.000	1250.000	0.000	0.000	0.000	0.000
GR	597.800	0.000	598.100	100.000	597.500	200.000	598.200	250.000	597.700	268.000
GR	597.200	300.000	596.900	310.000	585.700	363.000	584.200	400.000	578.500	406.000
GR	576.100	410.000	574.400	420.000	574.800	430.000	575.600	440.000	576.000	450.000
GR	579.200	461.000	582.400	463.000	584.000	480.000	586.300	600.000	585.800	650.000
GR	587.700	700.000	586.200	800.000	585.200	900.000	585.900	1000.000	587.200	1100.000
GR	592.100	1123.000	593.800	1200.000	592.700	1300.000	595.400	1400.000	596.300	1500.000
GR	597.800	1600.000	597.100	1700.000	597.900	1800.000	598.600	1900.000	599.100	2000.000
GR	599.800	2100.000	601.200	2200.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	7.000	.040	255.000	.075	462.200	.050	468.700	.045	522.600	.050
NH	527.000	.090	1190.300	.040	2185.400	0.000	0.000	0.000	0.000	0.000
X1	13.163	90.000	462.200	527.000	64.700	78.700	100.100	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	1275.000	0.000	0.000	0.000	0.000
GR	597.800	0.000	597.900	15.900	597.900	31.800	597.700	47.800	597.700	63.700

GR	597.200	159.300	597.100	175.300	597.100	191.200	597.000	207.200	596.900	223.100
GR	597.000	239.000	597.200	255.000	597.400	270.900	597.600	286.900	597.300	302.900
GR	597.000	318.700	596.800	334.700	596.500	350.600	594.800	366.600	592.000	382.500
GR	589.300	398.400	586.500	414.400	585.300	430.300	584.800	446.300	584.300	462.200
GR	582.200	464.400	580.100	466.500	578.200	468.700	577.000	470.800	576.000	473.000
GR	575.700	475.100	575.400	477.300	575.000	479.500	574.700	481.600	574.580	483.300
GR	574.600	485.900	574.700	488.100	574.800	490.300	574.900	492.400	575.000	494.500
GR	575.100	496.700	575.300	498.900	575.500	501.000	575.700	503.200	575.800	505.400
GR	575.800	507.500	575.900	509.700	576.000	511.800	576.200	514.000	576.800	516.200
GR	577.400	518.300	578.000	520.500	578.600	522.600	579.300	524.800	582.400	527.000
GR	584.800	582.200	586.000	637.500	586.300	692.800	587.900	748.100	587.400	803.400
GR	586.600	858.600	586.100	913.900	586.000	969.200	586.400	1024.500	587.000	1079.800
GR	587.700	1135.100	593.100	1190.300	593.800	1245.600	593.200	1300.900	593.800	1356.200
GR	595.200	1411.500	595.900	1466.600	596.400	1522.000	597.300	1577.300	597.600	1632.600
GR	597.300	1687.900	597.400	1743.200	597.800	1798.400	598.300	1853.700	598.600	1909.000
GR	598.900	1964.300	599.200	2019.600	599.600	2074.900	600.300	2130.100	601.000	2185.400
NH	7.000	.040	245.600	.075	508.900	.060	513.300	.040	570.500	.060
NH	575.000	.080	1161.400	.040	2174.500	0.000	0.000	0.000	0.000	0.000
X1	13.191	90.000	508.900	575.000	48.500	59.100	75.100	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	1275.000	0.000	0.000	0.000	0.000
GR	597.800	0.000	597.900	17.500	597.900	35.000	597.900	52.600	597.500	70.100
GR	596.900	87.700	596.800	105.200	596.800	122.800	596.700	140.300	596.700	157.900
GR	596.700	175.400	596.600	193.000	596.600	210.500	596.500	228.100	596.500	245.600
GR	596.600	263.200	596.800	280.700	597.000	298.300	597.100	315.800	596.900	333.400
GR	596.600	350.900	596.400	368.500	596.000	386.000	594.400	403.600	591.700	421.100
GR	589.100	438.700	586.500	456.200	585.300	473.800	584.900	491.300	584.400	508.900
GR	582.200	511.100	580.000	513.300	578.200	515.500	577.000	517.700	576.000	519.900
GR	575.700	522.100	575.400	524.300	575.100	526.500	574.700	528.700	574.680	530.900
GR	574.700	533.100	574.800	535.300	574.800	537.500	575.000	539.700	575.000	541.900
GR	575.200	544.100	575.400	546.300	575.600	548.500	575.800	550.700	575.800	552.900
GR	575.900	555.100	576.000	557.300	576.100	559.500	576.300	561.700	576.900	563.900
GR	577.400	566.100	578.000	568.300	578.700	570.500	579.400	572.700	582.400	575.000
GR	584.800	628.300	586.100	681.600	586.600	734.900	588.200	788.200	587.700	841.500
GR	587.000	894.900	586.500	948.200	586.500	1001.500	586.900	1054.800	587.500	1108.100
GR	588.100	1161.400	593.300	1214.800	594.000	1268.100	593.400	1321.400	594.000	1374.700
GR	595.300	1428.000	596.000	1481.300	596.500	1534.700	597.300	1588.000	597.600	1641.300
GR	597.300	1694.600	597.400	1747.900	597.800	1801.200	598.300	1854.600	598.600	1907.900
GR	598.900	1961.200	599.200	2014.500	599.500	2067.800	600.200	2121.200	600.900	2174.500
NH	6.000	.040	246.200	.070	649.000	.060	656.000	.040	709.700	.060
NH	719.000	.060	2141.900	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	13.220	90.000	649.000	719.000	145.600	177.200	225.300	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	1350.000	0.000	0.000	0.000	0.000
GR	597.900	0.000	598.100	22.300	598.100	44.700	598.000	67.100	597.100	89.500
GR	595.700	111.900	595.400	134.200	595.300	156.600	595.300	179.000	595.300	201.400
GR	595.300	223.800	595.300	246.200	595.300	268.500	595.300	290.900	595.300	313.300
GR	595.500	335.700	595.700	358.100	595.800	380.400	595.900	402.800	595.800	425.200
GR	595.600	447.600	595.200	470.000	594.800	492.400	593.400	514.700	591.000	537.100
GR	588.800	559.500	586.500	581.900	585.500	604.300	585.200	626.600	584.800	649.000
GR	582.400	651.400	580.000	653.700	578.200	656.000	577.100	658.400	576.200	660.700
GR	576.000	663.000	575.700	665.400	575.400	667.700	575.100	670.000	575.030	672.300
GR	575.100	674.700	575.100	677.000	575.200	679.300	575.300	681.700	575.400	684.000
GR	575.500	686.300	575.700	688.700	575.900	691.000	576.100	693.300	576.200	695.700
GR	576.300	698.000	576.400	700.300	576.500	702.700	576.700	705.000	577.200	707.300
GR	577.700	709.700	578.300	712.000	579.100	714.300	579.900	716.700	582.700	719.000
GR	584.900	766.400	586.500	813.900	587.500	861.300	589.400	908.700	589.000	956.100
GR	588.400	1003.600	588.000	1051.000	588.000	1098.400	588.400	1145.900	589.000	1193.300
GR	589.600	1240.700	594.100	1288.200	594.700	1335.600	594.200	1383.000	594.600	1430.400
GR	595.800	1477.900	596.400	1525.300	596.800	1572.700	597.500	1620.200	597.800	1667.600
GR	597.500	1715.000	597.700	1762.500	598.000	1809.900	598.400	1857.300	598.700	1904.700
GR	599.000	1952.200	599.300	1999.600	599.600	2047.000	600.200	2094.500	600.800	2141.900
NH	8.000	.040	157.000	.050	235.000	.030	1242.000	.035	1507.000	.070
NH	1514.000	.040	1571.000	.070	1601.000	.050	1942.000	0.000	0.000	0.000

X1	13.481	33.000	1507.000	1601.000	[illegible]	[illegible]	[illegible]	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	[illegible]	1750.000	0.000	0.000	0.000	0.000
GR	598.300	0.000	599.400	42.000	598[illegible]	157.000	595.400	203.000	588.600	235.000
GR	585.700	342.000	586.400	442.000	587.000	542.000	587.200	642.000	588.100	742.000
GR	588.900	842.000	588.400	942.000	589.200	1042.000	597.000	1142.000	586.400	1242.000
GR	586.200	1342.000	586.800	1442.000	587.200	1507.000	578.700	1514.000	577.200	1521.000
GR	577.300	1531.000	577.200	1541.000	577.200	1551.000	577.400	1561.000	578.300	1571.000
GR	578.600	1581.000	579.600	1591.000	583.900	1601.000	585.900	1617.000	596.000	1642.000
GR	598.500	1742.000	598.700	1842.000	599.800	1942.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.100	.500	0.000	0.000	0.000	0.000	0.000
NH	7.000	.035	213.000	.050	416.000	.060	428.000	.040	495.000	.060
NH	513.000	.080	913.000	.040	1873.000	0.000	0.000	0.000	0.000	0.000
X1	13.799	33.000	416.000	513.000	800.000	1050.000	1680.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	1010.000	0.000	0.000	0.000	0.000
GR	600.500	0.000	600.500	13.000	601.700	113.000	593.900	213.000	587.300	292.000
GR	586.900	313.000	587.300	363.000	586.900	416.000	579.800	428.000	578.000	433.000
GR	577.500	443.000	576.300	453.000	575.900	463.000	576.800	473.000	578.200	483.000
GR	579.500	495.000	587.200	513.000	587.000	613.000	586.500	713.000	586.500	735.000
GR	593.200	758.000	592.700	813.000	594.600	913.000	599.100	1013.000	596.900	1113.000
GR	599.200	1213.000	598.000	1313.000	598.500	1413.000	599.700	1513.000	598.300	1613.000
GR	598.600	1713.000	598.100	1813.000	601.500	1873.000	0.000	0.000	0.000	0.000
NH	9.000	.040	200.000	.080	720.000	.060	733.000	.045	780.000	.060
NH	800.000	.080	1140.000	.060	1427.000	.050	1700.000	.035	1900.000	0.000
X1	14.061	36.000	720.000	828.000	1100.000	1100.000	1380.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	200.000	0.000	1400.000	0.000	0.000	0.000	0.000
GR	601.100	0.000	599.600	100.000	598.200	155.000	598.700	200.000	598.100	273.000
GR	593.100	300.000	587.000	360.000	585.800	400.000	589.300	500.000	589.200	600.000
GR	589.200	700.000	589.600	720.000	579.700	733.000	578.000	740.000	577.500	750.000
GR	578.200	760.000	578.700	770.000	579.500	780.000	580.500	790.000	581.000	796.000
GR	585.100	800.000	584.900	813.000	588.500	828.000	585.300	900.000	586.600	1000.000
GR	584.900	1100.000	586.900	1140.000	588.800	1200.000	588.200	1300.000	591.000	1400.000
GR	595.900	1427.000	595.300	1500.000	594.100	1600.000	596.200	1700.000	597.200	1800.000
GR	599.500	1900.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	7.000	.035	777.000	.050	1006.000	.060	1015.000	.045	1080.000	.060
NH	1084.000	.070	1200.000	.040	1400.000	0.000	0.000	0.000	0.000	0.000
X1	14.258	34.000	726.000	1105.000	1040.000	950.000	1040.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	400.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	599.300	0.000	597.200	100.000	596.700	200.000	598.400	270.000	597.800	300.000
GR	598.900	400.000	597.700	500.000	591.300	600.000	589.100	645.000	592.600	700.000
GR	593.400	726.000	592.200	777.000	586.900	802.000	586.500	890.000	584.800	897.000
GR	584.500	901.000	587.100	909.000	588.000	960.000	587.700	1006.000	581.200	1015.000
GR	579.400	1020.000	578.700	1030.000	578.500	1040.000	578.000	1050.000	579.100	1060.000
GR	580.400	1070.000	580.800	1080.000	581.300	1084.000	588.300	1105.000	589.200	1200.000
GR	591.000	1260.000	594.100	1300.000	599.900	1335.000	601.500	1400.000	0.000	0.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
NH	3.000	.030	995.000	.040	1065.000	.050	1276.000	0.000	0.000	0.000
X1	14.523	28.000	990.000	1085.000	1350.000	1400.000	1400.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	1300.000	0.000	0.000	0.000	0.000
GR	600.200	0.000	597.500	87.000	597.100	100.000	594.400	200.000	594.100	300.000
GR	593.200	400.000	591.300	500.000	588.200	600.000	588.100	700.000	588.400	800.000
GR	588.700	900.000	591.100	984.000	590.800	990.000	580.200	995.000	579.100	1000.000
GR	578.400	1010.000	578.900	1020.000	579.100	1030.000	579.400	1040.000	579.700	1050.000
GR	581.300	1060.000	581.600	1065.000	588.500	1078.000	589.700	1085.000	588.800	1100.000
GR	587.700	1200.000	589.000	1245.000	602.200	1276.000	0.000	0.000	0.000	0.000
QT	4.000	8830.000	13600.000	15400.000	20200.000	0.000	0.000	0.000	0.000	0.000
H	6.000	.040	300.000	.030	600.000	.070	610.000	.040	665.000	.050
[illegible]	680.000	.100	1500.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	15.057	33.000	600.000	680.000	2600.000	2300.000	2820.000	0.000	0.000	0.000
	0.000	0.000	0.000	250.000	0.000	0.000	0.000	0.000	0.000	0.000
GP	599.800	0.000	600.800	100.000	598.200	200.000	596.600	300.000	596.900	335.000
	593.700	400.000	593.000	500.000	592.700	600.000	583.400	610.000	581.900	515.000

GR	581.300	620.000	579.000	630.000	[illegible]	[illegible]	580.000	550.000	581.300	655.000
GR	583.000	660.000	583.900	665.000	[illegible]	668.000	588.400	680.000	590.000	700.000
GR	589.100	800.000	591.500	865.000	585.800	875.000	586.100	884.000	591.300	904.000
GR	590.700	1000.000	590.500	1100.000	590.300	1200.000	591.500	1300.000	591.500	1329.000
GR	598.000	1363.000	598.700	1400.000	599.700	1500.000	0.000	0.000	0.000	0.000
NH	5.000	.040	1079.000	.100	1111.000	.040	1180.000	.100	2030.000	.040
NH	2565.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	15.722	41.000	1079.000	1200.000	2100.000	2700.000	3510.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	1000.000	0.000	2200.000	0.000	0.000	600.100	0.000
GR	601.500	0.000	600.100	100.000	600.300	200.000	597.900	300.000	596.500	368.000
GR	589.200	383.000	589.200	385.000	596.200	400.000	597.800	500.000	598.900	600.000
GR	599.600	700.000	599.500	776.000	599.300	800.000	600.200	900.000	601.400	1000.000
GR	600.700	1079.000	582.700	1111.000	579.300	1120.000	579.600	1130.000	578.700	1140.000
GR	578.200	1150.000	578.000	1160.000	580.000	1170.000	532.300	1180.000	594.100	1200.000
GR	592.600	1300.000	591.200	1400.000	591.600	1500.000	589.200	1600.000	590.200	1700.000
GR	590.200	1800.000	591.300	1900.000	593.400	2000.000	593.400	2030.000	596.600	2075.000
GR	596.800	2100.000	598.100	2200.000	599.400	2300.000	600.100	2400.000	598.100	2500.000
GR	598.700	2565.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
NH	5.000	.040	1079.000	.100	1119.000	.040	1177.000	.100	2030.000	.040
NH	2565.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	15.733	49.000	1087.000	1202.000	60.000	60.000	60.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	1000.000	0.000	2400.000	0.000	0.000	0.000	0.000
GR	601.500	0.000	600.100	100.000	600.300	200.000	597.900	300.000	596.500	368.000
GR	589.200	383.000	589.200	385.000	596.200	400.000	597.800	500.000	598.900	600.000
GR	599.600	700.000	599.500	776.000	599.300	800.000	600.200	900.000	601.400	1000.000
GR	600.700	1079.000	595.900	1087.000	590.400	1097.000	587.900	1119.000	583.300	1122.000
GR	581.000	1127.000	578.900	1137.000	578.900	1143.000	595.900	1143.000	595.900	1146.500
GR	578.600	1146.500	578.400	1157.000	578.700	1167.000	578.500	1177.000	578.000	1187.000
GR	580.800	1197.000	583.100	1202.000	594.100	1202.000	592.600	1300.000	591.200	1400.000
GR	591.600	1500.000	539.200	1600.000	590.200	1700.000	590.200	1800.000	591.300	1900.000
GR	593.400	2000.000	593.400	2030.000	596.600	2075.000	596.800	2100.000	598.100	2200.000
GR	599.400	2300.000	600.100	2400.000	598.100	2500.000	598.700	2565.000	0.000	0.000
SB	0.000	1.650	3.040	0.000	115.000	0.000	1477.500	0.000	578.000	578.000
NH	3.000	.090	1087.000	.040	1202.000	.090	2565.000	0.000	0.000	0.000
X1	15.740	0.000	0.000	0.000	34.000	34.000	34.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	595.900	596.200	0.000	0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	1000.000	0.000	2400.000	0.000	0.000	0.000	0.000
BT	24.000	0.000	601.500	0.000	100.000	600.100	0.000	200.000	600.300	0.000
BT	300.000	597.900	0.000	400.000	596.200	0.000	500.000	597.800	0.000	600.000
BT	598.900	0.000	700.000	599.600	0.000	776.000	599.500	0.000	800.000	599.300
BT	0.000	900.000	600.200	0.000	1000.000	601.400	0.000	1079.000	600.700	0.000
BT	1087.000	600.600	595.900	1143.000	600.100	595.900	1146.500	600.100	595.900	1202.000
BT	600.200	595.900	1202.000	600.200	594.100	1300.000	600.000	0.000	1400.000	600.000
BT	0.000	1500.000	599.700	0.000	2200.000	598.100	0.000	2300.000	599.400	0.000
BT	2400.000	600.100	0.000	2500.000	598.100	0.000	2565.000	598.700	0.000	0.000
NH	6.000	.050	412.000	.055	445.000	.045	520.000	.060	525.000	.050
NH	775.000	.035	925.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	16.063	25.000	325.000	525.000	1650.000	1650.000	1705.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	601.300	0.000	600.400	29.000	599.700	125.000	601.000	225.000	601.600	325.000
GR	599.100	412.000	591.900	429.000	586.100	435.000	584.200	445.000	583.200	455.000
GR	581.600	465.000	580.100	475.000	578.200	485.000	576.400	495.000	577.000	505.000
GR	580.400	515.000	583.900	520.000	589.400	525.000	591.300	534.000	589.200	625.000
GR	593.300	714.000	592.900	725.000	597.800	825.000	600.700	875.000	601.700	925.000
NC	0.000	0.000	0.000	.100	.500	0.000	0.000	0.000	0.000	0.000
NH	5.000	1.000	107.000	.060	566.000	.040	634.000	.100	760.000	.070
NH	1038.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	16.396	24.000	560.000	641.000	1700.000	1650.000	1760.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	50.000	0.000	800.000	0.000	0.000	0.000	0.000
GR	601.200	0.000	600.200	53.000	600.200	66.000	591.400	107.000	589.400	160.000
GR	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

GR	589.100	280.000	588.700	360.000	589.200	460.000	589.700	560.000	584.800	[illegible]
GR	584.200	580.000	583.300	590.000	582.300	600.000	581.800	610.000	582.100	620.000
GR	581.400	630.000	583.300	634.000	591.300	641.000	593.700	664.000	594.600	733.000
GR	598.300	760.000	599.500	860.000	598.900	960.000	600.900	1038.000	0.000	0.000
NH	7.000	1.000	700.000	.100	1300.000	.080	1704.000	.100	1711.000	.040
NH	1733.000	.100	1781.000	.040	2120.000	0.000	0.000	0.000	0.000	0.000
X1	16.866	35.000	1704.000	1792.000	2400.000	2300.000	2480.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	800.000	0.000	1900.000	0.000	0.000	0.000	0.000
GR	603.900	0.000	602.800	100.000	602.000	200.000	600.900	300.000	599.800	400.000
GR	599.800	500.000	598.800	600.000	598.700	700.000	597.900	800.000	597.800	900.000
GR	597.300	1000.000	595.900	1100.000	593.000	1200.000	593.400	1300.000	593.900	1400.000
GR	593.600	1500.000	593.000	1600.000	593.400	1704.000	584.800	1711.000	582.100	1720.000
GR	582.300	1730.000	582.400	1740.000	582.200	1750.000	582.000	1760.000	582.200	1765.000
GR	584.700	1773.000	591.000	1781.000	595.500	1792.000	596.000	1800.000	600.100	1893.000
GR	600.600	1947.000	600.200	2000.000	600.600	2055.000	604.100	2100.000	605.100	2120.000
NH	6.000	.040	1000.000	.100	1308.000	.075	1319.000	.040	1371.000	.075
NH	1396.000	.040	1625.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	17.089	29.000	1308.000	1396.000	1100.000	1100.000	1180.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	950.000	0.000	1500.000	0.000	0.000	0.000	0.000
GR	601.800	0.000	601.300	100.000	599.300	200.000	598.900	300.000	598.900	400.000
GR	598.500	500.000	598.400	600.000	598.000	700.000	598.100	800.000	597.800	822.000
GR	593.400	900.000	591.900	1000.000	592.000	1100.000	592.400	1200.000	593.200	1300.000
GR	593.400	1308.000	586.800	1319.000	585.700	1325.000	584.900	1330.000	582.600	1340.000
GR	583.200	1350.000	583.200	1360.000	584.800	1371.000	589.400	1378.000	589.800	1387.000
GR	595.000	1396.000	598.900	1425.000	599.800	1500.000	601.300	1625.000	0.000	0.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

```
*****************************************
HEC2 VERSION UPDATED JAN 1976
ERROR CORRECTIONS 01,02,03,04,05,06,07,08,09
MODIFICATIONS 52,53,54,55,56,57,58
*****************************************

T1      CLINTON TOWNSHIP - JOB NO. 5670-02  PROJECT MANAGER  WILLIAM ROSSOW
T2      100 YEAR FLOOD = 7100 CFS
T3         CLINTON RIVER

J1  ICHECK     INQ      NINV      IDIR      STRT      METRIC     HVINS        Q        WSEL       FQ
             -1.        4.        0.        0.  0.000000      0.00       0.0       0.    561.040     0.000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH        FN      ALLDC       IBW      CHNIM     ITRACE
          3.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
```

```
 CCHV=      .100 CEHV=      .300
 1490 NH CARD USED
 3280 CROSS SECTION       6.06 EXTENDED       6.74 FEET

       SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
       Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
       TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
       SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST

 3470 ENCROACHMENT STATIONS=          .0       291.0  TYPE=       1  TARGET=       290.999

                 VALLEY SECTION A                                                      1

        6.06     16.44    581.04      0.00    581.04    581.22       .18      0.00      0.00    585.50
       6800.        0.     6800.        0.        0.     1992.        0.        0.        0. 100000.00
        0.00      0.00      3.41      0.00     0.000      .035     0.000     0.000    564.60     92.93
     .000249     1260.     1260.     1260.         0         0         1      0.00    198.07    291.00

 1490 NH CARD USED
 3280 CROSS SECTION       6.49 EXTENDED       2.74 FEET

 3470 ENCROACHMENT STATIONS=          .0       282.0  TYPE=       1  TARGET=       281.999
 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       581.10 ELREA=       585.20

                 VALLEY SECTION B                                                      2

        6.49     16.24    581.64      0.00      0.00    581.88       .24       .64       .02    581.10
       6800.        2.     6798.        0.        4.     1732.        0.       98.       10.    585.20
         .16       .56      3.92      0.00      .020      .035     0.000      .030    565.40     28.48
     .000323     2070.     2280.     2400.         2         0         1      0.00    176.45    204.93

 1490 NH CARD USED
 3470 ENCROACHMENT STATIONS=       100.0       360.0  TYPE=       1  TARGET=      -100.000

                 VALLEY SECTION C                                                      3

        6.88     13.10    582.30      0.00      0.00    582.47       .17       .58       .01    578.90
       6800.       56.     6716.       27.       41.     2018.       37.      189.       19.    579.40
         .34      1.38      3.33       .74      .030      .035      .040      .030    569.20    100.00
     .000245     2300.     2080.     1950.         2         0         1      0.00    225.45    325.45

 1490 NH CARD USED

                 VALLEY SECTION D                                                      4

        7.10     19.43    582.53      0.00      0.00    582.79       .25       .29       .03    589.70
       6800.        0.     6800.        0.        0.     1678.        0.      238.       24.    585.10
         .41      0.00      4.05      0.00      .030      .035      .040      .030    563.10     38.78
     .000275     1125.     1125.     1125.         2         0         1      0.00    142.25    181.03
```

1490 NH CARD USED

7.14	16.90	582.60	0.00	0.00	582.86	.26	.07	.00	594.00
6800.	0.	6800.	0.	0.	1657.	0.	247.	25.	591.20
.43	0.00	4.10	0.00	.030	.035	.040	.030	565.70	100.40
.000316	250.	250.	250.	0	0	1	0.00	138.89	239.29

3265 DIVIDED FLOW

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

NORMAL BRIDGE,NRD= 9 MIN ELTRD= 587.30 MAX ELLC= 590.60

7.14	16.89	582.59	0.00	0.00	582.87	.28	.00	.01	594.00
6800.	0.	6800.	0.	0.	1592.	0.	247.	25.	591.20
.43	0.00	4.27	0.00	.030	.030	.030	.030	565.70	100.42
.000444	1.	1.	1.	1	0	1	0.00	133.04	239.26

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD= 9 MIN ELTRD= 587.30 MAX ELLC= 590.60

BRIDGE SECTION E DICKINSON STREET UPSTREAM FACE 5

7.15	16.92	582.62	0.00	0.00	582.90	.28	.03	.00	594.00
6800.	0.	6800.	0.	0.	1595.	0.	250.	25.	591.20
.43	0.00	4.26	0.00	.030	.030	.030	.030	565.70	100.33
.000443	58.	58.	58.	0	0	1	0.00	133.29	239.42

1490 NH CARD USED

7.16	16.94	582.64	0.00	0.00	582.90	.26	.00	.00	594.00
6800.	0.	6800.	0.	0.	1663.	0.	250.	25.	591.20
.43	0.00	4.09	0.00	.030	.040	.030	.030	565.70	100.24
.000409	1.	1.	1.	2	0	1	0.00	139.37	239.[illegible]1

1490 NH CARD USED

7.16	16.84	582.74	0.00	0.00	582.92	.18	.01	.01	576.90
6800.	204.	6421.	175.	131.	1829.	104.	251.	25.	579.10
.44	1.56	3.51	1.67	.030	.040	.030	.030	565.90	27.02
.000239	40.	40.	40.	2	0	1	0.00	200.51	227.54

1490 NH CARD USED

VALLEY SECTION F 6

7.22	14.88	582.78	0.00	0.00	583.04	.27	.10	.02	578.90
6800.	89.	6650.	61.	58.	1592.	44.	265.	27.	581.10
.46	1.54	4.18	1.40	.030	.040	.030	.030	567.90	42.14
.000405	315.	315.	315.	2	0	1	0.00	178.16	220.29

1490 NH CARD USED

7.25	16.92	582.92	0.00	0.00	583.10	.18	.05	.01	577.00

```
    6800.      210.     6411.      180.      135.     1839.      107.      272.       27.     579.20
     .47      1.55      3.49      1.68      .030      .040      .030      .030    566.00     26.39
 .000234      165.      165.      165.         2         0         1      0.00    201.45    227.84

 1490 NH CARD USED
    7.29     19.01    582.91      0.00      0.00    583.18       .27       .05       .03    601.90
   6800.        0.     6800.        0.        0.     1628.        0.      280.       28.     595.50
     .48      0.00      4.18      0.00      .030      .040      .030      .030    563.90    163.00
 .000361      185.      185.      185.         2         0         1      0.00    110.00    273.00


 3265 DIVIDED FLOW

   SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS   BANK ELEV
       Q      QLOB       QCH      QROB      ALOB       ACH      AROB       VOL       TWA  LEFT/RIGHT
    TIME      VLOB       VCH      VROB       XNL      XNCH       XNR       WTN     ELMIN        SSTA
   SLOPE     XLOBL      XLCH     XLOBR    ITRIAL       IDC     ICONT     CORAR    TOPWID       ENDST


 NORMAL BRIDGE,NRD=29 MIN ELTRD=  592.40 MAX ELLC=  597.90

    7.29     18.99    582.89      0.00      0.00    583.19       .30       .00       .01    601.90
   6800.        0.     6800.        0.        0.     1543.        0.      280.       28.     595.50
     .48      0.00      4.41      0.00      .026      .026      .026      .030    563.90    163.00
 .000339        1.        1.        1.         2         0         1      0.00    104.00    273.00


 3265 DIVIDED FLOW

 NORMAL BRIDGE,NRD=29 MIN ELTRD=  592.40 MAX ELLC=  597.90

                  BRIDGE SECTION G  CROCKER BLVD.  UPSTREAM FACE                  7

    7.30     19.00    582.90      0.00      0.00    583.20       .30       .01       .00    601.90
   6800.        0.     6800.        0.        0.     1545.        0.      281.       28.     595.50
     .49      0.00      4.40      0.00      .026      .026      .026      .030    563.90    163.00
 .000338       42.       42.       42.         0         0         1      0.00    104.00    273.00

 1490 NH CARD USED
    7.30     19.04    582.94      0.00      0.00    583.21       .27       .00       .00    601.90
   6800.        0.     6800.        0.        0.     1631.        0.      282.       28.     595.50
     .49      0.00      4.17      0.00      .026      .040      .026      .030    563.90    163.00
 .000362        1.        1.        1.         2         0         1      0.00    110.00    273.00

 1490 NH CARD USED

 3470 ENCROACHMENT STATIONS=         1.0     343.0  TYPE=      1  TARGET=      -1.000
    7.30     19.11    583.11      0.00      0.00    583.24       .13       .02       .01    575.00
   6800.      345.     6204.      251.      280.     2105.      192.      285.       28.     577.20
     .49      1.23      2.95      1.30      .040      .041      .040      .030    564.00      1.00
 .000150       70.       70.       70.         2         0         1      0.00    234.94    235.94

 CCHV=     .100 CEHV=     .300
 1490 NH CARD USED

 3470 ENCROACHMENT STATIONS=          .0     411.0  TYPE=      1  TARGET=     410.999
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               VALLEY SECTION H                                                    8

      7.73     17.04    583.54      0.00      0.00    583.69       .15       .44       .01    586.20
     6800.        0.     5450.     1350.        0.     1624.      785.      412.       43.    578.40
       .70      0.00      3.36      1.72      .040      .040      .040      .035    566.50     25.27
   .000280     2330.     2225.     2130.         2         0         1      0.00    339.93    365.20

 1490 NH CARD USED

 3470 ENCROACHMENT STATIONS=       80.0    1279.0  TYPE=     1  TARGET=    1199.000

               VALLEY SECTION I                                                    9

      8.02     19.52    583.92      0.00      0.00    583.99       .07       .29       .01    577.50
     6800.      529.     4376.     1895.      613.     1670.     3088.      555.       69.    579.50
       .92       .86      2.62       .61      .040      .036      .079      .037    564.40    172.29
   .000132     1300.     1541.     1700.         2         0         1      0.00   1100.45   1272.75

 1490 NH CARD USED

 3470 ENCROACHMENT STATIONS=      288.0    1245.0  TYPE=     1  TARGET=     957.000

               VALLEY SECTION J                                                   10

      8.28     14.69    584.09      0.00      0.00    584.24       .15       .23       .02    579.50
     6800.     1167.     5499.      134.     1588.     1625.      275.      683.       98.    581.40
      1.05       .73      3.38       .49      .060      .036      .090      .039    569.40    299.61
   .000237     1300.     1345.     1150.         2         0         1      0.00    930.68   1230.29

 1490 NH CARD USED
     SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS  BANK ELEV
         Q      QLOB       QCH      QROB      ALOB       ACH      AROB       VOL       TWA LEFT/RIGHT
      TIME      VLOB       VCH      VROB       XNL      XNCH       XNR       WTN     ELMIN      SSTA
     SLOPE     XLOBL      XLCH     XLOBR    ITRIAL       IDC     ICONT     CORAR    TOPWID     ENDST

 3470 ENCROACHMENT STATIONS=          .0    1153.0  TYPE=     1  TARGET=    1152.999

               VALLEY SECTION K                                                   11

      8.71     11.89    584.49      0.00      0.00    584.53       .04       .28       .01    583.00
     6800.     2172.     3862.      766.     2234.     2048.      846.      869.      139.    582.20
      1.44       .97      1.89       .90      .040      .035      .030      .041    572.60      7.92
   .000087     1400.     2295.     2200.         2         0         1      0.00   1112.29   1120.21

 CCHV=     .300 CEHV=     .500
 1490 NH CARD USED
  WATER EL=X5 CARD=   584.400

 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      584.10 ELREA=       585.70

      8.72     16.60    584.40      0.00      0.00    584.62       .22       .00       .09    584.10
    21300.     3926.    17374.        0.     2168.     4244.        0.      872.      140.    585.70
      1.44      1.81      4.09      0.00      .035      .030      .030      .041    567.80      8.18
   .000233       20.       20.       20.         0         0         1      0.00    894.82    903.00

 1490 NH CARD USED

 3470 ENCROACHMENT STATIONS=      355.0     996.6  TYPE=     1  TARGET=    -355.000
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 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=        584.60 ELREA=        585.70

        8.92     16.65    584.55      0.00      0.00    585.08       .52       .31       .15    584.60
      21300.        0.    21300.        0.        0.     3671.        0.      995.      154.     585.70
        1.49      0.00      5.80      0.00      .035      .027      .030      .040    567.90    445.16
     .000351     1001.     1087.     1106.         1         0         1      0.00    297.36    742.52

 1490 NH CARD USED

 3470 ENCROACHMENT STATIONS=     154.0     951.4  TYPE=     1  TARGET=    -154.000

 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=        584.90 ELREA=        585.80

        8.97     16.69    584.59      0.00      0.00    585.24       .65       .10       .07    584.90
      21300.        0.    21300.        0.        0.     3280.        0.     1016.      156.     585.80
        1.50      0.00      6.49      0.00      .035      .027      .030      .040    567.90    406.84
     .000423      240.      258.      268.         2         0         1      0.00    254.97    661.80

 1490 NH CARD USED

 3470 ENCROACHMENT STATIONS=     200.0     706.2  TYPE=     1  TARGET=    -200.000

 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=        585.20 ELREA=        585.80

        9.02     16.70    584.60      0.00      0.00    585.47       .87       .12       .11    585.20
      21300.        0.    21300.        0.        0.     2847.        0.     1034.      157.     585.80
        1.51      0.00      7.48      0.00      .035      .027      .030      .040    567.90    368.05
     .000539      240.      258.      268.         2         0         1      0.00    213.31    581.35

 1490 NH CARD USED

 3470 ENCROACHMENT STATIONS=     235.0     561.0  TYPE=     1  TARGET=    -235.000

 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=        585.50 ELREA=        585.90

                    VALLEY SECTION L                                                  12

        9.07     16.67    584.57      0.00      0.00    585.84      1.27       .16       .20    585.50
      21300.        0.    21300.        0.        0.     2354.        0.     1050.      158.     585.90
        1.52      0.00      9.05      0.00      .035      .027      .030      .040    567.90    329.12
     .000762      240.      258.      268.         2         0         1      0.00    171.50    500.61

 1490 NH CARD USED
       SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS  BANK ELEV
       Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
       TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
       SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST

 3470 ENCROACHMENT STATIONS=     198.7     569.3  TYPE=     1  TARGET=    -220.000

 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=        588.35 ELREA=        588.65

        9.11     19.07    585.22      0.00      0.00    586.05       .83       .08       .13    588.35
      21300.        0.    21300.        0.        0.     2907.        0.     1058.      159.     588.65
        1.53      0.00      7.33      0.00      .035      .029      .030      .040    566.15    284.78
     .000489      138.      138.      138.         2         0         1      0.00    194.43    479.22

 1490 NH CARD USED
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```
 3470 ENCROACHMENT STATIONS=      241.8       453.0  TYPE=       1  TARGET=       262.000
        9.14     19.98    585.26      0.00      0.00    586.14       .86       .08       .01    593.00
     21300.         0.    21300.         0.         0.     2865.         0.     1067.      159. 100000.00
        1.53      0.00      7.44      0.00      .035      .032      .030      .040    565.30    241.80
     .000664      138.      138.      138.         2         0         1      0.00    211.17    452.97

 3265 DIVIDED FLOW

 NORMAL BRIDGE,NRD=39 MIN ELTRD=   590.00 MAX ELLC=   590.40

        9.14     19.96    585.26      0.00      0.00    586.17       .91       .00       .03    595.70
     21300.         0.    21300.         0.         0.     2776.         0.     1067.      159.    596.80
        1.53      0.00      7.67      0.00      .018      .018      .018      .040    565.30    241.80
     .000418        1.        1.        1.         2         0         1      0.00    206.34    452.97

 3265 DIVIDED FLOW

 NORMAL BRIDGE,NRD=39 MIN ELTRD=   590.00 MAX ELLC=   590.40

                  BRIDGE SECTION M  N.B. GRATIOT AVE.  UPSTREAM FACE            13

        9.15     19.99    585.29      0.00      0.00    586.20       .91       .03       .00    595.70
     21300.         0.    21300.         0.         0.     2783.         0.     1071.      160.    596.80
        1.53      0.00      7.65      0.00      .018      .018      .018      .040    565.30    241.80
     .000415       67.       67.       67.         0         0         1      0.00    206.34    452.97

 1490 NH CARD USED

 3470 ENCROACHMENT STATIONS=      241.8       453.0  TYPE=       1  TARGET=       262.000
        9.15     20.07    585.37      0.00      0.00    586.22       .85       .00       .02    593.00
     21300.         0.    21300.         0.         0.     2883.         0.     1071.      160. 100000.00
        1.53      0.00      7.39      0.00      .018      .032      .018      .040    565.30    241.80
     .000652        1.        1.        1.         2         0         1      0.00    211.17    452.97

 1490 NH CARD USED

 3265 DIVIDED FLOW

 3470 ENCROACHMENT STATIONS=      128.7       349.4  TYPE=       1  TARGET=       228.000
        9.21     16.47    585.57      0.00      0.00    586.63      1.07       .30       .11    598.60
     21300.         0.    21300.         0.         0.     2572.         0.     1092.      161. 100000.00
        1.54      0.00      8.28      0.00      .018      .032      .018      .039    569.10    128.74
     .001355      333.      333.      333.         1         0         1      0.00    202.31    349.45

       SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS  BANK ELEV
           Q      QLOB       QCH      QROB      ALOB       ACH      AROB       VOL       TWA  LEFT/RIGHT
        TIME      VLOB       VCH      VROB       XNL      XNCH       XNR       WTN     ELMIN      SSTA
       SLOPE     XLOBL      XLCH     XLOBR    ITRIAL       IDC     ICONT     CORAR    TOPWID     ENDST

 NORMAL BRIDGE,NRD=23 MIN ELTRD=   593.50 MAX ELLC=   593.40

        9.21     16.32    585.42      0.00      0.00    586.78      1.36       .00       .15    598.60
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  21300.        0.   21300.        0.        0.    2275.        0.    1092.     161.    599.30
   1.54      0.00     9.36      0.00      .018      .018      .018      .039   569.10    128.74
 .000870       1.       1.        1.         2         0         1  -432.43   220.70    349.45

NORMAL BRIDGE,NRD=23 MIN ELTRD=   593.50 MAX ELLC=   593.40

                BRIDGE SECTION N  S.B. GRATIOT AVE.  UPSTREAM FACE          14

   9.23     16.39   585.49      0.00      0.00    586.84      1.35       .05      .00    598.60
  21300.       0.   21300.        0.        0.    2286.        0.    1095.     162.    599.30
   1.55      0.00     9.32      0.00      .018      .018      .018      .039   569.10    128.74
 .000857      62.      62.       62.         0         0         1  -436.51   220.70    349.45

1490 NH CARD USED

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=      124.6      338.2  TYPE=      1  TARGET=      220.700
   9.23     16.69   585.79      0.00      0.00    586.91      1.12       .00      .07    598.60
  21300.       0.   21300.        0.        0.    2508.        0.    1096.     162. 100000.00
   1.55      0.00     8.49      0.00      .018      .036      .018      .039   569.10    128.74
 .001658       1.       1.        1.         2         0         1     0.00   191.08    338.22

1490 NH CARD USED

3470 ENCROACHMENT STATIONS=         .0      480.0  TYPE=      1  TARGET=      479.999
   9.25     16.93   585.93      0.00      0.00    587.09      1.16       .16      .02    533.30
  21300.    1536.   19631.      133.      394.    2198.       68.    1103.     162.    583.70
   1.55      3.89     8.93      1.97      .027      .032      .027      .039   569.00     73.84
 .001104     120.     120.      120.         1         0         1     0.00   361.80    435.64

CCHV=      .100 CEHV=      .300
1490 NH CARD USED
3280 CROSS SECTION       9.37 EXTENDED        .30 FEET

3470 ENCROACHMENT STATIONS=         .0      550.0  TYPE=      1  TARGET=      549.999
   9.37     18.50   586.90      0.00      0.00    587.68       .78       .55      .04    582.70
  21300.    2448.   18399.      452.      631.    2465.      195.    1147.     168.    583.10
   1.58      3.88     7.47      2.32      .027      .032      .027      .038   568.40     46.25
 .000683     644.     644.      644.         2         0         1     0.00   425.90    472.15

1490 NH CARD USED
3280 CROSS SECTION       9.49 EXTENDED        .28 FEET

3470 ENCROACHMENT STATIONS=         .0      533.0  TYPE=      1  TARGET=      532.999

                VALLEY SECTION O                                            15

   9.49     19.69   587.49      0.00      0.00    588.06       .58       .37      .02    582.10
  21300.    3069.   17412.      820.      819.    2664.      321.    1199.     175.    582.50
   1.61      3.75     6.53      2.55      .027      .032      .027      .038   567.80     43.67
 .000480     644.     644.      644.         0         0         1     0.00   453.84    497.51

1490 NH CARD USED
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 1490 NH CARD USED
  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


 3470 ENCROACHMENT STATIONS=        .0     410.0   TYPE=      1   TARGET=      409.999
     9.63     19.45    587.70      0.00      0.00    588.44       .74       .32       .05    582.75
   21300.      958.    19743.      600.      378.     2765.      254.     1259.      182.    582.65
     1.63      2.53      7.14      2.36      .032      .028      .027      .037    568.25     28.04
  .000424      720.      720.      720.         2         0         1      0.00    381.96    410.00

 1490 NH CARD USED

 3470 ENCROACHMENT STATIONS=        .0     296.0   TYPE=      1   TARGET=      295.999

                    VALLEY SECTION P                                              16

     9.77     19.19    587.89      0.00      0.00    588.86       .97       .35       .07    584.50
   21300.       85.    21063.      152.       54.     2652.       89.     1310.      187.    584.00
     1.66      1.57      7.94      1.71      .032      .028      .032      .036    568.70     23.84
  .000569      720.      720.      720.         2         0         1      0.00    264.91    288.74

 1490 NH CARD USED

 3470 ENCROACHMENT STATIONS=        .0     445.0   TYPE=      1   TARGET=      444.999
     9.86     20.32    588.36      0.00      0.00    589.09       .73       .21       .02    583.94
   21300.     1313.    19802.      185.      577.     2790.      109.     1341.      190.    584.24
     1.68      2.27      7.10      1.70      .032      .028      .032      .036    568.04     30.86
  .000430      428.      428.      428.         2         0         1      0.00    402.93    433.85

 1490 NH CARD USED
     9.94     21.30    588.68      0.00      0.00    589.28       .60       .17       .01    584.48
   21300.     3150.    18044.      106.     1360.     2702.       66.     1378.      195.    585.48
     1.70      2.32      6.68      1.61      .036      .029      .027      .036    567.38     50.45
  .000387      428.      428.      428.         2         0         1      0.00    522.45    572.90

 1490 NH CARD USED

 3470 ENCROACHMENT STATIONS=     450.0     832.4   TYPE=      1   TARGET=     -450.000
    10.07     22.66    588.86      0.00      0.00    589.73       .87       .37       .08    585.30
   21300.     1756.    19526.       18.      608.     2518.       14.     1442.      202.    587.50
     1.73      2.89      7.75      1.29      .036      .031      .027      .035    566.20    450.00
  .000625      764.      764.      764.         2         0         1      0.00    324.62    774.62

 1490 NH CARD USED

 3470 ENCROACHMENT STATIONS=     600.0     892.0   TYPE=      1   TARGET=     -600.000

                    VALLEY SECTION Q                                              17

    10.09     22.93    588.83      0.00      0.00    589.95      1.12       .14       .07    585.60
   21300.      372.    20923.        5.      139.     2448.        5.     1454.      203.    588.00
     1.73      2.68      8.55       .91      .036      .033      .027      .035    565.90    600.00
  .000884      191.      191.      191.         2         0         1      0.00    224.65    824.65

 1490 NH CARD USED

 3470 ENCROACHMENT STATIONS=  [illegible]
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 3470 ENCROACHMENT STATIONS=       670.0       973.0  TYPE=      1   TARGET=     -670.000

 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=         596.88 ELREA=         597.68

       10.12     21.45    588.83      0.00      0.00    590.23      1.40       .20       .08    596.88
      21300.        0.    21300.        0.        0.     2246.        0.     1464.      204.     597.68
        1.74      0.00      9.48      0.00      .036      .041      .027      .035    567.38    687.87
     .001524      175.      175.      175.         2         0         1      0.00    129.74    817.61


 CCHV=     .300 CEHV=     .500
 1490 NH CARD USED
       10.13     20.75    588.75      0.00      0.00    590.50      1.75       .09       .18    602.50
      21300.        0.    21300.        0.        0.     2005.        0.     1467.      204.     602.80
        1.74      0.00     10.62      0.00      .036      .036      .027      .035    568.00    700.44
     .001598       58.       58.       58.         2         0         1      0.00    122.07    822.51


 3265 DIVIDED FLOW

       SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS   BANK ELEV
           Q      QLOB       QCH      QROB      ALOB       ACH      AROB       VOL       TWA  LEFT/RIGHT
        TIME      VLOB       VCH      VROB       XNL      XNCH       XNR       WTN     ELMIN      SSTA
       SLOPE     XLOBL      XLCH     XLOBR    ITRIAL       IDC     ICONT     CORAR    TOPWID     ENDST


 NORMAL BRIDGE,NRD=17 MIN ELTRD=   602.10 MAX ELLC=   594.10

       10.13     20.61    588.61      0.00      0.00    590.64      2.03       .00       .14    602.50
      21300.        0.    21300.        0.        0.     1861.        0.     1467.      204.     602.80
        1.74      0.00     11.44      0.00      .018      .018      .018      .035    568.00    700.45
     .000824        1.        1.        1.         2         0         1      0.00    115.57    822.50


 3265 DIVIDED FLOW

 NORMAL BRIDGE,NRD=17 MIN ELTRD=   602.10 MAX ELLC=   594.10

                               BRIDGE SECTION R  GRAND TRUNK AND WESTERN R.R.  UPSTREAM FACE 18

       10.14     20.64    588.64      0.00      0.00    590.67      2.02       .03       .00    602.50
      21300.        0.    21300.        0.        0.     1866.        0.     1468.      204.     602.80
        1.74      0.00     11.42      0.00      .018      .018      .018      .035    568.00    700.45
     .000819       32.       32.       32.         0         0         1      0.00    115.58    822.50

 1490 NH CARD USED
       10.14     21.09    589.09      0.00      0.00    590.77      1.68       .00       .10    602.50
      21300.        0.    21300.        0.        0.     2048.        0.     1468.      204.     602.80
        1.74      0.00     10.40      0.00      .018      .036      .018      .035    568.00    700.41
     .001491        1.        1.        1.         2         0         1      0.00    122.12    822.53

 1490 NH CARD USED
       10.15     22.12    589.68      0.00      0.00    590.98      1.29       .09       .12    601.96
      21300.        0.    21300.        0.        0.     2336.        0.     1472.      205.     602.26
        1.74      0.00      9.12      0.00      .018      .036      .018      .035    567.56    649.93
     .001048       70.       70.       70.         2         0         1      0.00    131.00    780.93

 1490 NH CARD USED
```

10.17	23.03	590.14	0.00	0.00	591.13	.98	.06	.09	601.51
21300.	0.	21300.	0.	0.	2675.	0.	1476.	205.	601.71
1.74	0.00	7.96	0.00	.018	.036	.018	.035	567.11	598.60
.000737	70.	70.	70.	2	0	1	0.00	141.75	740.35

1490 NH CARD USED

10.19	24.49	590.71	0.00	0.00	591.32	.61	.07	.11	600.62
21300.	0.	21300.	0.	0.	3399.	0.	1486.	205.	600.62
1.75	0.00	6.27	0.00	.018	.036	.018	.034	566.22	497.20
.000404	140.	140.	140.	2	0	1	0.00	164.14	661.34

1490 NH CARD USED

10.25	26.74	591.14	0.00	0.00	591.48	.34	.08	.08	599.90
21300.	0.	21300.	0.	0.	4545.	0.	1512.	206.	599.60
1.77	0.00	4.69	0.00	.018	.036	.018	.034	564.40	285.96
.000205	287.	287.	287.	2	0	1	0.00	199.54	485.50

3265 DIVIDED FLOW

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

NORMAL BRIDGE,NRD=19 MIN ELTRD= 598.50 MAX ELLC= 594.10

10.25	26.72	591.12	0.00	0.00	591.49	.37	.00	.01	599.90
21300.	0.	21300.	0.	0.	4384.	0.	1512.	206.	599.60
1.77	0.00	4.86	0.00	.018	.018	.018	.034	564.40	285.96
.000109	1.	1.	1.	1	0	1	0.00	193.33	485.50

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD=19 MIN ELTRD= 598.50 MAX ELLC= 594.10

BRIDGE SECTION S GROESBECK HIGHWAY (M-97) UPSTREAM FACE 19

10.26	26.73	591.13	0.00	0.00	591.50	.37	.01	.00	599.90
21300.	0.	21300.	0.	0.	4386.	0.	1520.	207.	599.60
1.77	0.00	4.86	0.00	.018	.018	.018	.034	564.40	285.96
.000109	85.	85.	85.	1	0	1	0.00	193.33	485.50

1490 NH CARD USED

10.26	26.77	591.17	0.00	0.00	591.51	.34	.00	.01	599.90
21300.	0.	21300.	0.	0.	4551.	0.	1520.	207.	599.60
1.77	0.00	4.68	0.00	.018	.036	.018	.034	564.40	285.96
.000204	1.	1.	1.	2	0	1	0.00	199.54	485.50

1490 NH CARD USED

10.32	26.06	591.46	0.00	0.00	591.61	.16	.05	.05	585.00
21300.	4859.	12350.	4091.	2001.	3396.	1665.	1562.	210.	584.30
1.80	2.43	3.64	2.46	.027	.036	.027	.034	565.40	130.55
.000137	320.	310.	330.	2	0	1	0.00	725.20	855.75

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CCHV=     .100 CEHV=     .300
1490 NH CARD USED

3470 ENCROACHMENT STATIONS=        .0     877.0  TYPE=      1  TARGET=     876.999

                 VALLEY SECTION T                                             20

I     10.38     25.27    591.47      0.00      0.00    591.67       .20       .05       .01    585.80
    21300.     4178.    13586.     3536.     1758.     3262.     1481.     1613.      216.     585.10
      1.83      2.38      4.16      2.39      .027      .032      .027      .034    566.20    148.41
   .000148      330.      320.      340.         2         0         1      0.00    701.78    850.18

1490 NH CARD USED

3470 ENCROACHMENT STATIONS=     520.0     927.0  TYPE=      1  TARGET=    -520.000

                 VALLEY SECTION U                                             21

      10.70     21.36    591.66      0.00      0.00    592.20       .54       .43       .10    585.50
J   21300.     3569.    17580.      151.      982.     2794.      126.     1807.      235.     579.50
      1.90      3.63      6.29      1.21      .027      .042      .090      .033    570.30    520.00
   .000586     1530.     1660.     1620.         2         0         1      0.00    382.65    902.65

1490 NH CARD USED

3470 ENCROACHMENT STATIONS=     550.0    1433.0  TYPE=      1  TARGET=    -550.000

                 VALLEY SECTION V                                             22

      10.82     24.04    592.14      0.00      0.00    592.47       .33       .25       .02    583.40
K   21300.      330.    15150.     5820.      274.     2944.     2005.     1875.      243.     583.00
      1.95      1.21      5.15      2.90      .063      .036      .027      .032    568.10    550.00
   .000263      650.      650.      650.         2         0         1      0.00    615.77   1165.77

CCHV=     .300 CEHV=     .500
1490 NH CARD USED
    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

3470 ENCROACHMENT STATIONS=     556.7     743.4  TYPE=      1  TARGET=     196.500
      10.85     27.15    592.15      0.00      0.00    592.61       .46       .07       .07    585.70
    21300.        0.    21065.      235.        0.     3854.      404.     1891.      245.     591.00
      1.95       .01      5.47       .58      .040      .061      .090      .032    565.00    556.70
   .001057      150.      150.      150.         2         0         1      0.00    551.40   1108.10

                                                                                        Moravian

SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.00      1.55      3.05      0.00    197.50      0.00   3423.90      0.00    565.00    565.00

PRESSURE AND WEIR FLOW

   EGPRS     EGLWC     H3        QWEIR     QPR       BAREA     ELLC      ELTRD     CLASS

   593.08    592.61      0.00      769.    20477.     3424.    589.90    591.10     30.00
```

3470 ENCROACHMENT STATIONS= 556.7 743.4 TYPE= 1 TARGET= 196.500

BRIDGE SECTION W MORAVIAN DRIVE UPSTREAM FACE 23

10.85	27.65	592.65	0.00	0.00	593.01	.36	.40	0.00	585.70
21300.	0.	19571.	1729.	0.	3947.	589.	1894.	245.	591.00
1.95	.01	4.96	2.94	.090	.090	.040	.032	565.00	556.70
.003328	32.	32.	32.	2	0	3	0.00	562.03	1118.73

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 500.0 1785.0 TYPE= 1 TARGET= -500.000

* additional section

10.91	26.44	593.10	0.00	0.00	593.22	.12	.14	.07	574.36
21300.	819.	11432.	9048.	702.	3036.	10991.	1983.	254.	579.96
1.99	1.17	3.77	.82	.077	.041	.110	.033	566.66	500.00
.000150	300.	300.	470.	2	0	1	0.00	1256.18	1756.18

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 550.0 2520.0 TYPE= 1 TARGET= -550.000

* additional section

11.05	22.37	593.17	0.00	0.00	593.38	.20	.12	.04	578.50
21300.	303.	12013.	8983.	229.	2541.	10300.	2120.	269.	584.10
2.05	1.32	4.73	.87	.100	.041	.110	.035	570.80	550.00
.000298	750.	750.	330.	2	0	1	0.00	1823.76	2373.76

1490 NH CARD USED

VALLEY SECTION X 25

11.29	24.16	593.56	0.00	0.00	593.62	.07	.21	.04	593.20
15000.	0.	4853.	10146.	3.	1415.	13428.	2317.	292.	581.70
2.19	.07	3.43	.76	.100	.040	.104	.038	569.40	26.04
.000191	1350.	1268.	500.	2	0	1	0.00	2136.85	2162.89

1490 NH CARD USED

11.39	23.62	593.57	0.00	0.00	593.73	.16	.06	.05	591.20
15000.	36.	6757.	8207.	125.	1465.	9293.	2345.	296.	582.30
2.22	.29	4.61	.88	.100	.040	.106	.039	569.95	96.70
.000335	479.	529.	37.	2	0	1	0.00	1946.52	2043.22

CCHV= .100 CEHV= .300
1490 NH CARD USED

3265 DIVIDED FLOW

11.70	22.28	593.87	0.00	0.00	594.19	.31	.41	.05	585.20
15000.	1352.	8940.	4708.	1791.	1629.	1807.	2448.	316.	584.40
2.28	.75	5.49	2.61	.114	.046	.040	.043	571.59	319.30
.000591	1486.	1586.	110.	2	0	1	0.00	1259.19	1615.02

1490 NH CARD USED

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

[illegible].089	[illegible]	[illegible]	[illegible]	.622	0.000	[illegible]	[illegible]	1180.000
17.089	13600.000	601.806	2.303	.559	0.000	549.999	-24.721	1180.000
17.089	15400.000	602.429	.622	.572	0.000	549.999	-24.721	1180.000
17.089	20200.000	604.011	1.582	.573	0.000	549.999	-24.721	1180.000

DATA FOR LAST CROSS SECTION

PROFILE	TYPE ENC	TARGET	TOP WIDTH AREA-ACRES	TOP WIDTH AREA-DIFF
1	1.000	550.000	687.841	0.000
2	1.000	550.000	867.054	179.213
3	1.000	550.000	900.144	212.303
4	1.000	550.000	1005.609	317.768

SUMMARY PRINTOUT FOR MULTIPLE PROFILES

CLINTON RIVER

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	HV	HL	OLOSS	QCH	DEPTH	TOPWID
6.06	1260.00	0.00	0.00	564.60	3600.00	578.27	.09	0.00	0.00	3600.00	13.67	186.80
6.06	1260.00	0.00	0.00	564.60	5900.00	580.31	.16	0.00	0.00	5900.00	15.71	195.96
6.06	1260.00	0.00	0.00	564.60	6800.00	581.04	.18	0.00	0.00	6800.00	16.44	198.07
6.06	1260.00	0.00	0.00	564.60	10000.00	583.09	.27	0.00	0.00	10000.00	18.49	204.01
6.49	2280.00	0.00	0.00	565.40	3600.00	578.70	.13	.45	.01	3600.00	13.30	156.45
6.49	2280.00	0.00	0.00	565.40	5900.00	580.88	.21	.60	.02	5900.00	15.48	158.97
6.49	2280.00	0.00	0.00	565.40	6800.00	581.64	.24	.64	.02	6797.64	16.24	176.45
6.49	2280.00	0.00	0.00	565.40	10000.00	583.83	.34	.78	.02	9796.88	18.43	210.53
6.88	2080.00	0.00	0.00	569.20	3600.00	579.18	.10	.45	.00	3599.62	9.98	187.33
6.88	2080.00	0.00	0.00	569.20	5900.00	581.50	.15	.56	.01	5858.90	12.30	216.96
6.88	2080.00	0.00	0.00	569.20	6800.00	582.30	.17	.58	.01	6716.11	13.10	225.45
6.88	2080.00	0.00	0.00	569.20	10000.00	584.60	.24	.67	.01	9677.13	15.40	245.63
7.10	1125.00	0.00	0.00	563.10	3600.00	579.37	.13	.21	.01	3600.00	16.27	128.91
7.10	1125.00	0.00	0.00	563.10	5900.00	581.73	.22	.27	.02	5900.00	18.63	138.84
7.10	1125.00	0.00	0.00	563.10	6800.00	582.53	.25	.29	.03	6800.00	19.43	142.26
7.10	1125.00	0.00	0.00	563.10	10000.00	584.85	.38	.35	.04	10000.00	21.75	152.04
7.14	250.00	0.00	0.00	565.70	3600.00	579.42	.13	.05	.00	3600.00	13.72	132.34
7.14	250.00	0.00	0.00	565.70	5900.00	581.79	.23	.07	.00	5900.00	16.09	132.34
7.14	250.00	0.00	0.00	565.70	6800.00	582.60	.26	.07	.00	6800.00	16.90	138.89
7.14	250.00	0.00	0.00	565.70	10000.00	584.95	.38	.09	.00	10000.00	19.25	166.05
7.14	1.00	587.30	590.60	565.70	3600.00	579.41	.14	.00	.00	3600.00	13.71	126.55
7.14	1.00	587.30	590.60	565.70	5900.00	581.78	.24	.00	.01	5900.00	16.08	126.55
7.14	1.00	587.30	590.60	565.70	6800.00	582.59	.28	.00	.01	6800.00	16.89	133.04
7.14	1.00	587.30	590.60	565.70	10000.00	584.93	.41	.00	.01	10000.00	19.23	160.18
7.15	58.00	587.30	590.60	565.70	3600.00	579.43	.14	.02	.00	3600.00	13.73	126.55
7.15	58.00	587.30	590.60	565.70	5900.00	581.80	.24	.02	.00	5900.00	16.10	126.55
7.15	58.00	587.30	590.60	565.70	6800.00	582.62	.28	.03	.00	6800.00	16.92	133.29
7.15	58.00	587.30	590.60	565.70	10000.00	584.96	.41	.04	.00	10000.00	19.26	160.52
7.16	1.00	0.00	0.00	565.70	3600.00	579.44	.13	.00	.00	3600.00	13.74	132.34
7.16	1.00	0.00	0.00	565.70	5900.00	581.82	.22	.00	.00	5900.00	16.12	132.34
7.16	1.00	0.00	0.00	565.70	6800.00	582.64	.26	.00	.00	6800.00	16.94	139.37
7.16	1.00	0.00	0.00	565.70	10000.00	585.00	.38	.00	.00	10000.00	19.30	166.77
7.16	40.00	0.00	0.00	565.90	3600.00	579.49	.10	.01	.00	3575.96	13.59	163.45
7.16	40.00	0.00	0.00	565.90	5900.00	581.90	.16	.01	.01	5661.71	16.00	191.00
7.16	40.00	0.00	0.00	565.90	6800.00	582.74	.18	.01	.01	6421.31	16.84	200.51
7.16	40.00	0.00	0.00	565.90	10000.00	585.16	.25	.01	.01	8859.50	19.26	236.48
7.22	315.00	0.00	0.00	567.90	3600.00	579.52	.14	.07	.01	3599.41	11.62	125.67
7.22	315.00	0.00	0.00	567.90	5900.00	581.94	.24	.09	.02	5833.61	14.04	168.65
7.22	315.00	0.00	0.00	567.90	6800.00	582.78	.27	.10	.02	6649.56	14.88	178.16
7.22	315.00	0.00	0.00	567.90	10000.00	585.19	.36	.11	.03	9349.27	17.29	213.74

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGES (CFS)	CWSEL	HV	HL	OLOSS	QCH	DEPTH	TOPWID
7.25	165.00	0.00	0.00	566.00	3600.00	579.61	.10	.04	.00	3575.26	13.61	163.71
7.25	165.00	0.00	0.00	566.00	5900.00	582.07	.16	.05	.01	5654.41	16.07	191.80
7.25	165.00	0.00	0.00	566.00	6800.00	582.92	.18	.05	.01	6410.65	16.92	201.45
7.25	165.00	0.00	0.00	566.00	10000.00	585.38	.24	.06	.01	8829.52	19.38	236.92
7.29	185.00	0.00	0.00	563.90	3600.00	579.62	.13	.04	.01	3600.00	15.72	110.00
7.29	185.00	0.00	0.00	563.90	5900.00	582.07	.23	.05	.02	5900.00	18.17	110.00
7.29	185.00	0.00	0.00	563.90	6800.00	582.91	.27	.05	.03	6800.00	19.01	110.00
7.29	185.00	0.00	0.00	563.90	10000.00	585.31	.43	.07	.06	10000.00	21.41	110.00
7.29	1.00	592.40	597.90	563.90	3600.00	579.61	.14	.00	.00	3600.00	15.71	104.00
7.29	1.00	592.40	597.90	563.90	5900.00	582.06	.25	.00	.01	5900.00	18.16	104.00
7.29	1.00	592.40	597.90	563.90	6800.00	582.89	.30	.00	.01	6800.00	18.99	104.00
7.29	1.00	592.40	597.90	563.90	10000.00	585.28	.48	.00	.02	10000.00	21.38	104.00
7.30	42.00	592.40	597.90	563.90	3600.00	579.62	.14	.01	.00	3600.00	15.72	104.00
7.30	42.00	592.40	597.90	563.90	5900.00	582.07	.25	.01	.00	5900.00	18.17	104.00
7.30	42.00	592.40	597.90	563.90	6800.00	582.90	.30	.01	.00	6800.00	19.00	104.00
7.30	42.00	592.40	597.90	563.90	10000.00	585.30	.48	.02	.00	10000.00	21.40	104.00
7.30	1.00	0.00	0.00	563.90	3600.00	579.64	.13	.00	.00	3600.00	15.74	110.00
7.30	1.00	0.00	0.00	563.90	5900.00	582.10	.23	.00	.00	5900.00	18.20	110.00
7.30	1.00	0.00	0.00	563.90	6800.00	582.94	.27	.00	.00	6800.00	19.04	110.00
7.30	1.00	0.00	0.00	563.90	10000.00	585.36	.43	.00	.01	10000.00	21.46	110.00
7.30	70.00	0.00	0.00	564.00	3600.00	579.71	.06	.01	.01	3500.88	15.71	187.69
7.30	70.00	0.00	0.00	564.00	5900.00	582.24	.11	.01	.01	5488.90	18.24	231.72
7.30	70.00	0.00	0.00	564.00	6800.00	583.11	.13	.02	.01	6203.98	19.11	234.94
7.30	70.00	0.00	0.00	564.00	10000.00	585.65	.18	.02	.03	9616.20	21.65	244.33
7.73	2225.00	0.00	0.00	566.50	3600.00	580.02	.13	.36	.02	3422.12	13.52	277.88
7.73	2225.00	0.00	0.00	566.50	5900.00	582.65	.15	.43	.01	4932.02	16.15	316.22
7.73	2225.00	0.00	0.00	566.50	6800.00	583.54	.15	.44	.01	5450.19	17.04	339.93
7.73	2225.00	0.00	0.00	566.50	10000.00	586.15	.16	.48	.00	7125.48	19.65	390.91
8.02	1541.00	0.00	0.00	564.40	3600.00	580.43	.14	.41	.00	3565.07	16.03	236.61
8.02	1541.00	0.00	0.00	564.40	5900.00	583.04	.08	.32	.01	4153.20	18.64	1051.31
8.02	1541.00	0.00	0.00	564.40	6800.00	583.92	.07	.29	.01	4375.77	19.52	1100.45
8.02	1541.00	0.00	0.00	564.40	10000.00	586.51	.05	.24	.01	5053.32	22.11	1199.00
8.28	1345.00	0.00	0.00	569.40	3600.00	580.76	.15	.34	.00	3574.62	11.36	281.08
8.28	1345.00	0.00	0.00	569.40	5900.00	583.24	.16	.26	.02	5168.79	13.84	922.55
8.28	1345.00	0.00	0.00	569.40	6800.00	584.09	.15	.23	.02	5498.86	14.69	930.63
8.28	1345.00	0.00	0.00	569.40	10000.00	586.63	.11	.17	.02	6448.12	17.23	954.83
8.71	2295.00	0.00	0.00	572.60	3600.00	581.40	.10	.58	.00	3600.00	8.80	194.78
8.71	2295.00	0.00	0.00	572.60	5900.00	583.69	.04	.33	.01	3688.85	11.09	1066.41
8.71	2295.00	0.00	0.00	572.60	6800.00	584.49	.04	.28	.01	3862.36	11.89	1112.29
8.71	2295.00	0.00	0.00	572.60	10000.00	586.91	.03	.19	.01	4443.09	14.31	1141.64

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	HV	HL	OLOSS	QCH	DEPTH	TOPWID
8.72	20.00	0.00	0.00	567.80	12600.00	581.30	.25	.01	.08	12600.00	13.50	338.11
8.72	20.00	0.00	0.00	567.80	19000.00	583.50	.37	.00	.16	19000.00	15.70	364.94
8.72	20.00	0.00	0.00	567.80	21300.00	584.40	.22	.00	.09	17374.05	16.60	894.82
8.72	20.00	0.00	0.00	567.80	28900.00	586.75	.22	.00	.09	21488.46	18.95	942.14
8.92	1087.00	0.00	0.00	567.90	12600.00	581.58	.31	.31	.03	12600.00	13.68	276.73
8.92	1087.00	0.00	0.00	567.90	19000.00	583.82	.47	.37	.05	19000.00	15.92	291.87
8.92	1087.00	0.00	0.00	567.90	21300.00	584.55	.52	.31	.15	21300.00	16.65	297.36
8.92	1087.00	0.00	0.00	567.90	28900.00	586.83	.64	.29	.21	28277.71	18.93	416.98
8.97	258.00	0.00	0.00	567.90	12600.00	581.62	.38	.08	.03	12600.00	13.72	239.98
8.97	258.00	0.00	0.00	567.90	19000.00	583.86	.58	.09	.06	19000.00	15.96	251.09
8.97	258.00	0.00	0.00	567.90	21300.00	584.59	.65	.10	.07	21300.00	16.69	254.97
8.97	258.00	0.00	0.00	567.90	28900.00	586.92	.65	.10	.00	26209.37	19.02	532.87
9.02	258.00	0.00	0.00	567.90	12600.00	581.66	.49	.09	.06	12600.00	13.76	201.99
9.02	258.00	0.00	0.00	567.90	19000.00	583.88	.77	.12	.09	19000.00	15.98	210.44
9.02	258.00	0.00	0.00	567.90	21300.00	584.60	.87	.12	.11	21300.00	16.70	213.31
9.02	258.00	0.00	0.00	567.90	28900.00	586.86	1.02	.12	.19	27620.28	18.96	400.77
9.07	258.00	0.00	0.00	567.90	12600.00	581.67	.71	.12	.11	12600.00	13.77	162.84
9.07	258.00	0.00	0.00	567.90	19000.00	583.86	1.12	.15	.18	19000.00	15.96	169.39
9.07	258.00	0.00	0.00	567.90	21300.00	584.57	1.27	.16	.20	21300.00	16.67	171.50
9.07	258.00	0.00	0.00	567.90	28900.00	586.71	1.67	.18	.32	28494.94	18.81	282.25
9.11	137.50	0.00	0.00	566.15	12600.00	582.03	.47	.06	.07	12600.00	15.88	189.57
9.11	137.50	0.00	0.00	566.15	19000.00	584.44	.74	.08	.12	19000.00	18.29	193.75
9.11	137.50	0.00	0.00	566.15	21300.00	585.22	.83	.08	.13	21300.00	19.07	194.43
9.11	137.50	0.00	0.00	566.15	28900.00	587.48	1.16	.10	.15	28900.00	21.33	196.41
9.14	137.50	0.00	0.00	565.30	12600.00	582.08	.50	.06	.01	12600.00	16.78	189.39
9.14	137.50	0.00	0.00	565.30	19000.00	584.50	.77	.07	.02	19000.00	19.20	206.26
9.14	137.50	0.00	0.00	565.30	21300.00	585.28	.86	.08	.01	21300.00	19.98	211.17
9.14	137.50	0.00	0.00	565.30	28900.00	587.57	1.16	.09	.00	28900.00	22.27	211.17
9.14	1.00	590.00	590.40	565.30	12600.00	582.06	.53	.00	.02	12600.00	16.76	184.42
9.14	1.00	590.00	590.40	565.30	19000.00	584.47	.82	.00	.03	19000.00	19.17	201.10
9.14	1.00	590.00	590.40	565.30	21300.00	585.26	.91	.00	.03	21300.00	19.96	206.34
9.14	1.00	590.00	590.40	565.30	28900.00	587.53	1.23	.00	.04	28900.00	22.23	206.34
9.15	67.00	590.00	590.40	565.30	12600.00	582.08	.53	.02	.00	12600.00	16.78	184.55
9.15	67.00	590.00	590.40	565.30	19000.00	584.50	.82	.03	.00	19000.00	19.20	201.54
9.15	67.00	590.00	590.40	565.30	21300.00	585.29	.91	.03	.00	21300.00	19.99	206.34
9.15	67.00	590.00	590.40	565.30	28900.00	587.57	1.22	.03	.00	28900.00	22.27	206.34
9.15	1.00	0.00	0.00	565.30	12600.00	582.13	.49	.00	.01	12600.00	16.83	189.59
9.15	1.00	0.00	0.00	565.30	19000.00	584.57	.76	.00	.02	19000.00	19.27	207.29
9.15	1.00	0.00	0.00	565.30	21300.00	585.37	.85	.00	.02	21300.00	20.07	211.17
9.15	1.00	0.00	0.00	565.30	28900.00	587.68	1.14	.00	.03	28900.00	22.38	211.17

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	HV	HL	OLOSS	QCH	DEPTH	TOPWID
9.21	333.00	0.00	0.00	569.10	12600.00	582.27	.68	.24	.09	12600.00	13.17	202.31
9.21	333.00	0.00	0.00	569.10	19000.00	584.76	.97	.29	.10	19000.00	15.66	202.31
9.21	333.00	0.00	0.00	569.10	21300.00	585.57	1.07	.30	.11	21300.00	16.47	202.31
9.21	333.00	0.00	0.00	569.10	28900.00	587.90	1.40	.34	.13	28900.00	18.80	202.31
9.21	1.00	593.50	593.40	569.10	12600.00	582.21	.80	.00	.06	12600.00	13.11	220.70
9.21	1.00	593.50	593.40	569.10	19000.00	584.64	1.21	.00	.12	19000.00	15.54	220.70
9.21	1.00	593.50	593.40	569.10	21300.00	585.42	1.36	.00	.15	21300.00	16.32	220.70
9.21	1.00	593.50	593.40	569.10	28900.00	587.67	1.86	.00	.23	28900.00	18.57	220.70
9.23	62.00	593.50	593.40	569.10	12600.00	582.27	.79	.04	.00	12600.00	13.17	220.70
9.23	62.00	593.50	593.40	569.10	19000.00	584.70	1.20	.05	.00	19000.00	15.60	220.70
9.23	62.00	593.50	593.40	569.10	21300.00	585.49	1.35	.05	.00	21300.00	16.39	220.70
9.23	62.00	593.50	593.40	569.10	28900.00	587.75	1.85	.06	.01	28900.00	18.65	220.70
9.23	1.00	0.00	0.00	569.10	12600.00	582.36	.72	.00	.02	12600.00	13.26	191.08
9.23	1.00	0.00	0.00	569.10	19000.00	584.95	1.02	.00	.06	19000.00	15.85	191.08
9.23	1.00	0.00	0.00	569.10	21300.00	585.79	1.12	.00	.07	21300.00	16.69	191.08
9.23	1.00	0.00	0.00	569.10	28900.00	588.25	1.46	.00	.12	28900.00	19.15	191.08
9.25	120.00	0.00	0.00	569.00	12600.00	582.41	.94	.15	.11	12504.87	13.41	213.62
9.25	120.00	0.00	0.00	569.00	19000.00	585.05	1.14	.16	.06	17972.52	16.05	320.70
9.25	120.00	0.00	0.00	569.00	21300.00	585.93	1.16	.16	.02	19630.57	16.93	361.30
9.25	120.00	0.00	0.00	569.00	28900.00	589.02	.98	.14	.14	23257.06	20.02	437.08
9.37	644.00	0.00	0.00	568.40	12600.00	583.28	.66	.57	.03	12240.72	14.88	267.51
9.37	644.00	0.00	0.00	568.40	19000.00	586.02	.77	.57	.04	17049.90	17.62	403.81
9.37	644.00	0.00	0.00	568.40	21300.00	586.90	.78	.55	.04	18399.42	18.50	425.90
9.37	644.00	0.00	0.00	568.40	28900.00	589.73	.72	.42	.03	21847.27	21.33	509.95
9.49	644.00	0.00	0.00	567.80	12600.00	583.84	.50	.38	.02	11919.76	16.04	320.54
9.49	644.00	0.00	0.00	567.80	19000.00	586.63	.57	.38	.02	16167.52	18.83	428.90
9.49	644.00	0.00	0.00	567.80	21300.00	587.49	.58	.37	.02	17411.75	19.69	453.84
9.49	644.00	0.00	0.00	567.80	28900.00	590.20	.57	.31	.01	20809.71	22.40	495.30
9.63	720.00	0.00	0.00	568.25	12600.00	584.13	.52	.31	.01	12481.82	15.88	253.81
9.63	720.00	0.00	0.00	568.25	19000.00	586.86	.70	.33	.04	17990.25	18.61	366.24
9.63	720.00	0.00	0.00	568.25	21300.00	587.70	.74	.32	.05	19742.51	19.45	381.96
9.63	720.00	0.00	0.00	568.25	28900.00	590.32	.82	.30	.08	24884.26	22.07	389.09
9.77	720.00	0.00	0.00	568.70	12600.00	584.37	.60	.29	.02	12599.87	15.67	181.61
9.77	720.00	0.00	0.00	568.70	19000.00	587.08	.88	.34	.05	18898.55	18.38	253.30
9.77	720.00	0.00	0.00	568.70	21300.00	587.89	.97	.35	.07	21062.61	19.19	264.91
9.77	720.00	0.00	0.00	568.70	28900.00	590.42	1.20	.36	.11	27808.74	21.72	296.00
9.86	427.50	0.00	0.00	568.04	12600.00	584.61	.54	.18	.01	12587.46	16.57	253.05
9.86	427.50	0.00	0.00	568.04	19000.00	587.48	.70	.20	.02	18091.62	19.44	391.37
9.86	427.50	0.00	0.00	568.04	21300.00	588.36	.73	.21	.02	19802.40	20.32	402.98
9.86	427.50	0.00	0.00	568.04	28900.00	591.09	.78	.21	.04	24791.08	23.05	428.51

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	HV	HL	OLOSS	QCH	DEPTH	TOPWID
9.94	427.50	0.00	0.00	567.38	12600.00	584.76	.57	.17	.01	12342.29	17.38	428.38
9.94	427.50	0.00	0.00	567.38	19000.00	587.76	.60	.18	.01	16719.24	20.38	496.78
9.94	427.50	0.00	0.00	567.38	21300.00	588.68	.60	.17	.01	18044.01	21.30	522.45
9.94	427.50	0.00	0.00	567.38	28900.00	591.48	.58	.16	.02	21812.07	24.10	549.92
10.07	764.00	0.00	0.00	566.20	12600.00	585.04	.70	.37	.04	12600.00	18.84	161.56
10.07	764.00	0.00	0.00	566.20	19000.00	587.98	.82	.37	.07	17772.61	21.78	311.82
10.07	764.00	0.00	0.00	566.20	21300.00	588.86	.87	.37	.08	19526.47	22.66	324.62
10.07	764.00	0.00	0.00	566.20	28900.00	591.57	.95	.35	.11	24792.04	25.37	364.23
10.09	191.00	0.00	0.00	565.90	12600.00	585.14	.73	.12	.01	12600.00	19.24	157.34
10.09	191.00	0.00	0.00	565.90	19000.00	587.98	1.02	.14	.06	18782.12	22.08	211.92
10.09	191.00	0.00	0.00	565.90	21300.00	588.83	1.12	.14	.07	20922.98	22.93	224.65
10.09	191.00	0.00	0.00	565.90	28900.00	591.42	1.37	.15	.13	27639.38	25.52	264.18
10.12	174.80	0.00	0.00	567.38	12600.00	585.26	.77	.15	.01	12600.00	17.88	127.19
10.12	174.80	0.00	0.00	567.38	19000.00	588.02	1.22	.19	.06	19000.00	20.64	129.23
10.12	174.80	0.00	0.00	567.38	21300.00	588.83	1.40	.20	.08	21300.00	21.45	129.74
10.12	174.80	0.00	0.00	567.38	28900.00	591.22	1.98	.23	.18	28900.00	23.84	131.03
10.13	58.20	0.00	0.00	568.00	12600.00	585.22	.99	.07	.11	12600.00	17.22	121.59
10.13	58.20	0.00	0.00	568.00	19000.00	587.95	1.54	.08	.16	19000.00	19.95	121.96
10.13	58.20	0.00	0.00	568.00	21300.00	588.75	1.75	.09	.18	21300.00	20.75	122.07
10.13	58.20	0.00	0.00	568.00	28900.00	591.09	2.47	.11	.24	28900.00	23.09	122.39
10.13	1.00	602.10	594.10	568.00	12600.00	585.14	1.15	.00	.08	12600.00	17.14	114.80
10.13	1.00	602.10	594.10	568.00	19000.00	587.83	1.79	.00	.12	19000.00	19.83	115.40
10.13	1.00	602.10	594.10	568.00	21300.00	588.61	2.03	.00	.14	21300.00	20.61	115.57
10.13	1.00	602.10	594.10	568.00	28900.00	590.89	2.87	.00	.20	28900.00	22.89	116.08
10.14	32.00	602.10	594.10	568.00	12600.00	585.17	1.15	.02	.00	12600.00	17.17	114.81
10.14	32.00	602.10	594.10	568.00	19000.00	587.86	1.78	.02	.00	19000.00	19.86	115.41
10.14	32.00	602.10	594.10	568.00	21300.00	588.64	2.02	.03	.00	21300.00	20.64	115.58
10.14	32.00	602.10	594.10	568.00	28900.00	590.94	2.85	.03	.00	28900.00	22.94	116.09
10.14	1.00	0.00	0.00	568.00	12600.00	585.40	.96	.00	.05	12600.00	17.40	121.61
10.14	1.00	0.00	0.00	568.00	19000.00	588.25	1.48	.00	.09	19000.00	20.25	122.00
10.14	1.00	0.00	0.00	568.00	21300.00	589.09	1.68	.00	.10	21300.00	21.09	122.12
10.14	1.00	0.00	0.00	568.00	28900.00	591.62	2.33	.00	.16	28900.00	23.62	122.46
10.15	70.00	0.00	0.00	567.56	12600.00	585.76	.74	.07	.07	12600.00	18.20	129.00
10.15	70.00	0.00	0.00	567.56	19000.00	588.77	1.14	.08	.10	19000.00	21.21	130.53
10.15	70.00	0.00	0.00	567.56	21300.00	589.68	1.29	.09	.12	21300.00	22.12	131.00
10.15	70.00	0.00	0.00	567.56	28900.00	592.44	1.78	.10	.17	28900.00	24.88	132.27
10.17	70.00	0.00	0.00	567.11	12600.00	586.04	.56	.05	.05	12600.00	18.93	139.46
10.17	70.00	0.00	0.00	567.11	19000.00	589.18	.87	.06	.08	19000.00	22.07	141.28
10.17	70.00	0.00	0.00	567.11	21300.00	590.14	.98	.06	.09	21300.00	23.03	141.75
10.17	70.00	0.00	0.00	567.11	28900.00	593.06	1.36	.07	.13	28900.00	25.95	142.43

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	HV	HL	OLOSS	QCH	DEPTH	TOPWID
10.19	140.00	0.00	0.00	566.22	12600.00	586.39	.34	.06	.07	12600.00	20.17	164.11
10.19	140.00	0.00	0.00	566.22	19000.00	589.69	.54	.07	.10	19000.00	23.47	164.13
10.19	140.00	0.00	0.00	566.22	21300.00	590.71	.61	.07	.11	21300.00	24.49	164.14
10.19	140.00	0.00	0.00	566.22	28900.00	593.81	.85	.09	.15	28900.00	27.59	164.16
10.25	287.00	0.00	0.00	564.40	12600.00	586.65	.19	.06	.05	12600.00	22.25	199.54
10.25	287.00	0.00	0.00	564.40	19000.00	590.07	.30	.07	.07	19000.00	25.67	199.54
10.25	287.00	0.00	0.00	564.40	21300.00	591.14	.34	.08	.08	21300.00	26.74	199.54
10.25	287.00	0.00	0.00	564.40	28900.00	594.38	.48	.10	.11	28900.00	29.98	199.54
10.25	1.00	598.50	594.10	564.40	12600.00	586.64	.20	.00	.01	12600.00	22.24	193.33
10.25	1.00	598.50	594.10	564.40	19000.00	590.06	.32	.00	.01	19000.00	25.66	193.33
10.25	1.00	598.50	594.10	564.40	21300.00	591.12	.37	.00	.01	21300.00	26.72	193.33
10.25	1.00	598.50	594.10	564.40	28900.00	594.36	.53	.00	.02	28900.00	29.96	199.54
10.26	85.00	598.50	594.10	564.40	12600.00	586.64	.20	.01	.00	12600.00	22.24	193.33
10.26	85.00	598.50	594.10	564.40	19000.00	590.07	.32	.01	.00	19000.00	25.67	193.33
10.26	85.00	598.50	594.10	564.40	21300.00	591.13	.37	.01	.00	21300.00	26.73	193.33
10.26	85.00	598.50	594.10	564.40	28900.00	594.38	.53	.02	.00	28900.00	29.98	199.54
10.26	1.00	0.00	0.00	564.40	12600.00	586.66	.18	.00	.00	12600.00	22.26	199.54
10.26	1.00	0.00	0.00	564.40	19000.00	590.10	.30	.00	.01	19000.00	25.70	199.54
10.26	1.00	0.00	0.00	564.40	21300.00	591.17	.34	.00	.01	21300.00	26.77	199.54
10.26	1.00	0.00	0.00	564.40	28900.00	594.45	.48	.00	.01	28900.00	30.05	199.54
10.32	310.00	0.00	0.00	565.40	12600.00	586.71	.21	.05	.01	10272.25	21.31	610.75
10.32	310.00	0.00	0.00	565.40	19000.00	590.32	.16	.05	.04	11849.63	24.92	691.41
10.32	310.00	0.00	0.00	565.40	21300.00	591.46	.16	.05	.05	12350.38	26.06	725.20
10.32	310.00	0.00	0.00	565.40	28900.00	594.93	.14	.05	.10	13736.23	29.53	635.60
10.38	320.00	0.00	0.00	566.20	12600.00	586.73	.28	.07	.02	11087.71	20.53	600.28
10.38	320.00	0.00	0.00	566.20	19000.00	590.34	.22	.05	.02	13004.67	24.14	667.92
10.38	320.00	0.00	0.00	566.20	21300.00	591.47	.20	.05	.01	13586.18	25.27	701.78
10.38	320.00	0.00	0.00	566.20	28900.00	594.94	.18	.03	.01	15192.12	28.74	810.46
10.70	1660.00	0.00	0.00	570.30	12600.00	587.17	.52	.61	.07	12508.30	16.87	249.88
10.70	1660.00	0.00	0.00	570.30	19000.00	590.57	.55	.47	.10	16548.25	20.27	380.82
10.70	1660.00	0.00	0.00	570.30	21300.00	591.66	.54	.43	.10	17579.79	21.36	382.65
10.70	1660.00	0.00	0.00	570.30	28900.00	595.02	.53	.33	.11	20472.54	24.72	388.36
10.82	650.00	0.00	0.00	568.10	12600.00	587.66	.33	.28	.02	11304.35	19.56	321.18
10.82	650.00	0.00	0.00	568.10	19000.00	591.06	.34	.26	.02	14476.90	22.96	591.26
10.82	650.00	0.00	0.00	568.10	21300.00	592.14	.33	.25	.02	15150.07	24.04	615.77
10.82	650.00	0.00	0.00	568.10	28900.00	595.48	.28	.19	.02	16730.76	27.38	690.85
10.85	150.00	0.00	0.00	565.00	12600.00	587.82	.26	.07	.02	12600.00	22.82	174.80
10.85	150.00	0.00	0.00	565.00	19000.00	591.10	.42	.07	.04	18996.36	26.10	528.92
10.85	150.00	0.00	0.00	565.00	21300.00	592.15	.46	.07	.07	21065.47	27.15	551.40
10.85	150.00	0.00	0.00	565.00	28900.00	595.43	.50	.06	.11	26505.77	30.43	620.64

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	HV	HL	OLOSS	QCH	DEPTH	TOPWID
10.85	32.00	591.10	589.90	565.00	12600.00	587.86	.26	.04	.00	12600.00	22.86	174.80
10.85	32.00	591.10	589.90	565.00	19000.00	591.43	.39	.31	0.00	19809.41	26.43	536.17
10.85	32.00	591.10	589.90	565.00	21300.00	592.65	.36	.40	0.00	19570.74	27.65	562.03
10.85	32.00	591.10	589.90	565.00	28900.00	595.71	.32	.10	0.00	20162.56	30.71	626.08
10.91	300.00	0.00	0.00	566.66	12600.00	588.18	.13	.14	.04	8504.77	21.52	1207.33
10.91	300.00	0.00	0.00	566.66	19000.00	591.92	.12	.14	.08	10704.82	25.26	1243.82
10.91	300.00	0.00	0.00	566.66	21300.00	593.10	.12	.14	.07	11432.47	26.44	1256.18
10.91	300.00	0.00	0.00	566.66	28900.00	596.10	.13	.14	.06	13922.73	29.44	1285.00
11.05	750.00	0.00	0.00	570.80	12600.00	588.26	.32	.17	.09	9888.27	17.46	1197.89
11.05	750.00	0.00	0.00	570.80	19000.00	592.00	.23	.13	.05	11615.93	21.20	1812.04
11.05	750.00	0.00	0.00	570.80	21300.00	593.17	.20	.12	.04	12013.46	22.37	1823.76
11.05	750.00	0.00	0.00	570.80	28900.00	596.19	.17	.10	.02	13594.62	25.39	1890.59
11.29	1268.00	0.00	0.00	569.40	8580.00	588.90	.21	.50	.03	4959.31	19.50	1568.54
11.29	1268.00	0.00	0.00	569.40	13300.00	592.44	.08	.25	.04	4887.90	23.04	2106.09
11.29	1268.00	0.00	0.00	569.40	15000.00	593.56	.07	.21	.04	4853.44	24.16	2136.95
11.29	1268.00	0.00	0.00	569.40	19800.00	596.49	.04	.14	.04	4902.66	27.09	2229.49
11.39	528.70	0.00	0.00	569.95	8580.00	589.01	.42	.22	.11	6470.69	19.06	1289.47
11.39	528.70	0.00	0.00	569.95	13300.00	592.46	.20	.08	.06	6754.39	22.51	1777.80
11.39	528.70	0.00	0.00	569.95	15000.00	593.57	.16	.06	.05	6756.95	23.62	1346.52
11.39	528.70	0.00	0.00	569.95	19800.00	596.49	.09	.03	.02	6684.66	26.54	2119.19
11.70	1586.30	0.00	0.00	571.59	8580.00	590.05	.44	1.05	.01	7359.48	18.46	464.64
11.70	1586.30	0.00	0.00	571.59	13300.00	592.88	.38	.54	.05	6936.31	21.29	1140.19
11.70	1586.30	0.00	0.00	571.59	15000.00	593.87	.31	.41	.05	8940.28	22.28	1259.19
11.70	1586.30	0.00	0.00	571.59	19800.00	596.64	.17	.20	.02	8348.23	25.05	1667.21
11.85	785.00	0.00	0.00	572.40	8580.00	590.65	.40	.55	.00	7610.88	18.25	443.31
11.85	785.00	0.00	0.00	572.40	13300.00	593.31	.44	.47	.02	10009.31	20.91	1062.76
11.85	785.00	0.00	0.00	572.40	15000.00	594.21	.41	.40	.03	10456.36	21.81	1136.91
11.85	785.00	0.00	0.00	572.40	19800.00	596.78	.29	.23	.04	10977.69	24.38	1373.87
11.86	78.90	0.00	0.00	572.48	8730.00	590.72	.39	.05	.00	7581.89	18.24	453.01
11.86	78.90	0.00	0.00	572.48	13500.00	593.39	.41	.06	.00	9893.42	20.91	1092.43
11.86	78.90	0.00	0.00	572.48	15200.00	594.30	.38	.05	.00	10251.73	21.82	1124.17
11.86	78.90	0.00	0.00	572.48	20000.00	596.86	.26	.04	.00	10572.47	24.38	1404.08
11.88	78.90	0.00	0.00	572.57	8730.00	590.79	.38	.05	.00	7524.19	18.22	456.74
11.88	78.90	0.00	0.00	572.57	13500.00	593.47	.39	.05	.00	9708.81	20.90	1074.67
11.88	78.90	0.00	0.00	572.57	15200.00	594.37	.35	.05	.00	10036.87	21.80	1109.57
11.88	78.90	0.00	0.00	572.57	20000.00	596.91	.24	.04	.00	10338.25	24.34	1392.22
11.93	286.80	0.00	0.00	572.89	8730.00	590.99	.34	.16	.00	7284.00	18.10	583.04
11.93	286.80	0.00	0.00	572.89	13500.00	593.69	.34	.16	.00	9331.85	20.80	941.76
11.93	286.80	0.00	0.00	572.89	15200.00	594.55	.33	.15	.00	9810.65	21.66	1052.72
11.93	286.80	0.00	0.00	572.89	20000.00	597.02	.24	.11	.00	10396.76	24.13	1427.11

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	HV	HL	OLOSS	QCH	DEPTH	TOPWID
12.02	495.40	0.00	0.00	573.40	8730.00	591.37	.17	.19	.02	5757.08	17.97	669.16
12.02	495.40	0.00	0.00	573.40	13500.00	594.06	.17	.19	.02	7285.24	20.66	767.98
12.02	495.40	0.00	0.00	573.40	15200.00	594.90	.17	.18	.02	7725.26	21.50	818.77
12.02	495.40	0.00	0.00	573.40	20000.00	597.27	.14	.14	.01	8455.33	23.87	1240.78
12.34	1670.00	0.00	0.00	573.00	8730.00	592.05	.06	.56	.01	2989.72	19.05	872.35
12.34	1670.00	0.00	0.00	573.00	13500.00	594.66	.06	.48	.01	3472.51	21.66	1003.98
12.34	1670.00	0.00	0.00	573.00	15200.00	595.48	.06	.45	.01	3645.61	22.48	1078.19
12.34	1670.00	0.00	0.00	573.00	20000.00	597.73	.06	.36	.01	4035.37	24.73	1262.75
12.54	1080.00	0.00	0.00	574.70	8730.00	592.39	.22	.45	.05	6448.94	17.69	720.26
12.54	1080.00	0.00	0.00	574.70	13500.00	594.92	.24	.39	.05	8344.28	20.22	750.00
12.54	1080.00	0.00	0.00	574.70	15200.00	595.72	.24	.37	.05	8915.50	21.02	750.00
12.54	1080.00	0.00	0.00	574.70	20000.00	597.91	.24	.31	.05	10328.75	23.21	750.00
12.80	1350.00	0.00	0.00	573.50	8730.00	592.98	.10	.46	.01	4716.69	19.48	1241.52
12.80	1350.00	0.00	0.00	573.50	13500.00	595.52	.09	.44	.01	5672.39	22.02	1420.56
12.80	1350.00	0.00	0.00	573.50	15200.00	596.31	.09	.43	.02	5940.86	22.81	1456.26
12.80	1350.00	0.00	0.00	573.50	20000.00	598.47	.07	.38	.02	6495.24	24.97	1568.32
13.14	1820.00	0.00	0.00	574.40	8730.00	593.60	.04	.55	.01	1992.97	19.20	897.75
13.14	1820.00	0.00	0.00	574.40	13500.00	596.09	.05	.52	.00	2486.32	21.69	936.17
13.14	1820.00	0.00	0.00	574.40	15200.00	596.86	.05	.51	.00	2649.63	22.46	939.81
13.14	1820.00	0.00	0.00	574.40	20000.00	598.94	.06	.46	.00	3045.77	24.54	1000.00
13.16	100.10	0.00	0.00	574.58	8730.00	593.61	.08	.02	.02	3652.90	19.03	868.87
13.16	100.10	0.00	0.00	574.58	13500.00	596.10	.09	.03	.02	4676.97	21.52	920.69
13.16	100.10	0.00	0.00	574.58	15200.00	596.87	.09	.03	.02	5006.42	22.29	946.35
13.16	100.10	0.00	0.00	574.58	20000.00	598.95	.09	.02	.02	5727.03	24.37	1275.00
13.19	75.10	0.00	0.00	574.68	8730.00	593.62	.09	.01	.00	3818.95	18.94	831.11
13.19	75.10	0.00	0.00	574.68	13500.00	596.11	.10	.02	.00	4867.03	21.43	894.11
13.19	75.10	0.00	0.00	574.68	15200.00	596.88	.10	.02	.00	5201.09	22.20	1139.05
13.19	75.10	0.00	0.00	574.68	20000.00	598.96	.10	.01	.00	5901.43	24.28	1275.00
13.22	225.30	0.00	0.00	575.03	8730.00	593.66	.09	.04	.00	3924.65	18.63	773.22
13.22	225.30	0.00	0.00	575.03	13500.00	596.15	.09	.04	.00	4878.40	21.12	1245.46
13.22	225.30	0.00	0.00	575.03	15200.00	596.93	.09	.04	.00	5128.30	21.90	1257.78
13.22	225.30	0.00	0.00	575.03	20000.00	599.01	.09	.04	.00	5661.36	23.98	1350.00
13.48	1379.50	0.00	0.00	577.20	8730.00	593.81	.01	.06	.01	1448.21	16.61	1426.10
13.48	1379.50	0.00	0.00	577.20	13500.00	596.29	.02	.06	.01	1741.60	19.09	1463.63
13.48	1379.50	0.00	0.00	577.20	15200.00	597.06	.02	.06	.01	1846.27	19.86	1505.43
13.48	1379.50	0.00	0.00	577.20	20000.00	599.13	.02	.05	.01	2121.11	21.93	1701.02
13.80	1680.00	0.00	0.00	575.90	8730.00	593.82	.13	.07	.06	5072.86	17.92	658.27
13.80	1680.00	0.00	0.00	575.90	13500.00	596.29	.15	.06	.07	6644.04	20.39	768.30
13.80	1680.00	0.00	0.00	575.90	15200.00	597.06	.15	.06	.07	7133.42	21.16	795.13
13.80	1680.00	0.00	0.00	575.90	20000.00	599.12	.16	.06	.07	8330.46	23.22	863.92

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	HV	HL	OLOSS	QCH	DEPTH	TOPWID
14.06	1380.00	0.00	0.00	577.50	8730.00	594.20	.03	.27	.01	2927.79	16.70	1105.96
14.06	1380.00	0.00	0.00	577.50	13500.00	596.68	.04	.27	.01	3751.55	19.18	1119.33
14.06	1380.00	0.00	0.00	577.50	15200.00	597.45	.04	.27	.01	4036.63	19.95	1123.47
14.06	1380.00	0.00	0.00	577.50	20000.00	599.50	.04	.25	.01	4795.96	22.00	1200.00
14.26	1040.00	0.00	0.00	578.00	8730.00	594.41	.07	.22	.02	6882.14	16.41	750.36
14.26	1040.00	0.00	0.00	578.00	13500.00	596.86	.08	.20	.02	9513.76	18.86	803.54
14.26	1040.00	0.00	0.00	578.00	15200.00	597.62	.08	.20	.02	10406.80	19.62	820.04
14.26	1040.00	0.00	0.00	578.00	20000.00	599.66	.09	.18	.02	12694.76	21.66	933.54
14.52	1400.00	0.00	0.00	578.40	8730.00	594.65	.05	.22	.00	2741.23	16.25	1067.65
14.52	1400.00	0.00	0.00	578.40	13500.00	597.08	.05	.18	.00	3169.57	18.68	1163.05
14.52	1400.00	0.00	0.00	578.40	15200.00	597.83	.05	.17	.00	3310.47	19.43	1189.38
14.52	1400.00	0.00	0.00	578.40	20000.00	599.85	.05	.15	.00	3673.23	21.45	1259.04
15.06	2820.00	0.00	0.00	579.00	8830.00	595.10	.21	.56	.05	4744.78	16.10	976.20
15.06	2820.00	0.00	0.00	579.00	13600.00	597.42	.16	.43	.03	5374.13	18.42	1109.98
15.06	2820.00	0.00	0.00	579.00	15400.00	598.16	.15	.40	.03	5588.23	19.16	1121.28
15.06	2820.00	0.00	0.00	579.00	20200.00	600.12	.14	.33	.03	6021.08	21.12	1250.00
15.72	3510.00	0.00	0.00	578.00	8830.00	596.51	.12	1.32	.01	5333.46	18.51	987.27
15.72	3510.00	0.00	0.00	578.00	13600.00	598.64	.13	1.18	.00	6885.06	20.64	1117.33
15.72	3510.00	0.00	0.00	578.00	15400.00	599.32	.13	1.14	.00	7391.58	21.32	1118.54
15.72	3510.00	0.00	0.00	578.00	20200.00	601.11	.13	.99	.00	8553.59	23.11	1167.30
15.73	60.00	0.00	0.00	578.00	8830.00	596.58	.08	.02	.01	4727.11	18.58	988.86
15.73	60.00	0.00	0.00	578.00	13600.00	598.71	.09	.02	.01	5956.81	20.71	1164.87
15.73	60.00	0.00	0.00	578.00	15400.00	599.40	.09	.02	.01	6345.47	21.40	1218.62
15.73	60.00	0.00	0.00	578.00	20200.00	601.19	.08	.02	.01	7107.31	23.19	1376.82
15.74	34.00	596.20	595.90	578.00	8830.00	597.37	.08	.78	0.00	4790.69	19.37	1059.24
15.74	34.00	596.20	595.90	578.00	13600.00	599.55	.09	.84	0.00	6313.67	21.55	1240.77
15.74	34.00	596.20	595.90	578.00	15400.00	600.00	.10	.61	0.00	6945.12	22.00	1305.47
15.74	34.00	596.20	595.90	578.00	20200.00	601.35	.12	.18	0.00	8388.65	23.35	1393.93
16.06	1705.00	0.00	0.00	576.40	8830.00	597.75	.15	.42	.04	5841.78	21.35	408.85
16.06	1705.00	0.00	0.00	576.40	13600.00	599.98	.20	.49	.06	7880.39	23.58	481.32
16.06	1705.00	0.00	0.00	576.40	15400.00	600.48	.22	.54	.06	8690.88	24.08	507.08
16.06	1705.00	0.00	0.00	576.40	20200.00	601.89	.25	.61	.07	10443.56	25.49	925.00
16.40	1760.00	0.00	0.00	581.40	8830.00	598.23	.05	.36	.01	3079.05	16.83	684.27
16.40	1760.00	0.00	0.00	581.40	13600.00	600.55	.07	.43	.01	4261.41	19.15	750.00
16.40	1760.00	0.00	0.00	581.40	15400.00	601.11	.08	.48	.01	4721.41	19.71	750.00
16.40	1760.00	0.00	0.00	581.40	20200.00	602.60	.11	.55	.01	5878.39	21.20	750.00
16.87	2480.00	0.00	0.00	582.00	8830.00	598.88	.09	.67	.02	4011.02	16.88	1065.35
16.87	2480.00	0.00	0.00	582.00	13600.00	601.25	.08	.70	.00	4627.33	19.25	1100.00
16.87	2480.00	0.00	0.00	582.00	15400.00	601.86	.08	.74	.00	4927.45	19.86	1100.00
16.87	2480.00	0.00	0.00	582.00	20200.00	603.44	.09	.82	.00	5617.44	21.44	1100.00

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	HV	HL	OLOSS	QCH	DEPTH	TOPWID
17.09	1180.00	0.00	0.00	582.60	8830.00	599.50	.17	.66	.04	4834.84	16.90	525.28
17.09	1180.00	0.00	0.00	582.60	13600.00	601.81	.20	.62	.06	6495.33	19.21	550.00
17.09	1180.00	0.00	0.00	582.60	15400.00	602.43	.22	.64	.07	7115.73	19.83	550.00
17.09	1180.00	0.00	0.00	582.60	20200.00	604.01	.26	.66	.09	8654.92	21.41	550.00

SECTION NUMBER	DISCHARGE CFS	CWSEL	CWSEL DIFF EACH Q	CWSEL DIFF EACH SECTION	CWSEL-WSELK	TOPWID	T.W. DIFF	LENGTH
6.057	3600.000	578.270	0.000	0.000	0.000	186.796	0.000	1260.000
6.057	5900.000	580.310	2.040	0.000	0.000	195.956	-9.160	1260.000
6.057	6800.000	581.040	.730	0.000	0.000	198.071	-11.276	1260.000
6.057	10000.000	583.090	2.050	0.000	0.000	204.013	-17.218	1260.000
6.489	3600.000	578.696	0.000	.426	0.000	156.454	0.000	2280.000
6.489	5900.000	580.878	2.182	.568	0.000	158.969	-2.515	2280.000
6.489	6800.000	581.643	.765	.603	0.000	176.454	-20.000	2280.000
6.489	10000.000	583.826	2.183	.736	0.000	210.527	-54.073	2280.000
6.883	3600.000	579.183	0.000	.486	0.000	187.333	0.000	2080.000
6.883	5900.000	581.499	2.316	.621	0.000	216.958	-29.625	2080.000
6.883	6800.000	582.302	.803	.658	0.000	225.454	-38.121	2080.000
6.883	10000.000	584.601	2.300	.775	0.000	245.625	-58.293	2080.000
7.096	3600.000	579.371	0.000	.188	0.000	128.906	0.000	1125.000
7.096	5900.000	581.725	2.354	.226	0.000	138.841	-9.935	1125.000
7.096	6800.000	582.534	.809	.232	0.000	142.256	-13.349	1125.000
7.096	10000.000	584.854	2.320	.253	0.000	152.045	-23.138	1125.000
7.142	3600.000	579.416	0.000	.046	0.000	132.342	0.000	250.000
7.142	5900.000	581.789	2.373	.064	0.000	132.342	0.000	250.000
7.142	6800.000	582.603	.814	.069	0.000	138.894	-6.552	250.000
7.142	10000.000	584.947	2.344	.093	0.000	166.054	-33.712	250.000
7.143	3600.000	579.409	0.000	-.007	0.000	126.546	0.000	1.000
7.143	5900.000	581.777	2.367	-.013	0.000	126.546	0.000	1.000
7.143	6800.000	582.588	.812	-.015	0.000	133.038	-6.492	1.000
7.143	10000.000	584.925	2.337	-.022	0.000	160.176	-33.630	1.000
7.154	3600.000	579.426	0.000	.016	0.000	126.546	0.000	58.000
7.154	5900.000	581.800	2.374	.023	0.000	126.546	0.000	58.000
7.154	6800.000	582.615	.815	.027	0.000	133.294	-6.748	58.000
7.154	10000.000	584.964	2.349	.039	0.000	160.522	-33.976	58.000
7.155	3600.000	579.438	0.000	.012	0.000	132.342	0.000	1.000
7.155	5900.000	581.821	2.384	.021	0.000	132.342	0.000	1.000
7.155	6800.000	582.641	.819	.025	0.000	139.374	-7.032	1.000
7.155	10000.000	585.002	2.361	.038	0.000	166.772	-34.430	1.000
7.163	3600.000	579.486	0.000	.048	0.000	163.453	0.000	40.000
7.163	5900.000	581.903	2.417	.081	0.000	190.999	-27.546	40.000
7.163	6800.000	582.737	.835	.097	0.000	200.514	-37.061	40.000
7.163	10000.000	585.159	2.422	.157	0.000	236.481	-73.028	40.000
7.222	3600.000	579.523	0.000	.037	0.000	125.666	0.000	315.000
7.222	5900.000	581.942	2.419	.039	0.000	168.650	-42.984	315.000
7.222	6800.000	582.776	.834	.038	0.000	178.156	-52.490	315.000
7.222	10000.000	585.191	2.415	.031	0.000	213.742	-88.077	315.000
7.253	3600.000	579.608	0.000	.085	0.000	163.706	0.000	165.000
7.253	5900.000	582.073	2.465	.131	0.000	191.798	-28.092	165.000
7.253	6800.000	582.920	.847	.144	0.000	201.451	-37.745	165.000
7.253	10000.000	585.379	2.459	.188	0.000	236.923	-73.216	165.000

7.288	3600.000	579.622	0.000	.014	0.000	110.000	0.000	185.000
7.288	5900.000	582.073	2.451	.000	0.000	110.000	0.000	185.000
7.288	6800.000	582.909	.837	-.010	0.000	110.000	0.000	185.000
7.288	10000.000	585.312	2.403	-.067	0.000	110.000	0.000	185.000
7.289	3600.000	579.613	0.000	-.009	0.000	104.000	0.000	1.000
7.289	5900.000	582.055	2.443	-.018	0.000	104.000	0.000	1.000
7.289	6800.000	582.888	.833	-.021	0.000	104.000	0.000	1.000
7.289	10000.000	585.277	2.389	-.035	0.000	104.000	0.000	1.000
7.296	3600.000	579.620	0.000	.008	0.000	104.000	0.000	42.000
7.296	5900.000	582.068	2.448	.013	0.000	104.000	0.000	42.000
7.296	6800.000	582.903	.835	.015	0.000	104.000	0.000	42.000
7.296	10000.000	585.299	2.396	.022	0.000	104.000	0.000	42.000
7.297	3600.000	579.636	0.000	.015	0.000	110.000	0.000	1.000
7.297	5900.000	582.096	2.461	.028	0.000	110.000	0.000	1.000
7.297	6800.000	582.938	.841	.035	0.000	110.000	0.000	1.000
7.297	10000.000	585.356	2.418	.057	0.000	110.000	0.000	1.000
7.300	3600.000	579.712	0.000	.077	0.000	187.689	0.000	70.000
7.300	5900.000	582.241	2.529	.144	0.000	231.720	-44.031	70.000
7.300	6800.000	583.112	.871	.174	0.000	234.937	-47.247	70.000
7.300	10000.000	585.655	2.543	.299	0.000	244.326	-56.637	70.000
7.731	3600.000	580.020	0.000	.308	0.000	277.885	0.000	2225.000
7.731	5900.000	582.646	2.626	.405	0.000	316.222	-38.337	2225.000
7.731	6800.000	583.538	.892	.426	0.000	339.934	-62.049	2225.000
7.731	10000.000	586.153	2.615	.498	0.000	390.907	-113.022	2225.000
8.023	3600.000	580.427	0.000	.407	0.000	236.607	0.000	1541.000
8.023	5900.000	583.035	2.608	.390	0.000	1051.314	-814.708	1541.000
8.023	6800.000	583.916	.880	.378	0.000	1100.454	-863.847	1541.000
8.023	10000.000	586.507	2.591	.354	0.000	1198.999	-962.392	1541.000
8.278	3600.000	580.764	0.000	.337	0.000	281.078	0.000	1345.000
8.278	5900.000	583.235	2.471	.200	0.000	922.553	-641.474	1345.000
8.278	6800.000	584.091	.856	.175	0.000	930.679	-649.601	1345.000
8.278	10000.000	586.634	2.543	.127	0.000	954.828	-673.750	1345.000
8.713	3600.000	581.395	0.000	.631	0.000	194.783	0.000	2295.000
8.713	5900.000	583.694	2.299	.459	0.000	1066.406	-871.623	2295.000
8.713	6800.000	584.488	.794	.398	0.000	1112.291	-917.507	2295.000
8.713	10000.000	586.908	2.420	.274	0.000	1141.638	-946.855	2295.000
8.717	12600.000	581.300	0.000	-.095	0.000	338.108	0.000	20.000
8.717	19000.000	583.500	2.200	-.194	0.000	364.538	-26.430	20.000
8.717	21300.000	584.400	.900	-.088	0.000	894.820	-556.712	20.000
8.717	28900.000	586.750	2.350	-.158	0.000	942.143	-604.034	20.000
8.922	12600.000	581.580	0.000	.280	0.000	276.726	0.000	1087.000
8.922	19000.000	583.823	2.242	.323	0.000	291.875	-15.148	1087.000
8.922	21300.000	584.555	.732	.155	0.000	297.357	-20.631	1087.000
8.922	28900.000	586.829	2.274	.079	0.000	416.983	-140.256	1087.000
8.972	12600.000	581.621	0.000	.041	0.000	239.984	0.000	258.000
8.972	19000.000	583.860	2.238	.037	0.000	251.088	-11.104	258.000
8.972	21300.000	584.588	.729	.033	0.000	254.967	-14.983	258.000
8.972	28900.000	586.922	2.334	.094	0.000	532.873	-292.889	258.000
9.023	12600.000	581.656	0.000	.034	0.000	201.993	0.000	258.000
9.023	19000.000	583.882	2.226	.022	0.000	210.441	-8.448	258.000
9.023	21300.000	584.604	.722	.016	0.000	213.307	-11.313	258.000
9.023	28900.000	586.855	2.252	-.067	0.000	400.769	-198.776	258.000

9.074	12600.000	581.667	0.000	.014	0.000	162.843	0.000	258.000
9.074	19000.000	583.860	2.193	-.022	0.000	169.388	-6.545	258.000
9.074	21300.000	584.567	.707	-.037	0.000	171.500	-8.657	258.000
9.074	28900.000	586.710	2.143	-.145	0.000	282.245	-119.402	258.000
9.106	12600.000	582.033	0.000	.366	0.000	189.575	0.000	137.500
9.106	19000.000	584.438	2.405	.578	0.000	193.753	-4.178	137.500
9.106	21300.000	585.218	.781	.651	0.000	194.434	-4.860	137.500
9.106	28900.000	587.478	2.260	.768	0.000	196.406	-6.832	137.500
9.137	12600.000	582.075	0.000	.042	0.000	189.385	0.000	137.500
9.137	19000.000	584.495	2.420	.058	0.000	206.259	-16.874	137.500
9.137	21300.000	585.284	.789	.066	0.000	211.171	-21.786	137.500
9.137	28900.000	587.570	2.286	.092	0.000	211.171	-21.786	137.500
9.138	12600.000	582.058	0.000	-.017	0.000	184.417	0.000	1.000
9.138	19000.000	584.471	2.412	-.025	0.000	201.103	-16.686	1.000
9.138	21300.000	585.256	.786	-.027	0.000	206.336	-21.919	1.000
9.138	28900.000	587.533	2.277	-.037	0.000	206.336	-21.919	1.000
9.150	12600.000	582.080	0.000	.022	0.000	184.545	0.000	67.000
9.150	19000.000	584.502	2.422	.032	0.000	201.543	-16.998	67.000
9.150	21300.000	585.291	.789	.034	0.000	206.336	-21.791	67.000
9.150	28900.000	587.574	2.284	.041	0.000	206.336	-21.791	67.000
9.151	12600.000	582.127	0.000	.046	0.000	189.594	0.000	1.000
9.151	19000.000	584.575	2.448	.073	0.000	207.289	-17.695	1.000
9.151	21300.000	585.372	.797	.081	0.000	211.171	-21.577	1.000
9.151	28900.000	587.684	2.312	.109	0.000	211.171	-21.577	1.000
9.213	12600.000	582.271	0.000	.145	0.000	202.311	0.000	333.000
9.213	19000.000	584.760	2.489	.186	0.000	202.311	-.000	333.000
9.213	21300.000	585.566	.805	.194	0.000	202.311	-.000	333.000
9.213	28900.000	587.899	2.333	.215	0.000	202.311	-.000	333.000
9.214	12600.000	582.212	0.000	-.059	0.000	220.704	0.000	1.000
9.214	19000.000	584.637	2.425	-.123	0.000	220.704	0.000	1.000
9.214	21300.000	585.418	.781	-.147	0.000	220.704	0.000	1.000
9.214	28900.000	587.668	2.250	-.230	0.000	220.704	0.000	1.000
9.225	12600.000	582.266	0.000	.054	0.000	220.704	0.000	62.000
9.225	19000.000	584.704	2.438	.067	0.000	220.704	0.000	62.000
9.225	21300.000	585.489	.785	.071	0.000	220.704	0.000	62.000
9.225	28900.000	587.752	2.263	.084	0.000	220.704	0.000	62.000
9.226	12600.000	582.362	0.000	.096	0.000	191.082	0.000	1.000
9.226	19000.000	584.946	2.584	.241	0.000	191.082	-.000	1.000
9.226	21300.000	585.787	.842	.298	0.000	191.082	-.000	1.000
9.226	28900.000	588.254	2.467	.502	0.000	191.082	-.000	1.000
9.250	12600.000	582.406	0.000	.044	0.000	213.615	0.000	120.000
9.250	19000.000	585.046	2.640	.100	0.000	320.704	-107.089	120.000
9.250	21300.000	585.929	.883	.142	0.000	361.802	-148.187	120.000
9.250	28900.000	589.018	3.089	.763	0.000	437.078	-223.463	120.000
9.371	12600.000	583.281	0.000	.875	0.000	267.508	0.000	644.000
9.371	19000.000	586.024	2.743	.978	0.000	403.808	-136.300	644.000
9.371	21300.000	586.901	.877	.972	0.000	425.902	-158.394	644.000
9.371	28900.000	589.729	2.829	.712	0.000	509.954	-242.446	644.000
9.493	12600.000	583.842	0.000	.561	0.000	320.538	0.000	644.000
9.493	19000.000	586.628	2.785	.603	0.000	428.904	-108.365	644.000
9.493	21300.000	587.485	.858	.585	0.000	453.839	-133.300	644.000
9.493	28900.000	590.199	2.714	.470	0.000	495.299	-174.760	644.000
9.629	12600.000	584.134	0.000	.292	0.000	253.809	0.000	720.000
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

9.629	19000.000	586.863	2.728	.235	0.000	366.241	-112.432	720.000
9.629	21300.000	587.696	.834	.211	0.000	381.962	-128.153	720.000
9.629	28900.000	590.325	2.629	.126	0.000	389.087	-135.278	720.000
9.765	12600.000	584.367	0.000	.233	0.000	181.607	0.000	720.000
9.765	19000.000	587.076	2.709	.213	0.000	253.295	-71.688	720.000
9.765	21300.000	587.888	.812	.192	0.000	264.905	-83.298	720.000
9.765	28900.000	590.422	2.534	.098	0.000	295.998	-114.391	720.000
9.856	12600.000	584.611	0.000	.244	0.000	253.048	0.000	427.500
9.856	19000.000	587.476	2.865	.400	0.000	391.375	-138.327	427.500
9.856	21300.000	588.358	.882	.470	0.000	402.982	-149.934	427.500
9.856	28900.000	591.094	2.736	.672	0.000	428.508	-175.460	427.500
9.937	12600.000	584.764	0.000	.153	0.000	428.383	0.000	427.500
9.937	19000.000	587.764	3.000	.288	0.000	496.785	-68.401	427.500
9.937	21300.000	588.680	.916	.321	0.000	522.448	-94.065	427.500
9.937	28900.000	591.481	2.802	.387	0.000	549.920	-121.536	427.500
10.068	12600.000	585.043	0.000	.279	0.000	161.558	0.000	764.000
10.068	19000.000	587.978	2.935	.214	0.000	311.816	-150.258	764.000
10.068	21300.000	588.863	.885	.183	0.000	324.620	-163.061	764.000
10.068	28900.000	591.567	2.704	.085	0.000	364.234	-202.675	764.000
10.089	12600.000	585.143	0.000	.100	0.000	157.343	0.000	191.000
10.089	19000.000	587.977	2.834	-.001	0.000	211.920	-54.577	191.000
10.089	21300.000	588.829	.852	-.034	0.000	224.645	-67.303	191.000
10.089	28900.000	591.421	2.592	-.145	0.000	264.180	-106.837	191.000
10.122	12600.000	585.262	0.000	.119	0.000	127.192	0.000	174.800
10.122	19000.000	588.023	2.761	.046	0.000	129.231	-2.039	174.800
10.122	21300.000	588.832	.809	.003	0.000	129.744	-2.552	174.800
10.122	28900.000	591.224	2.392	-.197	0.000	131.034	-3.842	174.800
10.132	12600.000	585.219	0.000	-.043	0.000	121.589	0.000	58.200
10.132	19000.000	587.949	2.730	-.074	0.000	121.962	-.372	58.200
10.132	21300.000	588.745	.796	-.087	0.000	122.070	-.481	58.200
10.132	28900.000	591.090	2.345	-.134	0.000	122.390	-.800	58.200
10.133	12600.000	585.140	0.000	-.079	0.000	114.800	0.000	1.000
10.133	19000.000	587.826	2.686	-.123	0.000	115.400	-.600	1.000
10.133	21300.000	588.605	.779	-.140	0.000	115.573	-.774	1.000
10.133	28900.000	590.891	2.286	-.199	0.000	116.084	-1.284	1.000
10.139	12600.000	585.165	0.000	.025	0.000	114.806	0.000	32.000
10.139	19000.000	587.861	2.696	.035	0.000	115.408	-.601	32.000
10.139	21300.000	588.644	.783	.039	0.000	115.582	-.776	32.000
10.139	28900.000	590.944	2.299	.052	0.000	116.094	-1.288	32.000
10.140	12600.000	585.404	0.000	.239	0.000	121.615	0.000	1.000
10.140	19000.000	588.248	2.844	.386	0.000	122.003	-.388	1.000
10.140	21300.000	589.094	.846	.449	0.000	122.118	-.503	1.000
10.140	28900.000	591.625	2.531	.681	0.000	122.464	-.849	1.000
10.153	12600.000	585.765	0.000	.360	0.000	128.997	0.000	70.000
10.153	19000.000	588.772	3.008	.524	0.000	130.532	-1.535	70.000
10.153	21300.000	589.684	.912	.591	0.000	130.998	-2.001	70.000
10.153	28900.000	592.442	2.758	.817	0.000	132.272	-3.275	70.000
10.166	12600.000	586.045	0.000	.280	0.000	139.459	0.000	70.000
10.166	19000.000	589.183	3.138	.411	0.000	141.279	-1.820	70.000
10.166	21300.000	590.145	.962	.460	0.000	141.755	-2.296	70.000
10.166	28900.000	593.061	2.917	.619	0.000	142.434	-2.975	70.000
10.192	12600.000	586.386	0.000	.341	0.000	164.108	0.000	140.000
10.192	19000.000	589.686	3.300	.503	0.000	164.129	-.021	140.000
10.192	21300.000	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

10.192	21300.000	590.708	1.021	.562	0.000	164.156	-.028	140.000
10.192	28900.000	593.811	3.105	.750	0.000	164.156	-.048	140.000
10.245	12600.000	586.645	0.000	.259	0.000	199.540	0.000	287.000
10.245	19000.000	590.070	3.425	.384	0.000	199.540	0.000	287.000
10.245	21300.000	591.136	1.066	.429	0.000	199.540	0.000	287.000
10.245	28900.000	594.385	3.249	.574	0.000	199.540	0.000	287.000
10.246	12600.000	586.638	0.000	-.007	0.000	193.326	0.000	1.000
10.246	19000.000	590.059	3.420	-.011	0.000	193.326	0.000	1.000
10.246	21300.000	591.123	1.065	-.013	0.000	193.326	0.000	1.000
10.246	28900.000	594.362	3.239	-.023	0.000	199.540	-6.214	1.000
10.261	12600.000	586.644	0.000	.006	0.000	193.326	0.000	85.000
10.261	19000.000	590.068	3.423	.009	0.000	193.326	0.000	85.000
10.261	21300.000	591.133	1.065	.010	0.000	193.326	0.000	85.000
10.261	28900.000	594.384	3.251	.022	0.000	199.540	-6.214	85.000
10.262	12600.000	586.663	0.000	.019	0.000	199.540	0.000	1.000
10.262	19000.000	590.097	3.434	.030	0.000	199.540	0.000	1.000
10.262	21300.000	591.167	1.070	.034	0.000	199.540	0.000	1.000
10.262	28900.000	594.448	3.281	.064	0.000	199.540	0.000	1.000
10.317	12600.000	586.705	0.000	.043	0.000	610.752	0.000	310.000
10.317	19000.000	590.324	3.618	.226	0.000	691.410	-80.658	310.000
10.317	21300.000	591.456	1.132	.289	0.000	725.205	-114.453	310.000
10.317	28900.000	594.931	3.475	.483	0.000	835.601	-224.849	310.000
10.381	12600.000	586.725	0.000	.020	0.000	600.276	0.000	320.000
10.381	19000.000	590.339	3.613	.015	0.000	667.922	-67.646	320.000
10.381	21300.000	591.470	1.131	.014	0.000	701.777	-101.501	320.000
10.381	28900.000	594.943	3.472	.012	0.000	810.462	-210.186	320.000
10.695	12600.000	587.172	0.000	.447	0.000	249.876	0.000	1660.000
10.695	19000.000	590.574	3.401	.235	0.000	380.819	-130.943	1660.000
10.695	21300.000	591.662	1.088	.192	0.000	382.652	-132.776	1660.000
10.695	28900.000	595.021	3.359	.079	0.000	388.356	-138.480	1660.000
10.818	12600.000	587.663	0.000	.491	0.000	321.182	0.000	650.000
10.818	19000.000	591.063	3.400	.490	0.000	591.258	-270.076	650.000
10.818	21300.000	592.141	1.078	.480	0.000	615.769	-294.587	650.000
10.818	28900.000	595.484	3.343	.463	0.000	690.850	-369.668	650.000
10.846	12600.000	587.822	0.000	.159	0.000	174.800	0.000	150.000
10.846	19000.000	591.098	3.276	.035	0.000	528.924	-354.124	150.000
10.846	21300.000	592.147	1.049	.005	0.000	551.398	-376.598	150.000
10.846	28900.000	595.434	3.287	-.051	0.000	620.644	-445.844	150.000
10.853	12600.000	587.864	0.000	.042	0.000	174.800	0.000	32.000
10.853	19000.000	591.431	3.567	.333	0.000	536.167	-361.368	32.000
10.853	21300.000	592.646	1.215	.499	0.000	562.033	-387.233	32.000
10.853	28900.000	595.713	3.067	.280	0.000	626.075	-451.276	32.000
10.910	12600.000	588.178	0.000	.315	0.000	1207.327	0.000	300.000
10.910	19000.000	591.924	3.745	.493	0.000	1243.825	-36.498	300.000
10.910	21300.000	593.096	1.172	.450	0.000	1256.183	-48.856	300.000
10.910	28900.000	596.099	3.003	.386	0.000	1284.999	-77.672	300.000
11.052	12600.000	588.258	0.000	.079	0.000	1197.888	0.000	750.000
11.052	19000.000	592.001	3.743	.077	0.000	1812.035	-614.148	750.000
11.052	21300.000	593.175	1.174	.079	0.000	1823.764	-625.876	750.000
11.052	28900.000	596.186	3.011	.087	0.000	1890.594	-692.707	750.000
11.292	8580.000	588.901	0.000	.643	0.000	1568.541	0.000	1268.000
11.292	13300.000	592.443	3.541	.442	0.000	2106.094	-537.552	1268.000
11.292	15000.000	593.559	1.116	.384	0.000	2136.845	-568.304	1268.000
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

11.292	19800.000	596.489	2.931	.004	0.000	2229.488	-860.947	1266.000
11.393	8580.000	589.015	0.000	.113	0.000	1289.469	0.000	528.700
11.393	13300.000	592.463	3.448	.020	0.000	1777.796	-488.327	528.700
11.393	15000.000	593.570	1.107	.011	0.000	1946.522	-657.053	528.700
11.393	19800.000	596.494	2.924	.004	0.000	2119.189	-829.720	528.700
11.695	8580.000	590.054	0.000	1.039	0.000	464.637	0.000	1586.300
11.695	13300.000	592.876	2.823	.413	0.000	1140.191	-675.554	1586.300
11.695	15000.000	593.873	.997	.303	0.000	1259.188	-794.551	1586.300
11.695	19800.000	596.639	2.766	.145	0.000	1667.211	-1202.574	1586.300
11.845	8580.000	590.651	0.000	.597	0.000	443.306	0.000	785.000
11.845	13300.000	593.306	2.656	.430	0.000	1062.762	-619.456	785.000
11.845	15000.000	594.208	.901	.335	0.000	1136.907	-693.601	785.000
11.845	19800.000	596.783	2.575	.144	0.000	1373.865	-930.559	785.000
11.860	8730.000	590.722	0.000	.071	0.000	453.010	0.000	78.900
11.860	13500.000	593.392	2.670	.086	0.000	1092.434	-639.425	78.900
11.860	15200.000	594.296	.904	.088	0.000	1124.172	-671.163	78.900
11.860	20000.000	596.859	2.563	.076	0.000	1404.076	-951.066	78.900
11.875	8730.000	590.786	0.000	.064	0.000	456.736	0.000	78.900
11.875	13500.000	593.473	2.687	.081	0.000	1074.666	-617.930	78.900
11.875	15200.000	594.372	.899	.076	0.000	1109.571	-652.835	78.900
11.875	20000.000	596.912	2.540	.053	0.000	1392.221	-935.484	78.900
11.929	8730.000	590.993	0.000	.207	0.000	583.043	0.000	286.800
11.929	13500.000	593.685	2.692	.212	0.000	941.755	-358.712	286.800
11.929	15200.000	594.550	.864	.178	0.000	1052.723	-469.680	286.800
11.929	20000.000	597.019	2.470	.108	0.000	1427.109	-844.066	286.800
12.023	8730.000	591.371	0.000	.378	0.000	669.165	0.000	495.400
12.023	13500.000	594.062	2.691	.377	0.000	767.981	-98.816	495.400
12.023	15200.000	594.904	.842	.354	0.000	818.768	-149.604	495.400
12.023	20000.000	597.272	2.368	.252	0.000	1240.775	-571.611	495.400
12.339	8730.000	592.053	0.000	.682	0.000	872.353	0.000	1670.000
12.339	13500.000	594.662	2.609	.600	0.000	1003.975	-131.622	1670.000
12.339	15200.000	595.476	.814	.572	0.000	1078.190	-205.837	1670.000
12.339	20000.000	597.728	2.252	.456	0.000	1262.750	-390.397	1670.000
12.544	8730.000	592.386	0.000	.333	0.000	720.255	0.000	1080.000
12.544	13500.000	594.921	2.535	.259	0.000	749.999	-29.744	1080.000
12.544	15200.000	595.716	.795	.240	0.000	749.999	-29.744	1080.000
12.544	20000.000	597.911	2.195	.184	0.000	749.999	-29.744	1080.000
12.799	8730.000	592.982	0.000	.596	0.000	1241.518	0.000	1350.000
12.799	13500.000	595.523	2.541	.602	0.000	1420.558	-179.040	1350.000
12.799	15200.000	596.312	.789	.596	0.000	1456.262	-214.744	1350.000
12.799	20000.000	598.466	2.154	.555	0.000	1568.322	-326.805	1350.000
13.144	8730.000	593.604	0.000	.622	0.000	897.754	0.000	1820.000
13.144	13500.000	596.091	2.487	.568	0.000	936.172	-38.418	1820.000
13.144	15200.000	596.860	.769	.549	0.000	939.812	-42.058	1820.000
13.144	20000.000	598.941	2.081	.475	0.000	999.999	-102.245	1820.000
13.163	8730.000	593.609	0.000	.004	0.000	868.871	0.000	100.100
13.163	13500.000	596.097	2.488	.006	0.000	920.694	-51.823	100.100
13.163	15200.000	596.866	.770	.006	0.000	946.347	-77.476	100.100
13.163	20000.000	598.950	2.083	.009	0.000	1274.998	-406.127	100.100
13.191	8730.000	593.620	0.000	.011	0.000	831.107	0.000	75.100
13.191	13500.000	596.108	2.489	.011	0.000	894.112	-63.005	75.100
13.191	15200.000	596.878	.770	.012	0.000	1139.052	-307.945	75.100
13.191	20000.000	598.961	2.083	.012	0.000	1274.998	-443.891	75.100

13.220	8730.000	593.660	0.000	.040	0.000	773.223	0.000	225.300
13.220	13500.000	596.152	2.492	.043	0.000	1245.459	-472.236	225.300
13.220	15200.000	596.925	.773	.047	0.000	1257.778	-484.555	225.300
13.220	20000.000	599.009	2.084	.047	0.000	1349.998	-576.775	225.300
13.481	8730.000	593.810	0.000	.150	0.000	1426.096	0.000	1379.500
13.481	13500.000	596.294	2.485	.143	0.000	1463.630	-37.534	1379.500
13.481	15200.000	597.063	.769	.138	0.000	1505.435	-79.339	1379.500
13.481	20000.000	599.131	2.068	.122	0.000	1701.024	-274.928	1379.500
13.799	8730.000	593.824	0.000	.014	0.000	658.269	0.000	1680.000
13.799	13500.000	596.293	2.469	-.001	0.000	768.301	-110.032	1680.000
13.799	15200.000	597.058	.766	-.005	0.000	795.127	-136.858	1680.000
13.799	20000.000	599.120	2.061	-.011	0.000	863.918	-205.649	1680.000
14.061	8730.000	594.204	0.000	.379	0.000	1105.959	0.000	1380.000
14.061	13500.000	596.681	2.477	.388	0.000	1119.334	-13.375	1380.000
14.061	15200.000	597.447	.767	.389	0.000	1123.473	-17.515	1380.000
14.061	20000.000	599.498	2.051	.378	0.000	1199.999	-94.040	1380.000
14.258	8730.000	594.405	0.000	.201	0.000	750.360	0.000	1040.000
14.258	13500.000	596.860	2.455	.180	0.000	803.539	-53.179	1040.000
14.258	15200.000	597.622	.762	.175	0.000	820.039	-69.679	1040.000
14.258	20000.000	599.658	2.036	.160	0.000	933.539	-183.178	1040.000
14.523	8730.000	594.653	0.000	.248	0.000	1067.653	0.000	1400.000
14.523	13500.000	597.075	2.422	.215	0.000	1163.050	-95.397	1400.000
14.523	15200.000	597.830	.755	.208	0.000	1189.377	-121.724	1400.000
14.523	20000.000	599.845	2.015	.188	0.000	1259.044	-191.391	1400.000
15.057	8830.000	595.097	0.000	.444	0.000	976.197	0.000	2820.000
15.057	13600.000	597.423	2.326	.348	0.000	1109.984	-133.788	2820.000
15.057	15400.000	598.157	.733	.326	0.000	1121.280	-145.084	2820.000
15.057	20200.000	600.115	1.959	.270	0.000	1249.999	-273.802	2820.000
15.722	8830.000	596.511	0.000	1.413	0.000	987.273	0.000	3510.000
15.722	13600.000	598.636	2.125	1.212	0.000	1117.328	-130.055	3510.000
15.722	15400.000	599.318	.682	1.161	0.000	1118.541	-131.269	3510.000
15.722	20200.000	601.113	1.795	.998	0.000	1167.298	-180.026	3510.000
15.733	8830.000	596.580	0.000	.070	0.000	988.857	0.000	60.000
15.733	13600.000	598.713	2.133	.078	0.000	1164.874	-176.017	60.000
15.733	15400.000	599.397	.684	.079	0.000	1218.620	-229.763	60.000
15.733	20200.000	601.195	1.797	.082	0.000	1376.820	-387.963	60.000
15.740	8830.000	597.369	0.000	.789	0.000	1059.237	0.000	34.000
15.740	13600.000	599.552	2.183	.838	0.000	1240.773	-181.536	34.000
15.740	15400.000	599.999	.448	.602	0.000	1305.468	-246.231	34.000
15.740	20200.000	601.346	1.347	.152	0.000	1393.928	-334.691	34.000
16.063	8830.000	597.753	0.000	.383	0.000	408.852	0.000	1705.000
16.063	13600.000	599.982	2.230	.430	0.000	481.319	-72.468	1705.000
16.063	15400.000	600.477	.495	.478	0.000	507.083	-98.231	1705.000
16.063	20200.000	601.891	1.413	.544	0.000	925.000	-516.148	1705.000
16.396	8830.000	598.227	0.000	.474	0.000	684.270	0.000	1760.000
16.396	13600.000	600.551	2.325	.569	0.000	749.999	-65.729	1760.000
16.396	15400.000	601.108	.557	.631	0.000	749.999	-65.729	1760.000
16.396	20200.000	602.597	1.489	.707	0.000	749.999	-65.729	1760.000
16.866	8830.000	598.881	0.000	.654	0.000	1065.348	0.000	2480.000
16.866	13600.000	601.247	2.366	.696	0.000	1099.999	-34.651	2480.000
16.866	15400.000	601.856	.609	.748	0.000	1099.999	-34.651	2480.000
16.866	20200.000	603.438	1.581	.841	0.000	1099.999	-34.651	2480.000

597.3

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Clinton Twp

3) WATERCOURSE: Clinton River Spillway

4) DOCUMENT TYPE: Multiple Run Profile

00BREAK00

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 $$$$$$   $$        $$$$$$$$  $$$$$$$$   $$$$$ $  $$     $$  $$$$$$$$
$$    $$  $$           $$          $$   $$    $   $$     $$     $$
$$        $$           $$          $$   $$   $$$  $$     $$     $$
$$        $$           $$          $$   $$  $ $$  $$$$$$$$$     $$
$$        $$           $$          $$   $$ $$ $$  $$     $$     $$
$$        $$           $$          $$   $$ $  $$  $$     $$     $$
$$        $$           $$          $$   $$$   $$  $$     $$     $$
$$    $$  $$           $$     $$   $$   $     $$  $$     $$     $$
 $$$$$$   $$$$$$$$  $$$$$$$$   $$$      $ $$$$$   $$     $$     $$
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RECEIVED
MAY 17 1977
WATER MANAGEMENT

CLINTON TOWNSHIP

CLINTON RIVER SPILLWAY (st pt @ L.K St. Clair)

MULTIPLE PROFILE RUN

Harrison Tp

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******************************************
HEC2 VERSION UPDATED JAN 1976
ERROR CORRECTIONS 01,02,03,04,05,06,07,08,09
MODIFICATIONS 52,53,54,55,56,57,58
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C
T1 CLINTON TOWNSHIP - JOB NO. 5670-02 PROJECT MANAGER WILLIAM C. ROSSOW
T2 10 YEAR FLOOD = 8700 CFS
T3 CLINTON RIVER SPILLWAY

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-1.	2.	-0.	-0.	-0.000000	-0.00	-0.0	-0.	575.600	-0.000

J2	NPROF	IPLOT	PREVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	-1.000	-0.000	-1.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000

J3	1.000	3.000	4.000	8.000	10.000	11.000	12.000	-0.000	-0.000	-0.000
QT	4.000	9000.000	13100.000	14500.000	18900.000	-0.000	-0.000	-0.000	-0.000	-0.000
NC	.030	.030	.025	.100	.300	-0.000	-0.000	-0.000	-0.000	-0.000
X1	0.000	30.000	161.000	423.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	577.000	0.000	577.000	22.000	577.200	25.000	577.300	41.000	577.000	62.000
GR	577.000	96.000	577.800	122.000	577.600	147.000	576.400	160.000	578.200	161.000
GR	577.000	162.000	577.000	199.000	572.400	200.000	572.200	210.000	567.600	235.000
GR	564.400	260.000	564.100	285.000	563.900	310.000	569.000	360.000	577.000	385.000
GR	577.000	422.000	577.200	423.000	578.000	444.000	578.900	449.000	577.800	456.000
GR	578.000	485.000	577.800	517.000	578.200	535.000	577.700	560.000	577.600	600.000
X1	121.000	25.000	187.000	390.000	121.000	121.000	121.000	0.000	0.000	0.000
GR	581.700	0.000	581.800	32.000	581.400	55.000	582.600	102.000	582.400	130.000
GR	581.600	162.000	580.200	187.000	576.900	195.000	572.400	200.000	572.200	210.000
GR	567.600	235.000	564.400	260.000	564.100	285.000	563.900	310.000	564.400	335.000
GR	569.000	360.000	577.100	385.000	579.700	390.000	580.300	413.000	580.400	432.000
GR	580.000	491.000	579.500	514.000	579.000	544.000	579.000	569.000	579.000	600.000
X1	521.000	19.000	195.000	385.000	400.000	400.000	400.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	582.000	581.960	0.000
GR	581.700	0.000	581.800	45.000	582.400	95.000	582.100	145.000	576.900	195.000
GR	572.400	200.000	572.200	210.000	567.600	235.000	564.400	260.000	564.100	285.000
GR	563.900	310.000	564.400	335.000	569.000	360.000	577.100	385.000	580.300	435.000
GR	580.000	485.000	579.100	535.000	579.000	585.000	579.000	600.000	-0.000	-0.000
SB	1.250	1.190	2.500	0.000	79.000	6.500	2567.000	2.940	563.900	563.900
X1	559.000	0.000	0.000	0.000	38.000	38.000	38.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	582.650	580.800	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	581.700	580.800	0.000
BT	14.000	0.000	581.700	581.700	45.000	582.800	581.800	95.000	584.040	582.400
BT	145.000	585.160	582.100	195.000	585.780	582.000	235.000	586.210	582.430	285.000
BT	586.430	582.650	335.000	586.240	582.460	385.000	585.740	581.960	435.000	584.950
BT	580.300	485.000	583.780	580.000	535.000	582.370	579.100	585.000	581.090	579.000
BT	600.000	580.800	579.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	659.000	25.000	187.000	390.000	100.000	100.000	100.000	0.000	0.000	0.000
GR	581.700	0.000	581.800	32.000	581.400	55.000	582.600	102.000	582.400	130.000
GR	581.600	162.000	580.200	187.000	576.900	195.000	572.400	200.000	572.200	210.000
GR	567.600	235.000	564.400	260.000	564.100	285.000	563.900	310.000	564.400	335.000
GR	569.000	360.000	577.100	385.000	579.700	390.000	580.300	413.000	580.400	432.000
GR	580.000	[illegible]91.000	579.500	51[illegible].000	579.000	54[illegible].000	579.000	569.000	579.000	600.000

X1	2300.000	31.000	191.000	385.000	1641.000	1641.000	1641.000	0.000	0.000	0.000
GR	584.600	0.000	585.200	31.000	583.600	50.000	589.900	79.000	598.400	104.000
GR	598.600	114.000	598.400	136.000	589.000	159.000	583.000	176.000	582.600	191.000
GR	576.900	200.000	568.900	225.000	566.400	250.000	565.200	275.000	565.200	300.000
GR	564.900	325.000	569.200	350.000	576.900	371.000	580.500	385.000	581.400	395.000
GR	591.600	426.000	594.000	443.000	594.600	462.000	595.200	490.000	594.800	499.000
GR	589.400	525.000	586.500	543.000	583.200	556.000	583.000	570.000	583.600	582.000
GR	582.200	600.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	3090.000	90.000	192.500	389.500	790.000	790.000	790.000	-0.000	-0.000	-0.000
GR	590.900	0.000	591.300	6.600	591.600	13.200	592.000	19.900	592.100	26.500
GR	592.300	33.100	592.400	39.800	590.500	46.400	587.500	53.100	585.000	59.700
GR	586.700	66.300	588.200	73.000	588.500	79.600	589.200	86.200	589.200	92.900
GR	589.700	99.500	590.400	106.200	590.300	112.800	590.200	119.400	590.200	126.100
GR	590.000	132.700	589.200	139.300	587.500	146.000	586.000	152.600	584.600	159.300
GR	583.500	165.900	582.500	172.500	581.900	179.200	581.500	185.800	581.000	192.500
GR	577.600	199.000	575.300	205.600	573.600	212.100	572.300	218.700	570.800	225.300
GR	569.400	231.800	568.100	238.400	566.900	245.000	566.100	251.500	565.700	258.100
GR	565.400	264.700	565.100	271.200	564.700	277.800	564.500	284.400	564.300	290.900
GR	564.100	297.500	564.000	304.100	563.900	310.600	563.900	317.200	564.000	323.800
GR	564.800	330.300	565.900	336.900	567.100	343.500	568.400	350.000	570.000	356.600
GR	571.900	363.200	573.900	369.700	575.800	376.300	577.500	382.900	579.200	389.500
GR	579.500	396.500	580.200	403.500	581.800	410.500	583.600	417.500	585.500	424.500
GR	586.700	431.500	587.300	438.600	587.800	445.600	588.200	452.600	588.600	459.600
GR	589.100	466.600	589.800	473.600	590.400	480.700	591.100	487.700	591.600	494.700
GR	591.900	501.700	591.700	508.700	591.500	515.700	591.300	522.800	591.000	529.800
GR	590.300	536.800	589.700	543.800	588.900	550.800	587.900	557.800	587.400	564.900
GR	586.900	571.900	586.700	578.900	586.300	585.900	585.800	592.900	585.300	600.000
X1	3880.000	38.000	194.000	394.000	790.000	790.000	790.000	-0.000	-0.000	-0.000
GR	597.300	0.000	599.400	24.000	599.000	29.000	600.900	43.000	583.800	61.000
GR	586.400	67.000	588.200	74.000	585.800	90.000	583.000	96.000	582.000	118.000
GR	582.000	131.000	580.000	150.000	580.000	170.000	581.000	182.000	579.500	194.000
GR	576.900	200.000	573.900	212.000	572.900	225.000	566.000	250.000	564.700	275.000
GR	563.100	300.000	562.700	325.000	567.400	350.000	573.200	375.000	576.900	390.000
GR	578.000	394.000	577.700	411.000	581.600	430.000	581.800	452.000	583.500	468.000
GR	587.800	494.000	592.000	521.000	593.200	531.000	593.000	543.000	593.200	556.000
GR	591.600	567.000	589.600	583.000	588.500	600.000	-0.000	-0.000	-0.000	-0.000
X1	4150.000	-0.000	-0.000	-0.000	270.000	270.000	270.000	-0.000	-0.000	-0.000
X1	4280.000	45.000	190.000	412.000	130.000	130.000	130.000	-0.000	-0.000	-0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	588.260	587.660	0.000
GR	593.800	0.000	593.490	26.000	593.300	51.000	583.800	61.000	586.400	67.000
GR	588.200	74.000	586.500	77.000	582.500	108.000	580.000	150.000	580.000	170.000
GR	581.000	182.000	580.000	190.000	579.500	194.000	580.000	195.000	576.900	200.000
GR	575.500	206.000	573.900	212.000	572.900	225.000	566.600	248.000	566.000	250.000
GR	564.700	275.000	564.000	289.000	563.100	300.000	562.700	325.000	564.000	330.000
GR	567.400	350.000	572.400	371.000	573.200	375.000	576.900	390.000	578.000	394.000
GR	577.700	411.000	578.000	412.000	581.600	430.000	581.800	452.000	582.200	454.000
GR	583.500	468.000	587.800	494.000	588.000	495.000	591.800	518.000	591.680	536.000
GR	591.700	565.000	591.600	567.000	590.100	576.000	589.600	583.000	588.500	600.000
SB	1.250	1.260	2.500	0.000	84.000	9.000	3851.000	2.800	562.700	562.700
X1	4416.000	0.000	0.000	0.000	136.000	136.000	136.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	587.860	591.600	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	593.800	591.600	0.000
BT	19.000	0.000	593.800	593.800	26.000	593.490	593.490	51.000	593.300	593.300
BT	77.000	593.160	586.500	108.000	592.860	582.500	150.000	592.620	580.000	190.000
BT	592.450	588.260	206.000	592.300	588.110	248.000	592.200	588.010	330.000	591.990
BT	587.800	371.000	591.940	587.750	412.000	591.850	587.660	454.000	591.800	582.200
BT	495.000	591.760	588.000	518.000	591.800	591.800	536.000	591.680	591.680	565.000
BT	591.700	591.700	576.000	591.650	590.100	600.000	591.600	588.500	-0.000	-0.000
X1	4516.000	38.000	194.000	394.000	100.000	100.000	100.000	0.000	0.000	0.000

X3	-0.000	-0.000	-0.000	155.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	597.300	0.000	599.400	124.000	599.000	29.000	600.900	43.000	583.800	61.000
GR	586.400	67.000	588.200	74.000	585.800	90.000	583.000	96.000	582.000	118.000
GR	582.000	131.000	580.000	150.000	580.000	170.000	581.000	182.000	579.500	194.000
GR	576.900	200.000	573.900	212.000	572.900	225.000	566.000	250.000	564.700	275.000
GR	563.100	300.000	562.700	325.000	567.400	350.000	573.200	375.000	576.900	390.000
GR	578.000	394.000	577.700	411.000	581.600	430.000	581.800	452.000	583.500	468.000
GR	587.800	494.000	592.000	521.000	593.200	531.000	593.000	543.000	593.200	556.000
GR	591.600	567.000	589.600	583.000	588.500	600.000	-0.000	-0.000	-0.000	-0.000
X1	5133.000	34.000	186.000	371.000	617.000	617.000	617.000	0.000	0.000	0.000
GR	582.200	0.000	582.800	12.000	586.600	33.000	586.400	48.000	583.200	68.000
GR	583.500	81.000	586.300	96.000	587.100	120.000	586.500	128.000	580.600	153.000
GR	580.800	173.000	582.000	186.000	576.900	200.000	573.700	212.000	571.400	225.000
GR	562.900	250.000	560.600	275.000	561.400	300.000	566.300	325.000	573.700	350.000
GR	576.900	360.000	579.400	371.000	579.600	390.000	580.600	405.000	582.800	414.000
GR	583.800	421.000	583.700	444.000	583.500	468.000	585.400	482.000	587.200	504.000
GR	587.600	530.000	588.300	553.000	589.400	574.000	590.000	600.000	-0.000	-0.000
X1	5513.000	-0.000	-0.000	-0.000	380.000	380.000	380.000	-0.000	-0.000	-0.000
X1	5533.000	47.000	156.000	404.000	20.000	20.000	20.000	-0.000	-0.000	-0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	583.920	584.540	0.000
GR	582.200	0.000	582.800	12.000	586.200	30.000	586.600	33.000	586.400	48.000
GR	583.200	68.000	583.600	72.000	583.500	81.000	586.300	96.000	587.000	114.000
GR	587.100	120.000	586.500	128.000	580.600	153.000	580.900	156.000	580.800	173.000
GR	582.000	186.000	578.100	196.000	573.700	212.000	571.400	225.000	566.700	236.000
GR	562.900	250.000	560.600	275.000	561.000	278.000	561.400	300.000	566.000	320.000
GR	566.300	325.000	573.300	350.000	576.900	360.000	578.000	362.000	579.400	371.000
GR	579.600	390.000	580.600	404.000	580.600	405.000	582.800	414.000	583.800	421.000
GR	583.700	444.000	583.900	446.000	583.500	468.000	585.400	482.000	586.300	488.000
GR	587.200	504.000	587.600	530.000	588.300	553.000	589.000	560.000	588.850	572.000
GR	589.400	574.000	589.100	600.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
SB	1.250	1.300	2.500	0.000	11.000	13.200	3044.000	5.040	560.600	560.600
X1	5666.000	0.000	0.000	0.000	133.000	133.000	133.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	584.210	587.400	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	587.400	587.400	0.000
BT	16.000	0.000	587.400	582.200	30.000	587.520	586.200	72.000	587.650	583.600
BT	114.000	587.770	587.000	156.000	587.850	583.920	196.000	587.930	584.000	236.000
BT	588.040	584.110	278.000	588.140	584.210	320.000	588.230	584.300	362.000	588.350
BT	584.420	404.000	588.470	584.540	446.000	588.530	583.900	488.000	588.600	586.300
BT	530.000	588.680	587.600	572.000	588.850	588.850	600.000	589.100	589.100	-0.000
X1	5766.000	30.000	192.000	359.000	100.000	100.000	100.000	0.000	0.000	0.000
GR	597.200	0.000	598.300	25.000	599.800	36.000	599.800	51.000	598.800	56.000
GR	586.800	79.000	586.200	100.000	586.300	118.000	585.600	129.000	582.800	151.000
GR	582.400	169.000	582.400	182.000	581.400	192.000	576.900	200.000	571.600	210.000
GR	569.700	225.000	563.900	250.000	561.700	275.000	564.900	300.000	568.900	325.000
GR	576.900	348.000	579.200	359.000	581.800	369.000	582.500	380.000	581.600	398.000
GR	587.500	410.000	587.000	422.000	587.800	447.000	588.000	470.000	587.800	500.000
X1	1.155	30.000	17.000	268.000	334.000	334.000	334.000	-0.000	-0.000	-0.000
GR	587.800	0.000	589.200	17.000	583.000	45.000	583.400	78.000	580.600	90.000
GR	576.000	95.000	574.300	98.000	571.500	108.000	570.500	118.000	566.200	128.000
GR	566.300	138.000	565.900	148.000	566.100	158.000	565.800	168.000	565.600	178.000
GR	565.800	188.000	565.800	198.000	564.900	208.000	565.900	218.000	569.900	228.000
GR	571.600	238.000	575.300	248.000	576.600	255.000	580.400	256.000	583.700	268.000
GR	583.400	311.000	586.200	325.000	587.000	368.000	588.900	468.000	588.400	568.000
X1	1.579	27.000	176.000	372.000	2240.000	2240.000	2240.000	-0.000	-0.000	-0.000
GR	598.700	0.000	594.700	23.000	586.500	44.000	585.100	72.000	585.600	176.000
GR	579.200	196.000	575.800	202.000	571.300	212.000	569.300	222.000	566.900	232.000
GR	565.800	242.000	565.900	252.000	566.100	262.000	566.500	272.000	566.500	282.000
GR	566.200	292.000	566.200	302.000	566.400	312.000	568.200	322.000	570.900	332.000
GR	573.000	342.000	576.900	353.000	581.100	357.000	586.100	372.000	586.200	472.000

GR	589.100	572.000	591.600	686.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	1.695	43.000	430.000	764.000	610.000	610.000	610.000	.794	-0.000	-0.000
GR	591.500	0.000	591.400	30.000	591.300	130.000	591.100	230.000	591.300	330.000
GR	592.100	430.000	584.500	430.000	583.400	477.000	583.400	480.000	577.100	495.000
GR	575.800	500.000	572.800	510.000	569.800	520.000	568.800	530.000	568.200	540.000
GR	570.300	549.000	564.200	550.000	564.200	553.000	562.600	560.000	563.300	570.000
GR	563.900	580.000	564.400	590.000	564.500	600.000	565.000	610.000	565.100	620.000
GR	564.100	630.000	565.100	639.000	566.100	640.000	566.100	643.000	567.500	650.000
GR	571.200	660.000	572.800	670.000	573.300	680.000	574.800	690.000	576.700	702.000
GR	584.600	712.000	584.600	715.000	586.200	764.000	592.900	764.000	592.300	830.000
GR	592.400	930.000	592.300	1030.000	592.200	1130.000	-0.000	-0.000	-0.000	-0.000
NC	-0.000	-0.000	.022	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	1.696	52.000	430.000	764.000	1.000	1.000	1.000	.794	-0.000	-0.000
X2	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	.794	-0.000
BT	20.000	0.000	591.500	0.000	30.000	591.400	0.000	130.000	591.300	0.000
BT	230.000	591.100	0.000	330.000	591.300	0.000	430.000	592.100	587.100	477.000
BT	592.200	587.200	480.000	592.200	587.200	550.000	592.300	587.300	553.000	592.300
BT	587.300	640.000	592.500	587.500	643.000	592.500	587.500	712.000	592.700	587.700
BT	715.000	592.700	587.700	764.000	592.900	587.900	764.100	592.200	0.000	830.000
BT	592.300	0.000	930.000	592.400	0.000	1030.000	592.300	0.000	1130.000	592.200
BT	0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	591.500	0.000	591.400	30.000	591.300	130.000	591.100	230.000	591.300	330.000
GR	592.100	430.000	584.500	430.000	583.400	477.000	587.200	477.000	587.200	480.000
GR	583.400	480.000	577.100	495.000	575.800	500.000	572.800	510.000	569.800	520.000
GR	568.800	530.000	568.200	540.000	570.300	549.000	564.200	550.000	587.300	550.000
GR	587.300	553.000	564.200	553.000	562.600	560.000	563.300	570.000	563.900	580.000
GR	564.400	590.000	564.500	600.000	565.000	610.000	565.100	620.000	564.100	630.000
GR	565.100	639.000	566.100	640.000	587.500	640.000	587.500	643.000	566.100	643.000
GR	567.500	650.000	571.200	660.000	572.800	670.000	573.300	680.000	574.800	690.000
GR	576.700	702.000	584.600	712.000	587.700	712.000	587.700	715.000	584.600	715.000
GR	586.200	764.000	592.900	764.000	592.200	764.100	592.300	830.000	592.400	930.000
GR	592.300	1030.000	592.200	1130.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	1.706	-0.000	-0.000	-0.000	63.000	63.000	63.000	-0.000	-0.000	-0.000
X2	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	1.000	-0.000	-0.000	-0.000
NC	-0.000	-0.000	.025	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	1.707	43.000	430.000	764.000	1.000	1.000	1.000	.794	-0.000	-0.000
GR	591.500	0.000	591.400	30.000	591.300	130.000	591.100	230.000	591.300	330.000
GR	592.100	430.000	584.500	430.000	583.400	477.000	583.400	480.000	577.100	495.000
GR	575.800	500.000	572.800	510.000	569.800	520.000	568.800	530.000	568.200	540.000
GR	570.300	549.000	564.200	550.000	564.200	553.000	562.600	560.000	563.300	570.000
GR	563.900	580.000	564.400	590.000	564.500	600.000	565.000	610.000	565.100	620.000
GR	564.100	630.000	565.100	639.000	566.100	640.000	566.100	643.000	567.500	650.000
GR	571.200	660.000	572.800	670.000	573.300	680.000	574.800	690.000	576.700	702.000
GR	584.600	712.000	584.600	715.000	586.200	764.000	592.900	764.000	592.300	830.000
GR	592.400	930.000	592.300	1030.000	592.200	1130.000	-0.000	-0.000	-0.000	-0.000
NH	3.000	.030	192.000	.025	388.000	.030	767.000	-0.000	-0.000	-0.000
X1	1.988	33.000	228.000	358.000	1485.000	1485.000	1485.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	162.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	598.400	0.000	587.000	21.000	584.700	88.000	584.700	138.000	592.500	162.000
GR	586.500	173.000	585.800	192.000	581.600	206.000	576.200	210.000	573.900	218.000
GR	570.600	228.000	568.600	238.000	568.500	248.000	568.300	258.000	568.200	268.000
GR	567.800	278.000	567.800	288.000	567.900	298.000	568.200	308.000	568.500	318.000
GR	568.700	328.000	568.900	338.000	571.500	348.000	573.300	358.000	576.500	367.000
GR	580.500	368.000	585.700	388.000	584.400	406.000	591.400	458.000	591.500	488.000
GR	592.100	588.000	593.000	692.000	593.000	767.000	-0.000	-0.000	-0.000	-0.000
NH	3.000	.030	269.000	.025	544.000	.030	1074.000	-0.000	-0.000	-0.000
X1	2.026	-0.000	-0.000	-0.000	198.000	198.000	198.000	1.400	.700	-0.000
X3	-0.000	-0.000	-0.000	226.800	-0.000	671.800	-0.000	-0.000	-0.000	-0.000
NC	-0.000	-0.000	-0.000	.300	.800	-0.000	-0.000	-0.000	-0.000	-0.000
NH	3.000	.030	327.000	.025	660.000	.030	1304.000	-0.000	-0.000	-0.000

X1	2.063	-0.000	-0.000	-0.000	197.000	197.000	197.000	1.214	.700	-0.000
X3	10.000	-0.000	-0.000	275.400	-0.000	620.400	-0.000	584.700	584.700	-0.000

X1	2.064	53.000	1340.000	1556.000	5.000	5.000	5.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	1262.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	587.200	0.000	578.300	26.000	579.500	123.000	578.500	223.000	580.000	323.000
GR	581.500	423.000	584.100	523.000	583.000	545.000	579.800	560.000	577.700	572.000
GR	576.500	574.000	575.700	578.000	573.900	588.000	573.200	598.000	573.400	608.000
GR	572.700	718.000	572.600	728.000	573.300	738.000	576.400	743.000	582.200	748.000
GR	581.900	823.000	582.400	848.000	582.800	923.000	582.800	997.000	582.300	1023.000
GR	582.400	1055.000	576.400	1069.000	576.800	1077.000	583.400	1093.000	584.600	1123.000
GR	585.400	1138.000	590.400	1153.000	585.300	1169.000	585.300	1223.000	586.100	1240.000
GR	593.300	1262.000	584.900	1282.000	584.900	1292.000	584.700	1300.000	584.700	1340.000
GR	574.700	1340.000	574.700	1393.000	574.700	1447.000	574.700	1501.000	574.700	1556.000
GR	584.700	1556.000	584.700	1594.000	591.100	1615.000	593.900	1723.000	594.600	1738.000
GR	594.400	1783.000	592.400	1807.000	592.600	1823.000	-0.000	-0.000	-0.000	-0.000
NH	5.000	.032	523.000	.063	574.000	.027	887.000	.063	908.000	.032
NH	1287.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
ET	-0.000	6.100	6.100	6.100	8.100	738.000	975.000	738.000	1600.000	-0.000

X1	8.717	41.000	523.000	959.000	20.000	20.000	20.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	584.700	-0.000
GR	587.200	0.000	578.300	26.000	579.500	123.000	578.500	223.000	580.000	323.000
GR	581.500	423.000	584.100	523.000	583.000	545.000	579.800	560.000	577.700	572.000
GR	576.500	574.000	575.700	578.000	573.900	588.000	573.200	598.000	573.400	608.000
GR	572.700	718.000	572.600	728.000	573.300	738.000	570.600	755.000	568.600	772.000
GR	568.500	789.000	568.300	806.000	568.200	823.000	567.800	840.000	567.800	857.000
GR	567.900	874.000	568.200	891.000	568.500	908.000	568.700	925.000	568.900	942.000
GR	571.500	959.000	573.300	976.000	576.500	991.300	580.500	993.000	585.700	1027.000
GR	584.400	1057.600	591.400	1146.000	591.500	1197.000	592.100	1367.000	593.000	1543.800
GR	593.000	1671.300	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
EJ	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000

SUMMARY PRINTOUT FOR MULTIPLE PROFILES

CLINTON RIVER SPILLWA

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	EG	TOPWID	DEPTH	HV	HL	OLOSS
0.00	0.00	0.00	0.00	563.90	9000.00	575.60	576.15	181.32	11.70	.55	0.00	0.00
0.00	0.00	0.00	0.00	563.90	13100.00	575.60	576.76	181.32	11.70	1.16	0.00	0.00
0.00	0.00	0.00	0.00	563.90	14500.00	575.60	577.02	181.32	11.70	1.42	0.00	0.00
0.00	0.00	0.00	0.00	563.90	18900.00	575.60	578.01	181.32	11.70	2.41	0.00	0.00
121.00	121.00	0.00	0.00	563.90	9000.00	575.73	576.22	184.45	11.83	.49	.07	.01
121.00	121.00	0.00	0.00	563.90	13100.00	575.91	576.91	185.22	12.01	1.01	.14	.02
121.00	121.00	0.00	0.00	563.90	14500.00	576.00	577.21	185.63	12.10	1.21	.17	.02
121.00	121.00	0.00	0.00	563.90	18900.00	576.49	578.33	187.67	12.59	1.84	.26	.06
521.00	400.00	0.00	0.00	563.90	9000.00	575.95	576.42	185.40	12.05	.47	.20	.00
521.00	400.00	0.00	0.00	563.90	13100.00	576.40	577.31	187.30	12.50	.90	.38	.01
521.00	400.00	0.00	0.00	563.90	14500.00	576.61	577.67	188.18	12.71	1.05	.44	.02
521.00	400.00	0.00	0.00	563.90	18900.00	577.46	578.97	190.00	13.56	1.50	.60	.03
559.00	38.00	580.80	582.65	563.90	9000.00	576.02	576.49	185.70	12.12	.46	.06	0.00
559.00	38.00	580.80	582.65	563.90	13100.00	576.58	577.45	188.03	12.68	.87	.14	0.00
559.00	38.00	580.80	582.65	563.90	14500.00	576.83	577.84	189.09	12.93	1.01	.17	0.00
559.00	38.00	580.80	582.65	563.90	18900.00	577.83	579.23	190.00	13.93	1.40	.26	0.00
659.00	100.00	0.00	0.00	563.90	9000.00	576.07	576.53	185.90	12.17	.46	.05	.00
659.00	100.00	0.00	0.00	563.90	13100.00	576.68	577.53	188.42	12.78	.85	.08	.00
659.00	100.00	0.00	0.00	563.90	14500.00	576.95	577.93	189.66	13.05	.98	.09	.00
659.00	100.00	0.00	0.00	563.90	18900.00	577.99	579.35	194.35	14.09	1.36	.11	.00
2300.00	1641.00	0.00	0.00	564.90	9000.00	576.84	577.39	170.62	11.94	.55	.83	.03
2300.00	1641.00	0.00	0.00	564.90	13100.00	577.97	578.88	176.87	13.07	.91	1.34	.02
2300.00	1641.00	0.00	0.00	564.90	14500.00	578.39	579.42	179.17	13.49	1.02	1.47	.01
2300.00	1641.00	0.00	0.00	564.90	18900.00	579.78	581.11	186.75	14.88	1.33	1.77	.00
3090.00	790.00	0.00	0.00	563.90	9000.00	577.34	577.78	182.57	13.44	.44	.38	.01
3090.00	790.00	0.00	0.00	563.90	13100.00	578.75	579.45	190.98	14.85	.69	.54	.02
3090.00	790.00	0.00	0.00	563.90	14500.00	579.25	580.03	194.89	15.35	.77	.58	.03
3090.00	790.00	0.00	0.00	563.90	18900.00	580.81	581.80	213.30	16.91	.99	.65	.03
3880.00	790.00	0.00	0.00	562.70	9000.00	577.72	578.08	196.79	15.02	.36	.29	.01
3880.00	790.00	0.00	0.00	562.70	13100.00	579.30	579.86	224.36	16.60	.56	.39	.01
3880.00	790.00	0.00	0.00	562.70	14500.00	579.84	580.46	230.20	17.14	.62	.42	.02
3880.00	790.00	0.00	0.00	562.70	18900.00	581.49	582.27	293.54	18.79	.78	.45	.02
4150.00	270.00	0.00	0.00	562.70	9000.00	577.82	578.17	203.16	15.12	.36	.09	.00
4150.00	270.00	0.00	0.00	562.70	13100.00	579.43	579.97	225.30	16.73	.55	.11	.00
4150.00	270.00	0.00	0.00	562.70	14500.00	579.97	580.58	231.97	17.27	.60	.12	.00
4150.00	270.00	0.00	0.00	562.70	18900.00	581.64	582.40	300.09	18.94	.76	.13	.00
4280.00	130.00	0.00	0.00	562.70	9000.00	577.86	578.22	205.11	15.16	.36	.04	.00
4280.00	130.00	0.00	0.00	562.70	13100.00	579.49	580.03	216.18	16.79	.54	.06	.00
4280.00	130.00	0.00	0.00	562.70	14500.00	580.05	580.64	222.00	17.35	.59	.06	.00
4280.00	130.00	0.00	0.00	562.70	18900.00	581.71	582.46	222.00	19.01	.75	.06	.00

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	EG	TOPWID	DEPTH	HV	HL	OLOSS
4416.00	136.00	591.60	587.86	562.70	9000.00	577.92	578.27	208.35	15.22	.35	.05	0.00
4416.00	136.00	591.60	587.86	562.70	13100.00	579.58	580.11	217.15	16.88	.53	.08	0.00
4416.00	136.00	591.60	587.86	562.70	14500.00	580.15	580.73	222.00	17.45	.58	.09	0.00
4416.00	136.00	591.60	587.86	562.70	18900.00	581.84	582.57	222.00	19.14	.73	.11	0.00
4516.00	100.00	0.00	0.00	562.70	9000.00	577.96	578.30	211.73	15.26	.35	.03	.00
4516.00	100.00	0.00	0.00	562.70	13100.00	579.63	580.15	227.40	16.93	.53	.04	.00
4516.00	100.00	0.00	0.00	562.70	14500.00	580.19	580.77	251.98	17.49	.58	.04	.00
4516.00	100.00	0.00	0.00	562.70	18900.00	581.89	582.62	297.84	19.19	.73	.05	.00
5133.00	617.00	0.00	0.00	560.60	9000.00	578.12	578.50	168.72	17.52	.38	.19	.01
5133.00	617.00	0.00	0.00	560.60	13100.00	579.83	580.43	201.43	19.23	.60	.25	.02
5133.00	617.00	0.00	0.00	560.60	14500.00	580.39	581.06	211.47	19.79	.67	.26	.03
5133.00	617.00	0.00	0.00	560.60	18900.00	582.10	582.94	264.47	21.50	.84	.28	.04
5513.00	380.00	0.00	0.00	560.60	9000.00	578.24	578.62	169.56	17.64	.38	.11	.00
5513.00	380.00	0.00	0.00	560.60	13100.00	580.00	580.58	204.56	19.40	.58	.16	.00
5513.00	380.00	0.00	0.00	560.60	14500.00	580.58	581.23	214.82	19.98	.64	.17	.00
5513.00	380.00	0.00	0.00	560.60	18900.00	582.31	583.13	268.56	21.71	.81	.18	.00
5533.00	20.00	0.00	0.00	560.60	9000.00	578.25	578.63	167.94	17.65	.37	.01	.00
5533.00	20.00	0.00	0.00	560.60	13100.00	580.02	580.59	204.66	19.42	.57	.01	.00
5533.00	20.00	0.00	0.00	560.60	14500.00	580.61	581.24	214.38	20.01	.63	.01	.00
5533.00	20.00	0.00	0.00	560.60	18900.00	582.39	583.14	248.00	21.79	.76	.01	.01
5666.00	133.00	587.40	584.21	560.60	9000.00	578.36	578.73	169.00	17.76	.37	.10	0.00
5666.00	133.00	587.40	584.21	560.60	13100.00	580.19	580.74	207.60	19.59	.55	.15	0.00
5666.00	133.00	587.40	584.21	560.60	14500.00	580.79	581.40	214.90	20.19	.61	.16	0.00
5666.00	133.00	587.40	584.21	560.60	18900.00	582.60	583.33	248.00	22.00	.73	.18	0.00
5766.00	100.00	0.00	0.00	561.70	9000.00	578.32	578.79	157.30	16.62	.48	.03	.03
5766.00	100.00	0.00	0.00	561.70	13100.00	580.12	580.84	168.24	18.42	.73	.05	.05
5766.00	100.00	0.00	0.00	561.70	14500.00	580.70	581.51	171.54	19.00	.81	.05	.06
5766.00	100.00	0.00	0.00	561.70	18900.00	582.44	583.48	230.04	20.74	1.04	.06	.09
1.16	334.00	0.00	0.00	564.90	9000.00	578.46	578.93	163.16	13.56	.47	.14	.00
1.16	334.00	0.00	0.00	564.90	13100.00	580.31	581.02	165.66	15.41	.71	.17	.00
1.16	334.00	0.00	0.00	564.90	14500.00	580.91	581.69	169.17	16.01	.79	.18	.00
1.16	334.00	0.00	0.00	564.90	18900.00	582.68	583.69	183.24	17.78	1.00	.21	.00
1.58	2240.00	0.00	0.00	565.80	9000.00	579.37	579.82	159.89	13.57	.45	.89	.00
1.58	2240.00	0.00	0.00	565.80	13100.00	581.46	582.12	169.20	15.66	.66	1.10	.01
1.58	2240.00	0.00	0.00	565.80	14500.00	582.14	582.86	173.32	16.34	.72	1.16	.01
1.58	2240.00	0.00	0.00	565.80	18900.00	584.12	585.02	185.45	18.32	.90	1.32	.01
1.70	610.00	0.00	0.00	562.60	9000.00	579.67	580.03	172.21	17.07	.36	.20	.01
1.70	610.00	0.00	0.00	562.60	13100.00	581.86	582.38	178.53	19.26	.52	.25	.01
1.70	610.00	0.00	0.00	562.60	14500.00	582.56	583.13	180.56	19.96	.57	.26	.01
1.70	610.00	0.00	0.00	562.60	18900.00	584.65	585.36	227.34	22.05	.71	.32	.02

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	EG	TOPWID	DEPTH	HV	HL	OLOSS
1.70	1.00	591.10	587.90	562.60	9000.00	579.65	580.04	167.39	17.05	.39	.00	.01
1.70	1.00	591.10	587.90	562.60	13100.00	581.83	582.39	173.68	19.23	.56	.00	.01
1.70	1.00	591.10	587.90	562.60	14500.00	582.53	583.15	175.71	19.93	.62	.00	.01
1.70	1.00	591.10	587.90	562.60	18900.00	584.61	585.37	216.93	22.01	.77	.00	.02
1.71	63.00	591.10	587.90	562.60	9000.00	579.68	580.06	167.45	17.08	.39	.02	.00
1.71	63.00	591.10	587.90	562.60	13100.00	581.86	582.42	173.76	19.26	.56	.03	.00
1.71	63.00	591.10	587.90	562.60	14500.00	582.56	583.18	175.79	19.96	.62	.03	.00
1.71	63.00	591.10	587.90	562.60	18900.00	584.65	585.41	217.77	22.05	.76	.04	.00
1.71	1.00	0.00	0.00	562.60	9000.00	579.71	580.07	172.32	17.11	.36	.00	.00
1.71	1.00	0.00	0.00	562.60	13100.00	581.91	582.43	178.68	19.31	.52	.00	.00
1.71	1.00	0.00	0.00	562.60	14500.00	582.61	583.18	180.72	20.01	.57	.00	.00
1.71	1.00	0.00	0.00	562.60	18900.00	584.72	585.42	229.12	22.12	.70	.00	.01
1.99	1485.00	0.00	0.00	567.80	9000.00	580.10	580.59	160.79	12.30	.49	.48	.04
1.99	1485.00	0.00	0.00	567.80	13100.00	582.35	583.03	171.61	14.55	.69	.56	.05
1.99	1485.00	0.00	0.00	567.80	14500.00	583.06	583.81	176.75	15.26	.75	.58	.05
1.99	1485.00	0.00	0.00	567.80	18900.00	585.25	586.16	210.49	17.45	.91	.68	.06
2.03	198.00	0.00	0.00	568.50	9000.00	580.39	580.66	224.54	11.89	.27	.05	.02
2.03	198.00	0.00	0.00	568.50	13100.00	582.76	583.13	237.34	14.26	.37	.06	.03
2.03	198.00	0.00	0.00	568.50	14500.00	583.51	583.91	244.88	15.01	.40	.06	.04
2.03	198.00	0.00	0.00	568.50	18900.00	585.79	586.26	288.23	17.29	.47	.06	.04
2.06	197.00	0.00	0.00	569.20	9000.00	580.46	580.71	220.95	11.26	.25	.04	.01
2.06	197.00	0.00	0.00	569.20	13100.00	582.83	583.17	220.95	13.63	.34	.04	.01
2.06	197.00	0.00	0.00	569.20	14500.00	583.58	583.96	220.95	14.38	.38	.04	.01
2.06	197.00	0.00	0.00	569.20	18900.00	585.98	586.33	287.14	16.78	.36	.04	.04
2.06	5.00	0.00	0.00	574.70	9000.00	580.35	581.19	216.00	5.65	.85	.00	.48
2.06	5.00	0.00	0.00	574.70	13100.00	582.72	583.61	216.00	8.02	.89	.00	.43
2.06	5.00	0.00	0.00	574.70	14500.00	583.48	584.38	216.00	8.78	.91	.00	.43
2.06	5.00	0.00	0.00	574.70	18900.00	585.86	586.79	318.12	11.16	.92	.00	.45
8.72	20.00	0.00	0.00	567.80	9000.00	581.26	581.41	237.00	13.46	.15	.01	.21
8.72	20.00	0.00	0.00	567.80	13100.00	583.59	583.82	237.00	15.79	.23	.01	.20
8.72	20.00	0.00	0.00	567.80	14500.00	584.34	584.59	237.00	16.54	.25	.01	.20
8.72	20.00	0.00	0.00	567.80	18900.00	586.71	586.99	348.85	18.91	.28	.01	.19

SECTION NUMBER	DISCHARGE CFS	CWSEL	CWSEL DIFF EACH Q	CWSEL DIFF EACH SECTION	CWSEL-WSELK	TOPWID	T.W. DIFF	LENGTH
0.000	9000.000	575.600	0.000	0.000	0.000	181.321	0.000	0.000
0.000	13100.000	575.600	0.000	0.000	0.000	181.321	0.000	0.000
0.000	14500.000	575.600	0.000	0.000	0.000	181.321	0.000	0.000
0.000	18900.000	575.600	0.000	0.000	0.000	181.321	0.000	0.000
121.000	9000.000	575.726	0.000	.126	0.000	184.453	0.000	121.000
121.000	13100.000	575.909	.183	.309	0.000	185.225	-.772	121.000
121.000	14500.000	576.005	.096	.405	0.000	185.631	-1.178	121.000
121.000	18900.000	576.493	.488	.893	0.000	187.670	-3.217	121.000
521.000	9000.000	575.953	0.000	.228	0.000	185.400	0.000	400.000
521.000	13100.000	576.405	.451	.496	0.000	187.304	-1.903	400.000
521.000	14500.000	576.613	.208	.608	0.000	188.177	-2.777	400.000
521.000	18900.000	577.464	.851	.971	0.000	190.000	-4.600	400.000
559.000	9000.000	576.023	0.000	.070	0.000	185.701	0.000	38.000
559.000	13100.000	576.578	.555	.174	0.000	188.032	-2.331	38.000
559.000	14500.000	576.831	.253	.218	0.000	189.094	-3.393	38.000
559.000	18900.000	577.826	.995	.362	0.000	190.000	-4.299	38.000

659.000	9000.000	576.075	0.000	.052	0.000	185.901	0.000	100.000
659.000	13100.000	576.678	.603	.100	0.000	188.419	-2.518	100.000
659.000	14500.000	576.950	.272	.119	0.000	189.660	-3.759	100.000
659.000	18900.000	577.990	1.040	.164	0.000	194.354	-8.453	100.000
2300.000	9000.000	576.843	0.000	.768	0.000	170.624	0.000	1641.000
2300.000	13100.000	577.974	1.131	1.295	0.000	176.871	-6.247	1641.000
2300.000	14500.000	578.394	.420	1.444	0.000	179.169	-8.545	1641.000
2300.000	18900.000	579.780	1.386	1.790	0.000	186.750	-16.126	1641.000
3090.000	9000.000	577.345	0.000	.502	0.000	182.566	0.000	790.000
3090.000	13100.000	578.754	1.409	.780	0.000	190.976	-8.410	790.000
3090.000	14500.000	579.252	.498	.858	0.000	194.886	-12.321	790.000
3090.000	18900.000	580.808	1.556	1.028	0.000	213.297	-30.731	790.000
3880.000	9000.000	577.721	0.000	.376	0.000	196.786	0.000	790.000
3880.000	13100.000	579.297	1.576	.543	0.000	224.361	-27.575	790.000
3880.000	14500.000	579.837	.540	.585	0.000	230.196	-33.411	790.000
3880.000	18900.000	581.493	1.655	.684	0.000	293.543	-96.757	790.000
4150.000	9000.000	577.817	0.000	.097	0.000	203.161	0.000	270.000
4150.000	13100.000	579.427	1.610	.130	0.000	225.298	-22.137	270.000
4150.000	14500.000	579.974	.547	.137	0.000	231.969	-28.808	270.000
4150.000	18900.000	581.643	1.669	.151	0.000	300.095	-96.934	270.000
4280.000	9000.000	577.861	0.000	.043	0.000	205.114	0.000	130.000
4280.000	13100.000	579.493	1.632	.066	0.000	216.177	-11.063	130.000
4280.000	14500.000	580.045	.552	.071	0.000	222.000	-16.886	130.000
4280.000	18900.000	581.711	1.666	.068	0.000	222.000	-16.886	130.000
4416.000	9000.000	577.917	0.000	.056	0.000	208.349	0.000	136.000
4416.000	13100.000	579.583	1.666	.090	0.000	217.154	-8.805	136.000
4416.000	14500.000	580.145	.563	.100	0.000	222.000	-13.651	136.000
4416.000	18900.000	581.840	1.695	.129	0.000	222.000	-13.651	136.000
4516.000	9000.000	577.956	0.000	.039	0.000	211.726	0.000	100.000
4516.000	13100.000	579.626	1.670	.043	0.000	227.402	-15.677	100.000
4516.000	14500.000	580.189	.563	.044	0.000	251.983	-40.257	100.000
4516.000	18900.000	581.895	1.706	.055	0.000	297.838	-86.112	100.000
5133.000	9000.000	578.121	0.000	.164	0.000	168.721	0.000	617.000
5133.000	13100.000	579.826	1.706	.201	0.000	201.427	-32.706	617.000
5133.000	14500.000	580.392	.566	.203	0.000	211.469	-42.748	617.000
5133.000	18900.000	582.097	1.705	.202	0.000	264.470	-95.749	617.000
5513.000	9000.000	578.244	0.000	.124	0.000	169.559	0.000	380.000
5513.000	13100.000	580.003	1.759	.177	0.000	204.562	-35.003	380.000
5513.000	14500.000	580.581	.578	.189	0.000	214.820	-45.262	380.000
5513.000	18900.000	582.314	1.733	.217	0.000	268.560	-99.001	380.000
5533.000	9000.000	578.252	0.000	.008	0.000	167.936	0.000	20.000
5533.000	13100.000	580.020	1.768	.017	0.000	204.657	-36.721	20.000
5533.000	14500.000	580.608	.588	.027	0.000	214.383	-46.447	20.000
5533.000	18900.000	582.385	1.777	.071	0.000	248.000	-80.064	20.000
5666.000	9000.000	578.362	0.000	.110	0.000	168.999	0.000	133.000
5666.000	13100.000	580.189	1.827	.168	0.000	207.597	-38.598	133.000
5666.000	14500.000	580.791	.602	.183	0.000	214.900	-45.901	133.000
5666.000	18900.000	582.596	1.805	.211	0.000	248.000	-79.001	133.000
5766.000	9000.000	578.317	0.000	-.045	0.000	157.297	0.000	100.000
5766.000	13100.000	580.117	1.799	-.072	0.000	168.244	-10.947	100.000
5766.000	14500.000	580.702	.586	-.089	0.000	171.539	-14.243	100.000
5766.000	18900.000	582.436	1.733	-.160	0.000	230.039	-72.742	100.000
1.155	9000.000	578.461	0.000	1[illegible]4	0.000	163.16[illegible]	0.000	334.000

1.155	13100.000	580.309	1.849	.193	0.000	165.660	-2.496	334.000
1.155	14500.000	580.909	.599	.206	0.000	169.172	-6.008	334.000
1.155	18900.000	582.684	1.776	.248	0.000	183.240	-20.076	334.000
1.579	9000.000	579.368	0.000	.907	0.000	159.895	0.000	2240.000
1.579	13100.000	581.462	2.094	1.153	0.000	169.199	-9.304	2240.000
1.579	14500.000	582.140	.678	1.232	0.000	173.325	-13.430	2240.000
1.579	18900.000	584.122	1.982	1.438	0.000	185.450	-25.555	2240.000
1.695	9000.000	579.673	0.000	.305	0.000	172.210	0.000	610.000
1.695	13100.000	581.856	2.183	.394	0.000	178.531	-6.321	610.000
1.695	14500.000	582.557	.702	.417	0.000	180.562	-8.353	610.000
1.695	18900.000	584.645	2.088	.523	0.000	227.335	-55.126	610.000
1.696	9000.000	579.653	0.000	-.020	0.000	167.387	0.000	1.000
1.696	13100.000	581.827	2.175	-.029	0.000	173.684	-6.297	1.000
1.696	14500.000	582.526	.699	-.031	0.000	175.708	-8.321	1.000
1.696	18900.000	584.607	2.080	-.039	0.000	216.926	-49.539	1.000
1.706	9000.000	579.677	0.000	.025	0.000	167.447	0.000	63.000
1.706	13100.000	581.858	2.181	.031	0.000	173.758	-6.311	63.000
1.706	14500.000	582.559	.701	.033	0.000	175.785	-8.338	63.000
1.706	18900.000	584.650	2.091	.043	0.000	217.774	-50.327	63.000
1.707	9000.000	579.711	0.000	.034	0.000	172.320	0.000	1.000
1.707	13100.000	581.906	2.195	.048	0.000	178.677	-6.357	1.000
1.707	14500.000	582.611	.705	.052	0.000	180.719	-8.399	1.000
1.707	18900.000	584.717	2.105	.067	0.000	229.124	-56.804	1.000
1.988	9000.000	580.101	0.000	.390	0.000	160.790	0.000	1485.000
1.988	13100.000	582.349	2.248	.443	0.000	171.611	-10.821	1485.000
1.988	14500.000	583.065	.715	.453	0.000	176.746	-15.957	1485.000
1.988	18900.000	585.249	2.184	.532	0.000	210.490	-49.700	1485.000
2.026	9000.000	580.394	0.000	.293	0.000	224.541	0.000	198.000
2.026	13100.000	582.758	2.365	.409	0.000	237.336	-12.795	198.000
2.026	14500.000	583.509	.751	.445	0.000	244.885	-20.344	198.000
2.026	18900.000	585.786	2.277	.537	0.000	288.229	-63.688	198.000
2.063	9000.000	580.463	0.000	.069	0.000	220.948	0.000	197.000
2.063	13100.000	582.830	2.367	.072	0.000	220.948	0.000	197.000
2.063	14500.000	583.579	.749	.070	0.000	220.948	0.000	197.000
2.063	18900.000	585.976	2.397	.190	0.000	287.144	-66.196	197.000
2.064	9000.000	580.346	0.000	-.117	0.000	216.000	0.000	5.000
2.064	13100.000	582.724	2.378	-.106	0.000	216.000	0.000	5.000
2.064	14500.000	583.475	.751	-.104	0.000	216.000	0.000	5.000
2.064	18900.000	585.864	2.389	-.112	0.000	318.117	-102.117	5.000
8.717	9000.000	581.256	0.000	.911	0.000	236.999	0.000	20.000
8.717	13100.000	583.592	2.336	.868	0.000	236.999	-.000	20.000
8.717	14500.000	584.340	.748	.865	0.000	236.999	-.000	20.000
8.717	18900.000	586.714	2.374	.850	0.000	348.849	-111.650	20.000

DATA FOR LAST CROSS SECTION

PROFILE	TYPE ENC	TARGET	TOP WIDTH AREA-ACRES	TOP WIDTH AREA-DIFF
1	1.000	237.000	44.066	0.000
2	1.000	237.000	46.649	2.583
3	1.000	237.000	47.792	3.726
4	1.000	862.000	54.291	10.225

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Clinton Twp.

3) WATERCOURSE: Clinton River

4) DOCUMENT TYPE: Multiple Run - Current
Lk St. Clair to
Confluence with
Red Run

00BREAK00

CLINTON TOWNSHIP
CLINTON RIVER
MULTIPLE RUN PROFILE current

run starts @ Lk St Clair
Moravian Drive & ends @ confluence with Red Run

sect 6057 – sect 10.152 is for the City of Mt. Clemens

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*******************************************
HEC2 VERSION UPDATED JAN 1976
ERROR CORRECTIONS 01,02,03,04,05,06,07,08,09
MODIFICATIONS 52,53,54,55,56,57,58
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C
1        CLINTON TOWNSHIP - JOB NO. 5670-02  PROJECT MANAGER  WILLIAM ROSSOW
T2         10 YEAR FLOOD = 3900 CFS
T3         CLINTON RIVER

J1  ICHECK      INQ       NINV      IDIR       STRT      METRIC     HVINS      Q          WSEL      FQ

       -1.        2.        0.        0.  0.000000      0.00       0.0        0.     578.270     0.000

J2  NPROF      IPLOT      PRFVS     XSECV      XSECH      FN        ALLDC      IBW       CHNIM      ITRACE

      1.000     0.000    -1.000     0.000      0.000     0.000      0.000     0.000      0.000      0.000

J3      1.000     10.000     11.000     12.000     14.000      8.000      4.000      0.000      0.000      0.000
QT      4.000   3600.000   5900.000   6800.000  10000.000      0.000      0.000      0.000      0.000      0.000
NC       .040       .040       .030       .100       .300      0.000      0.000      0.000      0.000      0.000
NH      5.000       .050     80.000       .080    104.000       .035    283.000       .050    291.000       .040
NH    450.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000

X1      6.057     27.000     80.000    291.000   1260.000   1260.000   1260.000      0.000      0.000      0.000
X3      0.000      0.000      0.000      0.000      0.000    291.000      0.000      0.000      0.000      0.000
GR    587.900      0.000    585.500     80.000    578.600    100.000    576.500    104.000    574.300    120.000
GR    573.800    130.000    573.200    140.000    572.800    150.000    571.800    160.000    570.700    170.000
GR    569.300    180.000    567.500    190.000    565.800    200.000    564.600    210.000    564.900    220.000
GR    565.400    230.000    565.800    240.000    567.600    250.000    570.500    260.000    573.700    270.000
GR    576.000    280.000    576.500    283.000    579.700    291.000    571.000    300.000    572.600    321.000
GR    571.900    400.000    574.300    450.000      0.000      0.000      0.000      0.000      0.000      0.000
NH      3.000       .020     44.000       .035    199.000       .100    282.000      0.000      0.000      0.000

X1      6.489     25.000     44.000    231.000   2070.000   2400.000   2280.000      0.000      0.000      0.000
X3     10.000      0.000      0.000      0.000      0.000    282.000      0.000      0.000      0.000      0.000
GR    582.600      0.000    581.800     24.000    581.100     44.000    574.600     44.000    573.000     52.000
GR    570.300     62.000    567.600     72.000    567.200     82.000    566.600     92.000    566.400    102.000
GR    566.100    112.000    565.400    122.000    568.900    132.000    571.000    142.000    573.600    152.000
GR    574.200    162.000    574.200    172.000    574.600    182.000    576.100    192.000    577.000    199.000
GR    580.500    202.000    584.400    212.000    585.200    231.000    579.000    242.000    578.900    282.000
NH      5.000       .030    118.000       .015    119.000       .035    299.000       .015    300.000       .040
NH    360.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000

X1      6.883     27.000    118.000    300.000   2300.000   1950.000   2080.000      0.000      0.000      0.000
X3      0.000      0.000      0.000    100.000      0.000      0.000      0.000      0.000      0.000      0.000
GR    582.200      0.000    581.800    100.000    578.900    114.000    578.900    118.000    574.800    119.000
GR    574.000    120.000    572.600    130.000    572.600    140.000    572.600    150.000    572.600    160.000
GR    572.000    170.000    571.100    180.000    570.400    190.000    569.800    200.000    569.600    210.000
GR    569.400    220.000    569.200    230.000    569.600    240.000    569.900    250.000    570.300    260.000
GR    571.300    270.000    571.900    280.000    572.400    290.000    572.600    299.000    579.400    300.000
GR    585.100    350.000    585.100    360.000      0.000      0.000      0.000      0.000      0.000      0.000
NH      5.000       .030     28.000       .080     48.000       .035    165.000       .080    188.000       .030
NH    238.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000

X1      7.096     19.000     28.000    188.000   1125.000   1125.000   1125.000      0.000      0.000      0.000
GR    589.900      0.000    589.700     28.000    576.400     48.000    572.800     56.000    569.600     58.000
GR    565.900     68.000    563.600     78.000    563.100     88.000    563.400     98.000    564.200    108.000
GR    565.600    118.000    571.600    128.000    573.400    138.000    575.000    148.000    575.400    158.000
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	236.000	0.000	0.000
NH	3.000	.080	106.000	.035	243.000	.080	482.000	0.000	0.000	0.000
X1	7.142	26.000	82.000	290.000	250.000	250.000	250.000	.966	0.000	0.000
GR	595.000	0.000	594.000	82.000	587.900	82.000	582.100	106.000	576.200	106.000
GR	575.800	112.000	574.200	122.000	574.100	132.000	572.600	142.000	569.000	145.000
GR	566.500	152.000	565.700	162.000	565.900	172.000	566.600	182.000	567.500	192.000
GR	567.900	202.000	569.100	212.000	570.500	228.000	573.600	231.000	574.400	243.000
GR	582.000	243.000	586.700	280.000	587.800	290.000	591.200	290.000	588.700	382.000
GR	587.300	482.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.030	.030	.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	7.143	30.000	82.000	290.000	1.000	1.000	1.000	.966	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.966	0.000
BT	9.000	0.000	595.000	0.000	82.000	594.000	590.600	142.000	593.100	589.700
BT	145.000	593.100	589.700	228.000	592.000	588.600	231.000	592.000	588.600	290.000
BT	591.200	587.800	382.000	588.700	0.000	482.000	587.300	0.000	0.000	0.000
GR	595.000	0.000	594.000	82.000	587.900	82.000	582.100	106.000	576.200	106.000
GR	575.800	112.000	574.200	122.000	574.100	132.000	572.600	142.000	589.700	142.000
GR	589.700	145.000	569.000	145.000	566.500	152.000	565.700	162.000	565.900	172.000
GR	566.600	182.000	567.500	192.000	567.900	202.000	569.100	212.000	570.500	228.000
GR	588.600	228.000	588.600	231.000	573.600	231.000	574.400	243.000	582.000	243.000
GR	586.700	280.000	587.800	290.000	591.200	290.000	588.700	382.000	587.300	482.000
X1	7.154	0.000	0.000	0.000	58.000	58.000	58.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NH	3.000	.030	106.000	.040	243.000	.030	482.000	0.000	0.000	0.000
X1	7.155	26.000	82.000	290.000	1.000	1.000	1.000	.966	0.000	0.000
GR	595.000	0.000	594.000	82.000	587.900	82.000	582.100	106.000	576.200	106.000
GR	575.800	112.000	574.200	122.000	574.100	132.000	572.600	142.000	569.000	145.000
GR	566.500	152.000	565.700	162.000	565.900	172.000	566.600	182.000	567.500	192.000
GR	567.900	202.000	569.100	212.000	570.500	228.000	573.600	231.000	574.400	243.000
GR	582.000	243.000	586.700	280.000	587.800	290.000	591.200	290.000	588.700	382.000
GR	587.300	482.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	3.000	.030	72.000	.040	193.000	.030	343.000	0.000	0.000	0.000
X1	7.163	22.000	72.000	193.000	40.000	40.000	40.000	0.000	-2.000	0.000
GR	585.500	0.000	585.000	25.000	578.900	72.000	573.100	73.000	572.900	75.000
GR	572.300	85.000	571.300	95.000	569.400	105.000	568.700	115.000	568.500	125.000
GR	568.300	135.000	567.900	145.000	568.100	155.000	568.700	165.000	569.600	175.000
GR	569.600	185.000	569.300	192.000	581.100	193.000	580.800	213.000	600.300	285.000
GR	599.900	295.000	600.100	343.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	3.000	.030	72.000	.040	193.000	.030	343.000	0.000	0.000	0.000
X1	7.222	0.000	0.000	0.000	315.000	315.000	315.000	0.000	2.000	0.000
NH	3.000	.030	72.000	.040	193.000	.030	343.000	0.000	0.000	0.000
X1	7.253	0.000	0.000	0.000	165.000	165.000	165.000	0.000	-1.900	0.000
NH	3.000	.030	163.000	.040	273.000	.030	417.000	0.000	0.000	0.000
X1	7.288	33.000	130.000	327.000	185.000	185.000	185.000	0.000	0.000	0.000
GR	606.100	0.000	606.200	32.000	601.900	130.000	595.300	130.000	594.800	137.000
GR	594.100	140.000	591.300	147.000	587.800	157.000	586.600	163.000	572.900	163.000
GR	572.200	167.000	568.400	177.000	568.500	187.000	566.600	193.000	563.900	196.000
GR	564.900	207.000	565.300	217.000	565.900	227.000	566.400	237.000	568.400	247.000
GR	570.400	257.000	571.300	261.000	574.500	264.000	573.900	267.000	573.900	273.000
GR	586.800	273.000	586.600	277.000	586.200	297.000	588.800	307.000	589.600	317.000
GR	589.900	327.000	595.500	327.000	592.400	417.000	0.000	0.000	0.000	0.000
NC	.026	.026	.026	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	7.289	37.000	130.000	327.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	29.000	0.000	606.100	0.000	32.000	606.200	0.000	130.000	601.900	597.900
BT	137.000	601.700	597.700	140.000	601.600	597.600	147.000	601.400	597.300	157.000
BT	601.000	597.000	163.000	600.700	596.700	167.000	600.400	596.400	177.000	600.300
BT	596.300	187.000	600.000	596.000	193.000	599.800	595.800	196.000	599.700	595.700

BT	207.000	599.400	593.400	217.000	599.100	593.100	227.000	[illegible]	594.100	237.000
BT	598.400	594.400	247.000	598.100	594.100	257.000	597.700	593.700	261.000	597.600
BT	593.700	264.000	597.500	593.500	267.000	597.300	593.300	273.000	597.300	593.300
BT	277.000	597.100	593.100	297.000	596.400	592.400	307.000	596.200	592.200	317.000
BT	595.800	591.800	327.000	595.500	591.500	417.000	592.400	0.000	0.000	0.000
GR	606.100	0.000	606.200	32.000	601.900	130.000	595.300	130.000	594.800	137.000
GR	594.100	140.000	591.300	147.000	587.800	157.000	586.600	163.000	572.900	163.000
GR	572.200	167.000	568.400	177.000	568.500	187.000	566.600	193.000	595.800	193.000
GR	595.700	196.000	563.900	196.000	564.900	207.000	565.300	217.000	565.900	227.000
GR	566.400	237.000	568.400	247.000	570.400	257.000	571.300	261.000	593.700	261.000
GR	593.500	264.000	574.500	264.000	573.900	267.000	573.900	273.000	586.800	273.000
GR	586.600	277.000	586.200	297.000	588.800	307.000	589.600	317.000	589.900	327.000
GR	595.500	327.000	592.400	417.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	7.296	0.000	0.000	0.000	42.000	42.000	42.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NH	4.000	.040	130.000	.070	167.000	.040	273.000	.040	417.000	0.000
X1	7.297	33.000	130.000	327.000	1.000	1.000	1.000	0.000	0.000	0.000
GR	606.100	0.000	606.200	32.000	601.900	130.000	595.300	130.000	594.800	137.000
GR	594.100	140.000	591.300	147.000	587.800	157.000	586.600	163.000	572.900	163.000
GR	572.200	167.000	568.400	177.000	568.500	187.000	566.600	193.000	563.900	196.000
GR	564.900	207.000	565.300	217.000	565.900	227.000	566.400	237.000	568.400	247.000
GR	570.400	257.000	571.300	261.000	574.500	264.000	573.900	267.000	573.900	273.000
GR	586.800	273.000	586.600	277.000	586.200	297.000	588.800	307.000	589.600	317.000
GR	589.900	327.000	595.500	327.000	592.400	417.000	0.000	0.000	0.000	0.000
NH	4.000	.040	72.000	.070	85.000	.040	185.000	.040	343.000	0.000
X1	7.300	22.000	72.000	193.000	70.000	70.000	70.000	0.000	-3.900	0.000
X3	0.000	0.000	0.000	1.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	585.500	0.000	585.000	25.000	578.900	72.000	573.100	73.000	572.900	75.000
GR	572.300	85.000	571.300	95.000	569.400	105.000	568.700	115.000	568.500	125.000
GR	568.300	135.000	567.900	145.000	568.100	155.000	568.700	165.000	569.600	175.000
GR	569.600	185.000	569.300	192.000	581.100	193.000	580.800	213.000	600.300	285.000
GR	599.900	295.000	600.100	343.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.040	.100	.050	.100	.300	0.000	0.000	0.000	0.000	0.000
NH	4.000	.040	20.000	.070	39.000	.040	163.000	.040	411.000	0.000
X1	7.731	22.000	20.000	166.000	2330.000	2130.000	2225.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	411.000	0.000	0.000	0.000	0.000
GR	587.900	0.000	586.200	20.000	576.600	39.000	576.000	40.000	571.100	50.000
GR	568.300	60.000	566.500	70.000	566.500	80.000	567.100	90.000	568.600	100.000
GR	570.000	110.000	571.300	120.000	573.200	130.000	575.200	140.000	575.700	150.000
GR	576.100	160.000	576.400	163.000	578.400	166.000	578.700	220.000	578.300	300.000
GR	581.700	320.000	585.400	411.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	4.000	.040	442.000	.035	556.000	.080	1256.000	.040	1297.000	0.000
ET	0.000	6.100	8.100	8.100	8.100	80.000	700.000	80.000	1279.000	0.000
X1	8.023	35.000	440.000	580.000	1300.000	1700.000	1541.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	582.000	0.000
GR	582.600	0.000	585.300	80.000	583.800	180.000	581.800	280.000	580.900	380.000
GR	580.200	415.000	577.500	440.000	576.500	442.000	571.400	450.000	567.700	460.000
GR	564.400	470.000	564.700	480.000	565.200	490.000	568.100	500.000	572.900	510.000
GR	574.200	520.000	575.300	530.000	575.200	540.000	575.600	550.000	576.500	556.000
GR	577.000	565.000	579.500	580.000	580.500	645.000	582.000	680.000	580.900	780.000
GR	579.900	810.000	578.600	880.000	580.100	945.000	579.800	980.000	578.000	1080.000
GR	578.100	1105.000	575.900	1135.000	577.700	1180.000	579.300	1256.000	590.600	1297.000
NH	7.000	.030	228.000	.060	984.000	.080	988.000	.035	1113.000	.080
NH	1124.000	.090	1728.000	.030	1747.000	0.000	0.000	0.000	0.000	0.000
X1	8.278	40.000	984.000	1124.000	1300.000	1150.000	1345.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	288.000	0.000	1245.000	0.000	0.000	0.000	0.000
GR	584.300	0.000	584.500	28.000	585.000	128.000	585.800	228.000	587.100	288.000
GR	581.400	310.000	579.600	328.000	581.000	428.000	582.200	528.000	583.000	628.000
GR	583.000	728.000	582.100	828.000	581.000	928.000	579.500	984.000	576.400	988.000
GR	575.700	998.000	573.600	1008.000	571.000	1018.000	570.500	1028.000	570.700	1038.000

GR	570.500	[illegible]	570.500	[illegible]	[illegible]	[illegible]	[illegible]	1076.000	570.200	1088.000
GR	571.500	1098.000	575.300	1108.000	576.500	1113.000	576.900	1117.000	579.100	1118.000
GR	581.400	1124.000	581.200	1214.000	586.700	1245.000	584.600	1328.000	584.400	1428.000
GR	583.900	1528.000	578.800	1628.000	579.100	1698.000	581.100	1728.000	588.800	1747.000
NH	5.000	.040	545.000	.050	574.000	.035	743.000	.050	748.000	.030
NH	1823.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	8.713	53.000	545.000	748.000	1400.000	2200.000	2295.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	1153.000	0.000	0.000	0.000	0.000
GR	587.200	0.000	578.300	26.000	579.500	123.000	578.500	223.000	580.000	323.000
GR	581.500	423.000	584.100	523.000	583.000	545.000	579.800	560.000	577.700	572.000
GR	576.500	574.000	575.700	578.000	573.900	588.000	573.200	598.000	573.400	608.000
GR	572.700	718.000	572.600	728.000	573.300	738.000	576.400	743.000	582.200	748.000
GR	581.900	823.000	582.400	848.000	582.800	923.000	582.800	997.000	582.300	1023.000
GR	582.400	1055.000	576.400	1069.000	576.800	1077.000	583.400	1093.000	584.600	1123.000
GR	585.400	1138.000	590.400	1153.000	585.300	1169.000	585.300	1223.000	586.100	1240.000
GR	593.300	1262.000	584.900	1282.000	584.900	1292.000	584.700	1300.000	584.700	1340.000
GR	574.700	1340.000	574.700	1393.000	574.700	1447.000	574.700	1501.000	574.700	1556.000
GR	584.700	1556.000	584.700	1594.000	591.100	1615.000	593.900	1723.000	594.600	1738.000
GR	594.400	1783.000	592.400	1807.000	592.600	1823.000	0.000	0.000	0.000	0.000
QT	4.000	12600.000	19000.000	21300.000	28900.000	0.000	0.000	0.000	0.000	0.000
NC	.040	.040	.030	.300	.500	0.000	0.000	0.000	0.000	0.000
NH	5.000	.035	523.000	.070	574.000	.030	887.000	.070	908.000	.035
NH	1287.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	8.717	41.000	523.000	908.000	20.000	20.000	20.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X5	4.000	581.300	583.500	584.400	586.750	0.000	0.000	0.000	0.000	0.000
GR	587.200	0.000	578.300	26.000	579.500	123.000	578.500	223.000	580.000	323.000
GR	581.500	423.000	584.100	523.000	583.000	545.000	579.800	560.000	577.700	572.000
GR	576.500	574.000	575.700	578.000	573.900	588.000	573.200	598.000	573.400	608.000
GR	572.700	718.000	572.600	728.000	573.300	738.000	570.600	748.000	568.600	758.000
GR	568.500	768.000	568.300	778.000	568.200	788.000	567.800	798.000	567.800	808.000
GR	567.900	818.000	568.200	828.000	568.500	838.000	568.700	848.000	568.900	858.000
GR	571.500	868.000	573.300	878.000	576.500	887.000	580.500	888.000	585.700	908.000
GR	584.400	926.000	591.400	978.000	591.500	1008.000	592.100	1108.000	593.000	1212.000
GR	593.000	1287.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	5.000	.032	445.000	.063	475.000	.027	725.900	.063	746.000	.032
NH	996.600	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	8.922	85.000	445.000	746.000	1001.000	1106.000	1087.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	355.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	587.000	0.000	583.400	15.300	581.500	30.600	581.200	46.000	580.900	61.300
GR	580.600	76.700	580.600	92.000	580.700	107.400	580.500	122.700	580.300	138.100
GR	580.300	153.400	580.200	168.700	580.200	184.100	580.300	199.400	580.500	214.800
GR	580.800	230.100	581.000	245.500	581.200	260.800	581.400	276.200	581.700	291.500
GR	581.900	306.800	582.100	322.200	582.300	337.500	582.600	352.900	582.800	368.200
GR	583.200	383.600	583.500	398.900	583.900	414.300	584.200	429.600	584.600	445.000
GR	582.300	455.000	579.700	465.000	577.000	475.000	573.900	485.100	571.900	495.100
GR	571.100	505.100	570.800	575.400	570.800	575.400	570.700	585.400	570.900	595.400
GR	570.800	605.500	570.700	615.500	568.800	625.500	568.300	635.600	568.100	645.600
GR	567.900	655.600	567.900	665.700	568.100	675.700	568.700	685.700	569.500	695.800
GR	570.700	705.800	573.500	715.800	576.600	725.900	582.400	735.900	585.700	746.000
GR	585.200	754.300	585.600	762.700	586.700	771.000	587.800	779.400	588.800	787.700
GR	589.400	796.100	589.500	804.400	589.600	812.800	589.700	821.100	589.700	829.500
GR	589.800	837.800	589.900	846.200	590.000	854.500	590.100	862.900	590.200	871.200
GR	590.300	879.600	590.400	888.000	590.500	896.300	590.600	904.700	590.700	913.000
GR	590.800	921.400	590.900	929.700	591.100	938.100	591.200	946.400	591.200	954.800
GR	591.300	963.100	591.300	971.500	591.300	979.800	591.400	988.200	591.400	996.600
NH	5.000	.032	406.000	.063	431.800	.027	647.700	.063	665.000	.032
NH	851.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	8.972	85.000	406.000	665.000	240.000	268.000	258.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	154.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	587.000	0.000	584.500	14.000	583.000	28.000	582.500	42.000	581.900	55.900
GR	581.400	69.900	581.300	83.900	581.300	97.900	581.100	111.900	581.000	125.900

GR	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
GR	581.600	209.900	581.800	223.900	582.000	237.900	582.200	251.900	582.400	265.900
GR	582.600	279.900	582.800	293.900	583.000	307.900	583.200	321.900	583.400	335.900
GR	583.700	349.900	584.000	363.900	584.200	377.900	584.600	391.900	584.900	406.000
GR	581.700	414.600	578.400	423.200	575.700	431.800	572.700	440.500	570.800	449.100
GR	570.000	457.700	569.900	518.200	569.900	518.200	569.900	526.800	570.000	535.400
GR	570.000	544.100	569.900	552.700	568.600	561.300	568.200	570.000	568.100	578.600
GR	567.900	587.200	567.900	595.900	568.200	604.500	569.000	613.100	569.900	621.800
GR	571.700	630.400	574.400	639.000	577.500	647.700	582.500	656.300	585.800	665.000
GR	585.500	671.200	585.800	677.400	586.500	683.600	587.300	689.800	588.000	696.000
GR	588.500	702.200	588.500	708.400	588.600	714.700	588.700	720.900	588.800	727.100
GR	588.900	733.300	589.000	739.500	589.100	745.700	589.200	751.900	589.300	758.100
GR	589.400	764.400	589.500	770.600	589.600	776.800	589.700	783.000	589.800	789.200
GR	589.900	795.400	590.100	801.600	590.200	807.900	590.300	814.100	590.300	820.300
GR	590.400	826.500	590.500	832.700	590.500	838.900	590.600	845.100	590.700	851.400
NH	5.000	.032	367.000	.063	381.400	.027	562.200	.063	584.000	.032
NH	706.200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	9.023	85.000	367.000	584.000	240.000	268.000	258.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	200.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	586.900	0.000	585.700	12.600	584.600	25.300	583.800	37.900	582.900	50.600
GR	582.100	63.200	582.000	75.900	581.900	88.500	581.800	101.200	581.600	113.800
GR	581.700	126.500	581.800	139.200	581.900	151.800	582.000	164.500	582.200	177.100
GR	582.400	189.800	582.600	202.400	582.700	215.100	582.900	227.700	583.100	240.400
GR	583.300	253.100	583.400	265.700	583.600	278.400	583.800	291.000	584.000	303.700
GR	584.200	316.300	584.400	329.000	584.600	341.600	584.900	354.300	585.200	367.000
GR	581.100	374.200	577.200	381.400	574.400	388.600	571.400	395.900	569.800	403.100
GR	568.900	410.300	569.100	461.000	569.100	461.000	569.100	468.200	569.100	475.400
GR	569.100	482.700	569.000	489.900	568.300	497.100	568.100	504.400	568.000	511.600
GR	567.900	518.800	568.000	526.100	568.400	533.300	569.200	540.500	570.400	547.800
GR	572.600	555.000	575.300	562.200	578.400	569.500	582.500	576.700	585.800	584.000
GR	585.700	588.000	585.900	592.100	586.300	596.200	586.800	600.200	587.200	604.300
GR	587.500	608.400	587.600	612.500	587.700	616.500	587.800	620.600	587.900	624.700
GR	588.000	628.800	588.100	632.800	588.200	636.900	588.300	641.000	588.400	645.000
GR	588.500	649.100	588.600	653.200	588.700	657.300	588.800	661.300	588.900	665.400
GR	589.100	669.500	589.200	673.600	589.300	677.600	589.400	681.700	589.500	685.800
GR	589.600	689.900	589.600	693.900	589.700	698.000	589.800	702.100	589.900	706.200
NH	5.000	.032	328.000	.063	339.000	.027	486.000	.063	503.000	.032
NH	561.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	9.074	26.000	328.000	503.000	240.000	268.000	258.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	235.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	586.900	0.000	587.000	14.000	582.800	58.000	582.300	103.000	583.700	203.000
GR	585.000	303.000	585.500	328.000	576.300	339.000	574.500	343.000	569.400	353.000
GR	567.900	363.000	568.200	373.000	568.200	383.000	568.300	393.000	568.300	403.000
GR	568.300	413.000	568.300	423.000	568.100	433.000	568.000	443.000	567.900	453.000
GR	568.600	463.000	570.500	473.000	575.200	483.000	576.400	486.000	585.900	503.000
GR	589.200	561.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	5.000	.032	314.000	.063	332.100	.027	506.700	.063	532.500	.032
NH	630.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	9.106	90.000	314.000	532.500	137.500	137.500	137.500	.903	-.850	0.000
X3	10.000	0.000	0.000	220.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	588.500	0.000	588.600	10.800	588.200	21.600	587.600	32.400	587.000	43.300
GR	586.500	54.100	586.400	64.900	586.300	75.700	586.200	86.600	586.100	97.400
GR	586.200	108.200	586.300	119.100	586.400	129.900	586.500	140.700	586.600	151.500
GR	586.700	162.400	586.800	173.200	586.900	184.000	587.000	194.800	587.100	205.700
GR	587.300	216.500	587.500	227.300	587.700	238.200	587.900	249.000	588.100	259.800
GR	588.300	270.600	588.500	281.500	588.700	292.300	589.000	303.100	589.200	314.000
GR	582.600	316.900	579.800	324.500	576.700	332.100	574.300	339.700	570.800	347.200
GR	568.900	354.800	568.500	362.400	568.600	370.000	568.600	377.600	568.200	385.200
GR	567.000	392.800	567.500	400.400	567.800	408.000	567.800	415.600	567.900	423.200
GR	567.900	430.800	568.100	438.400	568.100	446.000	568.200	453.600	567.700	461.200
GR	567.900	468.800	568.200	476.400	568.600	484.000	569.500	491.600	571.900	499.200
GR	575.300	506.700	578.300	514.300	581.300	521.900	583.800	529.500	589.500	532.500
GR	589.500	535.700	589.600	539.000	589.600	542.200	589.700	545.500	589.700	548.800
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

GR	[illegible]	[illegible]	[illegible]	555.300	589.900	558.000	589.900	561.800	589.900	[illegible]
GR	589.900	568.400	589.900	571.600	589.900	574.900	589.900	578.200	589.900	581.400
GR	589.900	584.700	589.900	588.000	589.900	591.200	589.900	594.500	589.900	597.800
GR	589.900	601.000	589.900	604.300	589.900	607.600	589.900	610.800	589.900	614.100
GR	589.900	617.400	589.900	620.600	589.900	623.900	589.900	627.200	589.900	630.500
NH	3.000	.063	320.000	.027	530.000	.063	700.000	0.000	0.000	0.000
X1	9.137	40.000	300.000	562.000	137.500	137.500	137.500	.806	0.000	0.000
X3	0.000	0.000	0.000	300.000	0.000	562.000	0.000	0.000	0.000	0.000
GR	590.300	0.000	590.000	100.000	590.500	200.000	593.000	297.500	593.000	300.000
GR	584.700	300.000	583.600	310.000	579.700	320.000	578.200	330.000	576.500	330.000
GR	571.600	340.000	569.200	350.000	569.000	360.000	569.200	370.000	568.800	380.000
GR	569.000	383.000	565.300	390.000	566.600	400.000	567.300	410.000	567.400	420.000
GR	567.600	430.000	567.600	440.000	568.100	450.000	568.300	460.000	568.600	470.000
GR	567.300	480.000	567.200	483.000	568.400	490.000	568.500	500.000	569.100	510.000
GR	570.100	520.000	576.300	530.000	578.000	538.000	579.100	538.000	582.400	550.000
GR	584.100	555.000	585.100	562.000	593.100	562.000	593.100	600.000	590.700	700.000
NC	.018	.018	.018	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	9.138	47.000	300.000	562.000	1.000	1.000	1.000	.806	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.806	0.000
BT	39.000	0.000	590.300	0.000	100.000	590.000	0.000	200.000	590.500	0.000
BT	297.500	593.000	0.000	297.600	595.700	0.000	300.000	595.700	588.000	310.000
BT	596.000	588.300	320.000	596.200	588.500	330.000	596.500	588.800	340.000	596.700
BT	589.000	350.000	597.000	589.300	360.000	597.200	589.500	370.000	597.400	589.700
BT	380.000	597.600	589.900	383.000	597.700	590.000	390.000	597.700	590.000	400.000
BT	597.900	590.200	410.000	598.000	590.300	420.000	598.000	590.300	430.000	598.100
BT	590.400	440.000	598.100	590.400	450.000	598.100	590.400	460.000	598.100	590.400
BT	470.000	598.100	590.400	480.000	598.100	590.400	483.000	598.000	590.300	490.000
BT	598.000	590.300	500.000	597.900	590.200	510.000	597.800	590.100	520.000	597.700
BT	590.000	530.000	597.500	589.800	538.000	597.300	589.600	550.000	597.100	589.400
BT	555.000	597.000	589.300	562.000	596.800	589.100	566.900	596.700	0.000	567.000
BT	594.200	0.000	600.000	593.100	0.000	700.000	590.700	0.000	0.000	0.000
GR	590.300	0.000	590.000	100.000	590.500	200.000	593.000	297.500	595.700	297.600
GR	595.700	300.000	584.700	300.000	583.600	310.000	579.700	320.000	578.200	330.000
GR	576.500	330.000	571.600	340.000	569.200	350.000	569.000	360.000	569.200	370.000
GR	568.800	380.000	589.900	380.000	590.000	383.000	569.000	383.000	565.300	390.000
GR	566.600	400.000	567.300	410.000	567.400	420.000	567.600	430.000	567.600	440.000
GR	568.100	450.000	568.300	460.000	568.600	470.000	567.300	480.000	590.400	480.000
GR	590.300	483.000	567.200	483.000	568.400	490.000	568.500	500.000	569.100	510.000
GR	570.100	520.000	576.300	530.000	578.000	538.000	579.100	538.000	582.400	550.000
GR	584.100	555.000	585.100	562.000	596.800	562.000	596.700	566.900	594.200	567.000
GR	593.100	600.000	590.700	700.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	9.150	0.000	0.000	0.000	67.000	67.000	67.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NH	3.000	.063	320.000	.027	530.000	.063	700.000	0.000	0.000	0.000
X1	9.151	40.000	300.000	562.000	1.000	1.000	1.000	.806	0.000	0.000
X3	0.000	0.000	0.000	300.000	0.000	562.000	0.000	0.000	0.000	0.000
GR	590.300	0.000	590.000	100.000	590.500	200.000	593.000	297.500	593.000	300.000
GR	584.700	300.000	583.600	310.000	579.700	320.000	578.200	330.000	576.500	330.000
GR	571.600	340.000	569.200	350.000	569.000	360.000	569.200	370.000	568.800	380.000
GR	569.000	383.000	565.300	390.000	566.600	400.000	567.300	410.000	567.400	420.000
GR	567.600	430.000	567.600	440.000	568.100	450.000	568.300	460.000	568.600	470.000
GR	567.300	480.000	567.200	483.000	568.400	490.000	568.500	500.000	569.100	510.000
GR	570.100	520.000	576.300	530.000	578.000	538.000	579.100	538.000	582.400	550.000
GR	584.100	555.000	585.100	562.000	593.100	562.000	593.100	600.000	590.700	700.000
NH	3.000	.063	150.000	.032	361.000	.063	433.000	0.000	0.000	0.000
X1	9.213	29.000	133.000	361.000	333.000	333.000	333.000	.968	0.000	0.000
X3	0.000	0.000	0.000	133.000	0.000	361.000	0.000	0.000	0.000	0.000
GR	594.000	0.000	594.200	33.000	595.600	125.000	598.500	125.100	598.600	133.000
GR	579.800	133.000	576.300	150.000	573.700	167.000	572.500	184.000	572.500	200.000
GR	595.000	200.000	595.500	209.000	572.800	209.000	571.100	223.000	569.100	245.500
GR	569.300	270.000	572.500	282.000	595.000	282.000	595.000	292.000	571.900	292.000

GR	599.300	366.900	596.200	367.000	594.900	433.000	593.500	520.000	0.000	0.000
NC	.018	.018	.018	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	9.214	29.000	133.000	361.000	1.000	1.000	1.000	.968	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.968	0.000
BT	23.000	0.000	594.000	0.000	33.000	594.200	0.000	125.000	595.600	0.000
BT	125.100	598.500	0.000	133.000	598.600	579.800	150.000	598.800	589.900	167.000
BT	599.100	593.100	184.000	599.300	589.200	201.000	599.500	577.800	208.000	599.600
BT	577.800	223.000	599.700	588.100	245.500	599.900	593.400	270.000	599.900	588.400
BT	283.000	599.900	577.900	291.000	599.800	577.600	306.000	599.800	588.400	328.500
BT	599.700	593.000	346.000	599.500	588.900	361.000	599.300	578.100	366.900	599.300
BT	0.000	367.000	596.200	0.000	433.000	594.900	0.000	520.000	593.500	0.000
GR	594.000	0.000	594.200	33.000	595.600	125.000	598.500	125.100	598.600	133.000
GR	579.800	133.000	576.300	150.000	573.700	167.000	572.500	184.000	572.500	201.000
GR	577.800	201.000	577.800	208.000	572.800	208.000	571.100	223.000	569.100	245.500
GR	569.300	270.000	572.500	283.000	577.900	283.000	577.600	291.000	571.900	291.000
GR	572.400	306.000	573.500	328.500	575.200	346.000	576.400	361.000	599.300	361.000
GR	599.300	366.900	596.200	367.000	594.900	433.000	593.500	520.000	0.000	0.000
X1	9.225	0.000	0.000	0.000	62.000	62.000	62.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NH	3.000	.063	150.000	.035	361.000	.063	433.000	0.000	0.000	0.000
X1	9.226	29.000	133.000	361.000	1.000	1.000	1.000	.968	0.000	0.000
X3	0.000	0.000	0.000	128.700	0.000	349.400	0.000	0.000	0.000	0.000
GR	594.000	0.000	594.200	33.000	595.600	125.000	598.500	125.100	598.600	133.000
GR	579.800	133.000	576.300	150.000	573.700	167.000	572.500	184.000	572.500	200.000
GR	595.000	200.000	595.500	209.000	572.800	209.000	571.100	223.000	569.100	245.500
GR	569.300	270.000	572.500	282.000	595.000	282.000	595.000	292.000	571.900	292.000
GR	572.400	306.000	573.500	328.500	575.200	346.000	576.400	361.000	599.300	361.000
GR	599.300	366.900	596.200	367.000	594.900	433.000	593.500	520.000	0.000	0.000
NH	5.000	.027	220.000	.063	225.000	.032	366.000	.063	375.000	.027
NH	575.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	9.250	27.000	205.000	375.000	120.000	120.000	120.000	0.000	1.200	0.000
X3	0.000	0.000	0.000	0.000	0.000	480.000	0.000	0.000	0.000	0.000
GR	607.400	0.000	585.500	48.000	584.700	75.000	579.300	175.000	582.100	205.000
GR	580.800	220.000	578.900	224.000	574.800	225.000	570.800	235.000	567.900	245.000
GR	568.000	255.000	568.100	265.000	568.000	275.000	567.800	285.000	567.900	295.000
GR	568.700	305.000	570.300	315.000	571.100	325.000	571.400	335.000	572.100	345.000
GR	572.600	355.000	576.000	366.000	582.500	375.000	586.000	470.000	586.700	475.000
GR	588.700	533.000	587.200	575.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.020	.020	.020	.100	.300	0.000	0.000	0.000	0.000	0.000
NH	5.000	.027	220.000	.063	225.000	.032	366.000	.063	375.000	.027
NH	575.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	9.371	0.000	0.000	0.000	644.000	644.000	644.000	0.000	-.600	0.000
X3	0.000	0.000	0.000	0.000	0.000	550.000	0.000	0.000	0.000	0.000
NH	5.000	.027	220.000	.063	225.000	.032	366.000	.063	375.000	.027
NH	575.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	9.493	27.000	205.000	375.000	644.000	644.000	644.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	533.000	0.000	0.000	0.000	0.000
GR	607.400	0.000	585.500	48.000	584.700	75.000	579.300	175.000	582.100	205.000
GR	580.800	220.000	578.900	224.000	574.800	225.000	570.800	235.000	567.900	245.000
GR	568.000	255.000	568.100	265.000	568.000	275.000	567.800	285.000	567.900	295.000
GR	568.700	305.000	570.300	315.000	571.100	325.000	571.400	335.000	572.100	345.000
GR	572.600	355.000	576.000	366.000	582.500	375.000	586.000	470.000	586.700	475.000
GR	588.700	533.000	587.200	575.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	5.000	.032	130.500	.063	153.800	.027	293.800	.059	305.500	.027
NH	435.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	9.629	90.000	130.500	305.500	720.000	720.000	720.000	0.000	-.550	0.000
X3	0.000	0.000	0.000	0.000	0.000	410.000	0.000	0.000	0.000	0.000
GR	598.900	0.000	597.100	4.500	595.400	9.000	593.700	13.500	592.000	18.000

GR	590.500	22.[illegible]	588.600	26.900	587.200	31.400	587.[illegible]	35.900	586.800	40.400
GR	586.500	44.900	586.300	49.400	586.000	53.900	585.700	58.400	585.400	62.900
GR	585.100	67.400	584.800	71.900	584.600	76.400	584.300	80.900	584.000	85.400
GR	583.700	89.900	583.400	94.400	583.100	98.900	582.800	103.400	582.500	107.900
GR	582.300	112.400	582.600	116.900	582.800	121.400	583.000	125.900	583.300	130.500
GR	582.300	136.300	581.400	142.100	580.100	148.000	575.700	153.800	573.100	159.600
GR	571.800	165.500	570.600	171.300	570.100	177.100	570.000	182.900	569.900	188.800
GR	569.600	194.600	569.300	200.400	569.100	206.300	568.900	212.100	568.800	217.900
GR	568.900	223.800	569.100	229.600	569.300	235.400	569.700	241.300	569.900	247.100
GR	570.100	252.900	570.200	258.800	570.100	264.600	570.400	270.400	570.800	276.300
GR	571.600	282.100	573.400	287.900	576.300	293.800	579.500	299.600	583.200	305.500
GR	583.500	309.800	583.800	314.100	584.100	318.500	584.400	322.800	584.600	327.100
GR	584.900	331.400	585.100	335.800	585.200	340.100	585.400	344.400	585.500	348.800
GR	585.700	353.100	585.800	357.400	586.000	361.800	586.100	366.100	586.500	370.400
GR	586.700	374.800	586.800	379.100	586.900	383.400	587.100	387.800	587.200	392.100
GR	587.400	396.400	587.500	400.800	587.600	405.100	587.700	409.400	587.800	413.800
GR	587.900	418.100	588.000	422.400	588.100	426.800	588.200	431.100	588.300	435.500
NH	5.000	.032	56.000	.063	82.000	.027	220.000	.054	236.000	.032
NH	296.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	9.765	23.000	56.000	236.000	720.000	720.000	720.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	296.000	0.000	0.000	0.000	0.000
GR	590.400	0.000	584.500	56.000	579.600	78.000	576.100	82.000	574.800	86.000
GR	573.700	96.000	572.100	106.000	571.900	116.000	570.900	126.000	570.200	136.000
GR	569.800	146.000	570.000	156.000	569.600	166.000	569.300	176.000	569.300	186.000
GR	568.700	196.000	569.600	206.000	571.600	216.000	575.100	220.000	584.000	236.000
GR	586.000	248.000	586.900	284.000	589.400	296.000	0.000	0.000	0.000	0.000
NH	5.000	.032	202.700	.063	232.200	.027	362.200	.054	380.000	.032
NH	445.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	9.856	90.000	202.700	380.000	427.500	427.500	427.500	0.000	-.760	0.000
X3	0.000	0.000	0.000	0.000	0.000	445.000	0.000	0.000	0.000	0.000
GR	593.400	0.000	592.800	6.900	591.900	13.900	590.700	20.900	589.500	27.900
GR	588.600	34.900	588.000	41.900	587.400	48.900	586.900	55.900	586.300	62.900
GR	586.100	69.900	585.900	76.900	585.700	83.800	585.600	90.800	585.500	97.800
GR	585.500	104.800	585.500	111.800	585.500	118.800	585.500	125.800	585.300	132.800
GR	585.200	139.800	585.100	146.800	585.000	153.800	584.900	160.800	585.000	167.700
GR	585.000	174.700	585.000	181.700	585.000	188.700	584.900	195.700	584.700	202.700
GR	583.300	208.600	581.800	214.500	580.400	220.400	578.000	226.300	575.000	232.200
GR	573.900	238.100	572.800	244.100	571.900	250.000	571.500	255.900	571.300	261.800
GR	570.800	267.700	570.200	273.600	569.500	279.500	569.000	285.400	568.800	291.300
GR	569.100	297.200	569.500	303.100	569.600	309.000	569.800	315.000	569.700	320.900
GR	569.600	326.800	569.400	332.700	569.400	338.600	570.400	344.500	571.700	350.400
GR	573.400	356.300	575.700	362.200	579.100	368.100	582.000	374.000	585.000	380.000
GR	585.200	382.100	585.500	384.300	585.800	386.400	586.100	388.600	586.400	390.800
GR	586.700	392.900	586.800	395.100	586.900	397.300	586.900	399.400	587.000	401.600
GR	587.100	403.800	587.200	405.900	587.300	408.100	587.400	410.300	587.400	412.400
GR	587.500	414.600	587.600	416.800	587.700	418.900	587.700	421.100	587.800	423.300
GR	587.900	425.400	588.000	427.600	588.100	429.800	588.500	431.900	589.200	434.100
GR	589.900	436.300	590.500	438.400	591.200	440.600	591.900	442.800	592.500	445.000
NH	5.000	.036	349.500	.068	378.500	.027	500.700	.054	524.000	.027
NH	594.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	9.937	90.000	349.500	524.000	427.500	427.500	427.500	0.000	-.520	0.000
GR	596.400	0.000	595.600	12.000	593.900	24.100	591.700	36.100	589.500	48.200
GR	587.900	60.200	587.000	72.300	586.000	84.300	585.100	96.400	584.200	108.400
GR	584.000	120.500	583.800	132.500	583.600	144.600	583.500	156.600	583.500	168.700
GR	583.700	180.700	583.900	192.800	584.100	204.800	584.300	216.900	584.200	228.900
GR	584.200	241.000	584.200	253.000	584.100	265.100	584.200	277.100	584.500	289.200
GR	584.700	301.200	584.900	313.300	585.200	325.300	585.100	337.400	585.000	349.500
GR	583.500	355.300	581.900	361.100	580.400	366.900	578.200	372.700	575.400	378.500
GR	573.700	384.300	572.400	390.200	571.500	396.000	571.100	401.800	570.900	407.600
GR	570.400	413.400	569.800	419.200	568.800	425.100	568.100	430.900	567.900	436.700
GR	568.300	442.500	569.100	448.300	569.700	454.100	570.200	460.000	570.200	465.800
GR	570.100	471.600	569.700	477.400	570.100	483.200	571.900	489.000	573.800	494.900
GR	576.100	500.700	578.200	506.500	581.000	512.300	583.500	518.100	586.000	524.000

GR	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	531.000	[illegible]	533.300	587.200	535.600
GR	587.500	538.000	587.600	540.300	587.700	542.600	587.800	544.900	587.900	547.300
GR	588.000	549.600	588.100	551.900	588.300	554.300	588.400	556.600	588.500	558.900
GR	588.600	561.300	588.700	563.600	588.800	565.900	588.900	568.300	589.000	570.600
GR	589.200	572.900	589.300	575.300	589.500	577.600	590.200	579.900	591.100	582.300
GR	592.100	584.600	593.000	586.900	593.900	589.300	594.800	591.600	595.800	594.000
NH	5.000	.036	584.200	.070	606.900	.030	726.000	.054	754.400	.027
NH	832.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	10.068	90.000	584.200	754.400	764.000	764.000	764.000	0.000	-.100	0.000
X3	10.000	0.000	0.000	450.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	601.200	0.000	600.000	20.100	597.100	40.200	593.200	60.400	589.400	80.500
GR	586.700	100.700	585.200	120.800	583.700	141.000	582.200	161.100	580.700	181.300
GR	580.500	201.400	580.300	221.600	580.200	241.700	580.000	261.900	580.200	282.000
GR	580.700	302.100	581.200	322.300	581.800	342.400	582.300	362.600	582.400	382.700
GR	582.500	402.900	582.600	423.000	582.700	443.200	583.000	463.300	583.600	483.500
GR	584.200	503.600	584.800	523.800	585.400	543.900	585.400	564.100	585.400	584.200
GR	583.700	589.900	582.000	595.500	580.300	601.200	578.500	606.900	575.900	612.600
GR	573.300	618.200	571.600	623.900	570.800	629.600	570.400	635.200	570.100	640.900
GR	569.600	646.600	569.000	652.300	567.600	657.900	566.600	663.600	566.300	669.300
GR	567.100	674.900	568.500	680.600	569.700	686.300	570.800	692.000	570.900	697.600
GR	570.700	703.300	570.200	709.000	571.200	714.600	574.100	720.300	577.200	726.000
GR	580.300	731.700	582.200	737.300	584.000	743.000	585.800	748.700	587.600	754.400
GR	587.700	757.000	587.900	759.500	588.100	762.100	588.300	764.700	588.500	767.300
GR	588.700	769.900	588.800	772.500	589.000	775.100	589.100	777.700	589.300	780.300
GR	589.500	782.900	589.700	785.500	589.800	788.100	590.000	790.700	590.100	793.300
GR	590.300	795.900	590.400	798.500	590.600	801.100	590.800	803.700	591.000	806.300
GR	591.100	808.900	591.300	811.500	591.600	814.100	592.900	816.700	594.200	819.300
GR	595.600	821.900	596.900	824.500	598.200	827.100	599.500	829.700	600.900	832.400
NH	5.000	.036	643.000	.072	668.000	.032	780.000	.054	812.000	.027
NH	892.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	10.089	26.000	643.000	812.000	191.000	191.000	191.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	600.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	602.500	0.000	600.700	30.000	587.300	100.000	579.900	200.000	579.200	300.000
GR	581.900	400.000	582.500	500.000	585.600	600.000	585.600	643.000	577.900	668.000
GR	575.600	672.000	571.900	680.000	570.500	690.000	569.900	700.000	569.100	710.000
GR	566.400	720.000	565.900	730.000	568.800	740.000	571.100	750.000	571.100	760.000
GR	570.100	770.000	575.800	780.000	581.800	790.000	588.000	812.000	592.000	873.000
GR	602.200	892.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	5.000	.040	685.700	.070	697.400	.040	803.700	.070	820.000	.030
NH	973.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	10.122	90.000	685.700	820.000	174.800	174.800	174.800	0.000	-1.320	0.000
X3	10.000	0.000	0.000	670.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	602.300	0.000	602.000	23.600	601.200	47.200	600.200	70.900	599.100	94.500
GR	598.400	118.200	597.900	141.800	597.400	165.500	597.000	189.100	596.500	212.800
GR	596.500	236.400	596.400	260.100	596.400	283.700	596.300	307.400	596.400	331.000
GR	596.600	354.600	596.700	378.300	596.900	401.900	597.100	425.600	597.100	449.200
GR	597.100	472.900	597.200	496.500	597.200	520.200	597.300	543.800	597.500	567.500
GR	597.700	591.100	597.900	614.800	598.100	638.400	598.200	662.100	598.200	685.700
GR	589.300	688.100	576.500	692.800	575.900	697.400	574.200	702.000	571.900	706.600
GR	570.200	711.300	569.200	715.900	568.700	720.500	569.100	725.100	569.500	729.800
GR	570.000	734.400	570.400	739.000	569.900	743.600	569.200	748.200	569.900	752.900
GR	570.700	757.500	571.200	762.100	571.700	766.700	572.100	771.400	572.300	776.000
GR	572.300	780.600	572.300	785.200	572.700	789.900	573.700	794.500	574.700	799.100
GR	575.800	803.700	577.000	808.400	577.700	813.000	590.100	817.600	599.000	820.000
GR	599.100	825.100	599.200	830.200	599.200	835.300	599.300	840.400	599.400	845.500
GR	599.400	850.600	599.500	855.700	599.600	860.800	599.600	865.900	599.700	871.000
GR	599.800	876.100	599.800	881.200	599.900	886.300	600.000	891.400	600.000	896.500
GR	600.100	901.600	600.100	906.700	600.200	911.800	600.300	916.900	600.300	922.000
GR	600.400	927.100	600.500	932.200	600.600	937.300	600.900	942.400	601.300	947.500
GR	601.700	952.600	602.100	957.700	602.400	962.800	602.800	967.900	603.200	973.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
NH	3.000	.063	701.500	.036	821.800	.063	1000.000	0.000	0.000	0.000

X1	10.1[illegible]	29.000	700.000	822.800	58.200	58.200	58.200	0.000	0.000	0.000
GR	602.300	0.000	602.500	100.000	602.200	200.000	602.100	300.000	602.200	400.000
GR	602.200	500.000	602.300	600.000	602.500	700.000	594.100	700.000	575.800	701.500
GR	574.700	705.000	575.000	710.000	569.800	720.000	568.000	730.000	569.500	740.000
GR	571.400	750.000	570.100	756.300	572.000	764.300	572.200	770.000	572.700	780.000
GR	572.900	790.000	573.600	800.000	574.400	810.000	575.600	815.000	575.700	821.800
GR	594.100	822.800	602.800	822.800	603.200	900.000	603.600	1000.000	0.000	0.000
NC	.018	.018	.018	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	10.133	31.000	700.000	822.800	1.000	1.000	1.000	0.000	0.000	0.000
BT	17.000	0.000	602.300	0.000	100.000	602.500	0.000	200.000	602.200	0.000
BT	300.000	602.100	0.000	400.000	602.200	0.000	500.000	602.200	0.000	600.000
BT	602.300	0.000	700.000	602.500	594.100	710.000	602.500	594.100	720.000	602.600
BT	594.100	757.300	602.600	594.100	763.300	602.700	594.100	780.000	602.700	594.100
BT	790.000	602.800	594.100	822.800	602.800	594.100	900.000	603.200	0.000	1000.000
BT	603.600	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	602.300	0.000	602.500	100.000	602.200	200.000	602.100	300.000	602.200	400.000
GR	602.200	500.000	602.300	600.000	602.500	700.000	594.100	700.000	575.800	701.500
GR	574.700	705.000	575.000	710.000	569.800	720.000	568.000	730.000	569.500	740.000
GR	571.400	750.000	570.100	756.300	594.100	757.300	594.100	763.300	572.000	764.300
GR	572.200	770.000	572.700	780.000	572.900	790.000	573.600	800.000	574.400	810.000
GR	575.600	815.000	575.700	821.800	594.100	822.800	602.800	822.800	603.200	900.000
GR	603.600	1000.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	10.139	0.000	0.000	0.000	32.000	32.000	32.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NH	3.000	.063	701.500	.036	821.800	.063	1000.000	0.000	0.000	0.000
X1	10.140	29.000	700.000	822.800	1.000	1.000	1.000	0.000	0.000	0.000
GR	602.300	0.000	602.500	100.000	602.200	200.000	602.100	300.000	602.200	400.000
GR	602.200	500.000	602.300	600.000	602.500	700.000	594.100	700.000	575.800	701.500
GR	574.700	705.000	575.000	710.000	569.800	720.000	568.000	730.000	569.500	740.000
GR	571.400	750.000	570.100	756.300	572.000	764.300	572.200	770.000	572.700	780.000
GR	572.900	790.000	573.600	800.000	574.400	810.000	575.600	815.000	575.700	821.800
GR	594.100	822.800	602.800	822.800	603.200	900.000	603.600	1000.000	0.000	0.000
NH	3.000	.064	654.000	.036	777.600	.064	975.000	0.000	0.000	0.000
X1	10.153	90.000	649.300	782.400	70.000	70.000	70.000	0.000	-.140	0.000
GR	602.000	0.000	602.100	22.300	602.100	44.700	602.100	67.100	602.100	89.500
GR	602.100	111.900	602.000	134.300	601.900	156.700	601.900	179.100	601.800	201.500
GR	601.800	223.800	601.800	246.200	601.800	268.600	601.800	291.000	601.800	313.400
GR	601.800	335.800	601.800	358.200	601.900	380.600	601.800	403.000	601.800	425.400
GR	601.800	447.700	601.800	470.100	601.800	492.500	601.800	514.900	601.800	537.300
GR	601.900	559.700	601.900	582.100	602.000	604.500	602.000	626.900	602.100	649.300
GR	592.100	649.300	575.100	654.000	575.000	658.800	573.300	663.500	570.800	668.300
GR	569.000	673.000	568.300	677.800	567.700	682.500	568.200	687.300	569.000	692.000
GR	569.500	696.800	570.200	701.500	570.100	706.300	569.500	711.000	570.500	715.800
GR	571.100	720.600	571.200	725.300	571.400	730.100	571.500	734.800	571.800	739.600
GR	571.900	744.300	572.100	749.100	572.400	753.800	572.700	758.600	573.500	763.300
GR	574.200	768.100	575.200	772.800	575.600	777.600	595.700	782.300	602.400	782.400
GR	602.300	788.800	602.300	795.200	602.300	801.600	602.400	808.000	602.400	814.400
GR	602.400	820.900	602.500	827.300	602.500	833.700	602.500	840.100	602.500	846.500
GR	602.500	853.000	602.500	859.400	602.500	865.800	602.600	872.200	602.600	878.600
GR	602.600	885.100	602.600	891.500	602.700	897.900	602.700	904.300	602.700	910.700
GR	602.700	917.200	602.800	923.600	602.800	930.000	602.800	936.400	602.800	942.800
GR	602.800	949.300	602.800	955.700	602.800	962.100	602.800	968.500	602.900	975.000
NH	3.000	.065	603.700	.036	736.900	.065	950.000	0.000	0.000	0.000
X1	10.166	90.000	598.600	742.000	70.000	70.000	70.000	0.000	-.290	0.000
GR	601.900	0.000	601.900	20.600	601.900	41.200	601.900	61.900	601.900	82.500
GR	601.900	103.200	601.800	123.800	601.700	144.400	601.700	165.100	601.600	185.700
GR	601.600	206.400	601.600	227.000	601.600	247.600	601.600	268.300	601.600	288.900
GR	601.600	309.600	601.500	330.200	601.600	350.900	601.600	371.500	601.500	392.100
GR	601.500	412.800	601.500	433.400	601.500	454.100	601.500	474.700	601.500	495.300
GR	601.600	516.000	601.600	536.600	601.700	557.300	601.700	577.900	601.800	598.600
GR	590.200	598.600	575.500	603.700	575.100	608.800	573.400	613.900	570.600	619.000

GR	[illegible]	624.200	[illegible]	629.300	[illegible]	634.400	567.600	639.500	568.600	644.700
GR	568.900	649.800	569.500	654.900	569.400	660.000	568.900	665.200	569.700	670.300
GR	570.200	675.400	570.200	680.500	570.400	685.700	570.500	690.800	570.900	695.900
GR	571.100	701.000	571.200	706.200	571.500	711.300	571.900	716.400	573.000	721.500
GR	574.100	726.700	575.200	731.800	575.600	736.900	597.500	742.000	602.000	742.000
GR	601.900	749.000	601.900	755.900	601.900	762.800	602.000	769.800	602.000	776.700
GR	601.900	783.600	602.000	790.600	602.000	797.500	602.000	804.400	602.000	811.300
GR	602.000	818.300	602.000	825.200	602.000	832.100	602.100	839.100	602.100	846.000
GR	602.100	852.900	602.100	859.900	602.100	866.800	602.100	873.700	602.100	380.600
GR	602.100	887.600	602.200	894.500	602.200	901.400	602.200	908.400	602.200	915.300
GR	602.200	922.200	602.200	929.200	602.200	936.100	602.200	943.000	602.300	950.000
NH	3.000	.068	497.200	.036	661.400	.068	900.000	0.000	0.000	0.000
X1	10.192	90.000	497.200	661.400	140.000	140.000	140.000	0.000	-.580	0.000
GR	601.500	0.000	601.500	17.100	601.500	34.200	601.500	51.400	601.500	68.500
GR	601.400	85.700	601.400	102.800	601.300	120.000	601.300	137.100	601.200	154.300
GR	601.200	171.400	601.100	188.600	601.100	205.700	601.100	222.900	601.100	240.000
GR	601.100	257.100	601.000	274.300	601.000	291.400	601.000	308.600	601.000	325.700
GR	600.900	342.900	600.900	360.000	600.900	377.200	600.900	394.300	600.900	411.500
GR	600.900	428.600	601.000	445.800	601.000	462.900	601.100	480.100	601.200	497.200
GR	586.300	497.200	576.100	503.100	575.300	508.900	573.600	514.800	570.300	520.600
GR	568.000	526.500	567.400	532.400	566.800	538.200	566.900	544.100	567.800	550.000
GR	567.600	555.800	568.100	561.700	568.100	567.500	567.600	573.400	568.100	579.300
GR	568.400	585.100	568.300	591.000	568.400	596.900	568.500	602.700	569.100	608.600
GR	569.500	614.400	569.500	620.300	569.700	626.200	570.300	632.000	572.100	637.900
GR	573.900	643.800	575.100	649.600	575.600	655.500	585.700	661.300	601.200	661.400
GR	601.100	669.300	601.100	677.300	601.100	685.200	601.100	693.200	601.100	701.100
GR	601.000	709.100	601.000	717.000	601.000	725.000	601.000	732.900	601.000	740.900
GR	601.000	748.800	601.000	756.800	601.000	764.700	601.000	772.700	601.000	780.600
GR	601.000	788.600	601.000	796.600	601.000	804.500	601.000	812.500	601.000	820.400
GR	601.000	828.400	601.000	836.300	601.000	844.300	601.000	852.200	601.000	860.200
GR	601.000	868.100	601.000	876.100	601.000	884.000	601.000	892.000	601.000	900.000
NH	3.000	.072	304.000	.036	500.000	.072	800.000	0.000	0.000	0.000
X1	10.245	38.000	294.500	500.000	287.000	287.000	287.000	.971	0.000	0.000
GR	600.800	0.000	600.300	100.000	599.800	200.000	599.600	245.000	599.900	294.500
GR	578.600	294.500	577.000	304.000	574.200	316.000	572.200	322.000	570.000	323.000
GR	566.800	330.000	566.100	340.000	565.300	350.000	564.900	355.000	566.400	360.400
GR	565.500	363.600	565.000	370.000	565.500	380.000	565.000	390.000	565.100	400.000
GR	564.600	410.000	564.500	420.000	564.400	425.000	564.400	430.900	565.500	434.000
GR	566.400	440.000	565.900	450.000	566.300	460.000	567.300	465.000	571.000	472.000
GR	574.400	480.000	575.800	494.000	577.500	500.000	599.600	500.000	599.300	540.000
GR	599.000	600.000	598.700	700.000	598.500	800.000	0.000	0.000	0.000	0.000
NC	.018	.018	.018	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	10.246	42.000	294.500	500.000	1.000	1.000	1.000	.971	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.971	0.000
BT	19.000	0.000	600.800	0.000	100.000	600.300	0.000	200.000	599.800	0.000
BT	245.000	599.600	0.000	294.500	599.900	594.100	304.000	599.900	594.100	316.000
BT	599.800	594.100	322.000	599.700	594.100	323.000	599.700	594.100	330.000	599.600
BT	594.100	360.400	599.600	594.100	363.600	599.600	594.100	430.800	599.600	594.100
BT	434.000	599.600	594.100	500.000	599.600	594.100	540.000	599.300	0.000	600.000
BT	599.000	0.000	700.000	598.700	0.000	800.000	598.500	0.000	0.000	0.000
GR	600.800	0.000	600.300	100.000	599.800	200.000	599.600	245.000	599.900	294.500
GR	578.600	294.500	577.000	304.000	574.200	316.000	572.200	322.000	570.000	323.000
GR	566.800	330.000	566.100	340.000	565.300	350.000	564.900	355.000	566.400	360.400
GR	594.100	360.400	594.100	363.600	565.500	363.600	565.000	370.000	565.500	380.000
GR	565.000	390.000	565.100	400.000	564.600	410.000	564.500	420.000	564.400	425.000
GR	564.400	430.800	594.100	430.800	594.100	434.000	565.500	434.000	566.400	440.000
GR	565.900	450.000	566.300	460.000	567.300	465.000	571.000	472.000	574.400	480.000
GR	575.800	494.000	577.500	500.000	599.600	500.000	599.300	540.000	599.000	600.000
GR	598.700	700.000	598.500	800.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	10.261	0.000	0.000	0.000	85.000	85.000	85.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NH	3.000	.072	304.000	.036	500.000	.072	800.000	0.000	0.000	0.000

X1	10.262	38.000	294.500	500.000	1.000	1.000	1.000	.971	0.000	0.000
GR	600.800	0.000	600.300	100.000	599.800	200.000	599.600	245.000	599.900	294.500
GR	578.600	294.500	577.000	304.000	574.200	316.000	572.200	322.000	570.000	323.000
GR	566.800	330.000	566.100	340.000	565.300	350.000	564.900	355.000	566.400	360.400
GR	565.500	363.600	565.000	370.000	565.500	380.000	565.000	390.000	565.100	400.000
GR	564.600	410.000	564.500	420.000	564.400	425.000	564.400	430.800	565.500	434.000
GR	566.400	440.000	565.900	450.000	566.300	460.000	567.300	465.000	571.000	472.000
GR	574.400	480.000	575.800	494.000	577.500	500.000	599.600	500.000	599.300	540.000
GR	599.000	600.000	598.700	700.000	598.500	800.000	0.000	0.000	0.000	0.000
NH	5.000	.027	449.000	.054	464.000	.036	590.000	.063	600.000	.027
NH	878.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	10.317	30.000	449.000	619.000	320.000	330.000	310.000	0.000	-.800	0.000
GR	597.300	0.000	593.600	100.000	589.200	200.000	584.800	228.000	583.700	300.000
GR	584.400	400.000	585.800	449.000	578.900	462.000	576.100	464.000	573.800	470.000
GR	570.600	480.000	567.200	490.000	566.300	500.000	566.200	510.000	566.600	520.000
GR	567.200	530.000	568.000	540.000	568.600	550.000	569.000	560.000	568.800	570.000
GR	571.100	580.000	576.300	590.000	576.700	596.000	582.200	600.000	585.100	619.000
GR	584.100	700.000	583.800	787.000	584.500	800.000	592.000	854.000	595.500	878.000
NC	.020	.020	.020	.100	.300	0.000	0.000	0.000	0.000	0.000
NH	5.000	.027	449.000	.036	464.000	.032	590.000	.054	600.000	.027
NH	878.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	10.381	30.000	449.000	619.000	330.000	340.000	320.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	877.000	0.000	0.000	0.000	0.000
GR	597.300	0.000	593.600	100.000	589.200	200.000	584.800	228.000	583.700	300.000
GR	584.400	400.000	585.800	449.000	578.900	462.000	576.100	464.000	573.800	470.000
GR	570.600	480.000	567.200	490.000	566.300	500.000	566.200	510.000	566.600	520.000
GR	567.200	530.000	568.000	540.000	568.600	550.000	569.000	560.000	568.800	570.000
GR	571.100	580.000	576.300	590.000	576.700	596.000	582.200	600.000	585.100	619.000
GR	584.100	700.000	583.800	787.000	584.500	800.000	592.000	854.000	595.500	878.000
NH	5.000	.027	740.000	.063	749.000	.041	877.000	.063	882.000	.040
NH	927.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	10.695	30.000	740.000	882.000	1530.000	1620.000	1660.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	520.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	599.900	0.000	589.300	82.000	585.700	121.000	585.700	182.000	586.700	282.000
GR	585.800	382.000	586.100	482.000	587.200	551.000	587.900	598.000	587.100	682.000
GR	586.600	722.000	585.500	740.000	576.200	749.000	574.300	752.000	570.500	762.000
GR	570.900	772.000	570.700	782.000	570.400	792.000	570.400	802.000	570.500	812.000
GR	570.600	822.000	570.300	832.000	570.600	842.000	570.600	852.000	571.200	862.000
GR	573.700	872.000	576.300	877.000	576.900	880.000	579.500	882.000	606.000	927.000
NH	5.000	.027	533.000	.063	603.000	.036	725.000	.063	733.000	.027
NH	1433.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Gaging Station

X1	10.818	34.000	600.000	733.000	650.000	650.000	650.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	550.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	612.500	0.000	603.600	33.000	593.900	77.000	592.600	133.000	591.500	233.000
GR	588.400	333.000	589.000	413.000	588.100	428.000	587.700	533.000	587.700	576.000
GR	583.400	600.000	575.600	600.000	573.100	603.000	570.500	613.000	569.400	623.000
GR	568.500	633.000	569.400	643.000	568.900	653.000	568.300	663.000	568.100	673.000
GR	568.500	683.000	568.800	693.000	568.400	703.000	568.900	713.000	572.300	723.000
GR	576.000	725.000	583.000	733.000	583.800	833.000	589.800	933.000	588.300	1033.000
GR	590.700	1133.000	595.100	1233.000	600.000	1333.000	600.600	1433.000	0.000	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
NH	3.000	.090	450.100	.040	625.000	.090	1450.000	0.000	0.000	0.000

Moravian

X1	10.846	64.000	586.000	782.500	150.000	150.000	150.000	.950	0.000	0.000
X3	0.000	0.000	0.000	586.000	0.000	782.500	591.000	0.000	0.000	0.000
GR	612.500	0.000	603.600	33.000	593.900	77.000	592.600	133.000	592.000	186.000
GR	591.500	233.000	590.000	286.000	588.400	333.000	588.700	386.000	589.000	413.000
GR	588.100	428.000	587.700	486.000	587.700	533.000	587.700	576.000	585.700	586.000
GR	575.200	586.000	575.300	593.000	572.200	595.000	570.400	601.000	569.500	606.000
GR	567.100	616.000	565.800	626.000	568.100	632.000	589.900	632.000	589.900	636.600
GR	567.000	636.600	565.900	641.000	565.600	646.000	565.400	656.000	565.700	666.000

GR	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
GR	566.500	691.000	566.100	696.000	566.800	706.000	568.600	716.000	571.800	722.000
GR	574.200	726.000	574.200	731.000	576.000	732.700	589.900	732.700	589.900	736.000
GR	575.800	736.000	575.100	746.000	574.500	756.000	575.200	761.000	578.500	771.000
GR	579.800	776.000	582.300	782.500	583.000	782.500	583.800	832.500	586.800	866.000
GR	589.800	932.500	589.100	986.000	588.300	1032.500	589.500	1086.000	590.700	1132.500
GR	591.100	1143.000	595.100	1232.500	600.000	1332.500	600.600	1432.500	0.000	0.000
SB	0.000	1.550	3.050	0.000	197.500	0.000	3423.900	0.000	565.000	565.000
NC	.090	.040	.090	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	10.853	64.000	586.000	782.500	32.000	32.000	32.000	.950	0.000	0.000
X2	0.000	0.000	1.000	589.900	591.100	0.000	0.000	0.000	.950	0.000
X3	0.000	0.000	0.000	586.000	0.000	782.500	591.000	0.000	0.000	0.000
BT	36.000	33.000	603.600	0.000	133.000	599.200	0.000	186.000	596.800	0.000
BT	286.000	593.600	0.000	386.000	593.000	0.000	428.000	593.100	0.000	436.000
BT	593.500	0.000	586.000	593.100	585.700	586.000	593.700	589.700	593.000	593.700
BT	589.700	595.000	593.700	589.700	601.000	593.700	589.700	606.000	593.800	589.800
BT	616.000	593.800	589.800	626.000	593.900	589.900	632.000	593.900	589.900	636.600
BT	593.900	589.900	682.000	593.900	589.900	686.600	593.900	589.900	732.700	593.900
BT	589.900	736.000	593.900	589.900	746.000	593.800	589.800	761.000	593.800	589.800
BT	771.000	593.700	589.700	782.500	593.700	589.700	782.500	593.700	582.300	832.500
BT	593.400	0.000	886.000	593.700	0.000	986.000	592.300	0.000	1032.500	592.000
BT	0.000	1086.000	591.600	0.000	1132.500	591.400	0.000	1143.000	591.100	0.000
BT	1232.500	595.100	0.000	1332.500	600.000	0.000	1432.500	600.600	0.000	0.000
GR	612.500	0.000	603.600	33.000	593.900	77.000	592.600	133.000	592.000	186.000
GR	591.500	233.000	590.000	236.000	588.400	333.000	588.700	386.000	589.000	413.000
GR	588.100	428.000	587.700	486.000	587.700	533.000	587.700	576.000	585.700	586.000
GR	575.200	586.000	575.300	593.000	572.200	595.000	570.400	601.000	569.500	606.000
GR	567.100	616.000	565.800	626.000	568.100	632.000	589.900	632.000	589.900	636.600
GR	567.000	636.600	565.900	641.000	565.600	646.000	565.400	656.000	565.700	666.000
GR	565.000	676.000	566.500	682.000	589.900	692.000	589.900	686.600	566.600	686.600
GR	566.500	691.000	566.100	696.000	566.800	706.000	568.600	716.000	571.800	722.000
GR	574.200	726.000	574.200	731.000	576.000	732.700	589.900	732.700	589.900	736.000
GR	575.800	736.000	575.100	746.000	574.500	756.000	575.200	761.000	578.500	771.000
GR	579.800	776.000	582.300	782.500	583.000	782.500	583.800	832.500	586.800	866.000
GR	589.800	932.500	589.100	986.000	588.300	1032.500	589.500	1086.000	590.700	1132.500
GR	591.100	1143.000	595.100	1232.500	600.000	1332.500	600.600	1432.500	0.000	0.000
NH	4.000	.040	530.000	.100	571.000	.040	685.000	.110	1785.000	0.000
X1	10.910	56.000	569.000	691.000	300.000	470.000	300.000	0.000	-4.140	0.000
X3	0.000	0.000	0.000	500.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	589.000	0.000	599.900	100.000	595.300	200.000	591.000	300.000	591.600	394.000
GR	591.300	400.000	591.100	500.000	590.400	530.000	582.000	556.000	578.500	569.000
GR	574.300	571.000	572.000	580.000	571.700	590.000	571.400	600.000	571.200	610.000
GR	570.800	620.000	570.800	630.000	570.900	640.000	571.600	650.000	572.800	660.000
GR	573.000	670.000	572.900	680.000	575.300	685.000	584.100	691.000	583.000	700.000
GR	584.500	700.000	587.400	750.000	589.100	785.000	585.400	800.000	584.900	800.000
GR	578.800	820.000	582.900	900.000	585.500	900.000	585.800	1000.000	582.600	1000.000
GR	582.100	1050.000	585.600	1050.000	586.000	1075.000	587.800	1100.000	587.500	1150.000
GR	587.000	1200.000	587.800	1250.000	590.100	1300.000	591.000	1380.000	581.200	1400.000
GR	584.900	1450.000	584.100	1500.000	582.100	1530.000	588.400	1535.000	588.800	1550.000
GR	590.600	1600.000	590.700	1650.000	591.200	1702.000	593.300	1712.000	596.600	1750.000
GR	600.200	1785.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	4.000	.040	530.000	.100	571.000	.040	685.000	.110	2520.000	0.000
X1	11.052	56.000	569.000	691.000	750.000	330.000	750.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	550.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	589.000	0.000	599.900	100.000	595.300	200.000	591.000	300.000	591.600	394.000
GR	591.300	400.000	591.100	500.000	590.400	530.000	582.000	556.000	578.500	569.000
GR	574.300	571.000	572.000	580.000	571.700	590.000	571.400	600.000	571.200	610.000
GR	570.800	620.000	570.800	630.000	570.900	640.000	571.600	650.000	572.800	660.000
GR	573.000	670.000	572.900	680.000	575.300	685.000	584.100	691.000	583.000	700.000
GR	584.500	700.000	587.400	750.000	589.100	785.000	585.400	800.000	584.900	800.000
GR	578.800	820.000	582.900	900.000	585.500	900.000	585.800	1000.000	582.600	1000.000
GR	582.100	1050.000	585.600	1050.000	586.000	1100.000	587.800	1150.000	587.500	1250.000
GR	587.000	1350.000	587.800	1450.000	590.100	1550.000	591.000	1710.000	581.200	1750.000

GR	[illegible]	[illegible]	[illegible]	[illegible]	582.100	2010.000	[illegible]	[illegible]	[illegible]	[illegible]
GR	590.600	2150.000	590.700	2250.000	591.200	2354.000	593.300	2375.000	596.600	2450.000
GR	600.200	2520.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	4.000	8580.000	13300.000	15000.000	19800.000	0.000	0.000	0.000	0.000	0.000
NH	5.000	.100	41.000	.040	126.000	.110	1802.000	.060	2032.000	.030
NH	2302.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	11.292	39.000	41.000	126.000	1350.000	500.000	1268.000	0.000	0.000	0.000
GR	594.200	0.000	593.800	16.000	593.200	41.000	575.600	72.000	575.200	82.000
GR	573.500	87.000	571.200	92.000	569.400	102.000	569.900	112.000	574.500	122.000
GR	581.700	126.000	584.500	162.000	584.200	232.000	584.400	332.000	584.400	432.000
GR	585.200	532.000	585.600	632.000	588.700	732.000	585.600	832.000	586.000	882.000
GR	586.000	882.000	587.800	932.000	587.500	1032.000	587.000	1132.000	587.800	1232.000
GR	590.100	1332.000	591.000	1492.000	581.200	1532.000	584.900	1632.000	584.100	1732.000
GR	582.100	1792.000	588.400	1802.000	588.800	1832.000	590.600	1932.000	590.700	2032.000
GR	591.200	2136.000	593.300	2157.000	596.600	2232.000	600.200	2302.000	0.000	0.000
NH	5.000	.100	272.400	.040	358.100	.110	1764.300	.060	2008.800	.030
NH	2192.200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	11.393	90.000	272.400	358.100	478.700	36.500	528.700	0.000	0.000	0.000
GR	594.800	0.000	594.700	9.300	594.700	18.700	594.600	28.100	594.500	37.500
GR	594.500	46.900	594.400	56.300	594.300	65.700	594.200	75.100	594.100	84.500
GR	593.600	93.900	593.500	103.300	593.400	112.700	593.300	122.100	593.300	131.500
GR	593.300	140.900	593.300	150.300	593.100	159.700	593.100	169.100	593.100	178.500
GR	593.200	187.800	593.000	197.200	592.900	206.600	592.700	216.000	592.400	225.400
GR	592.400	234.800	592.200	244.200	592.100	253.600	591.800	263.000	591.200	272.400
GR	588.900	275.300	587.300	278.100	585.900	281.000	584.500	283.800	583.200	286.700
GR	581.900	289.500	580.500	292.400	579.100	295.300	577.800	298.100	576.400	301.000
GR	575.100	303.800	575.000	306.700	574.800	309.500	574.700	312.400	574.200	315.300
GR	573.400	318.100	572.400	321.000	571.400	323.800	571.000	326.700	570.600	329.500
GR	570.200	332.400	569.950	335.300	570.100	338.100	570.400	341.000	570.700	343.800
GR	572.000	346.700	573.500	349.600	575.000	352.400	577.700	355.300	582.300	358.100
GR	584.700	419.300	584.800	480.400	585.100	541.500	585.300	602.700	585.800	663.800
GR	586.300	724.900	586.700	786.100	588.600	847.200	588.100	908.400	587.000	969.500
GR	588.500	1030.600	588.600	1091.800	588.400	1152.900	588.200	1214.000	588.700	1275.200
GR	589.900	1336.300	591.000	1397.400	591.500	1458.600	589.400	1519.700	585.300	1580.900
GR	587.000	1642.000	586.700	1703.100	586.300	1764.300	591.100	1825.400	592.100	1886.500
GR	592.200	1947.700	592.500	2008.800	594.400	2069.900	597.000	2131.100	600.100	2192.200
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
NH	5.000	.050	433.400	.120	966.800	.045	1045.900	.060	1054.700	.040
NH	1863.100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	11.695	90.000	966.800	1054.700	1486.300	109.500	1586.300	0.000	0.000	0.000
GR	596.900	0.000	596.700	33.300	596.500	66.600	596.300	100.000	596.100	133.300
GR	596.000	166.600	595.800	200.000	595.600	233.300	595.300	266.700	594.300	300.000
GR	593.200	333.300	592.700	366.700	592.400	400.000	592.100	433.400	592.200	466.700
GR	592.400	500.000	592.300	533.400	591.900	566.700	591.700	600.100	592.000	633.400
GR	592.300	666.700	591.900	700.100	591.600	733.400	590.600	766.700	589.500	800.100
GR	589.600	833.400	589.200	866.800	588.600	900.100	587.800	933.400	585.200	966.800
GR	581.200	969.700	579.400	972.600	578.700	975.600	578.100	978.500	577.600	981.400
GR	577.000	984.400	576.400	987.300	575.700	990.200	575.100	993.200	574.500	996.100
GR	573.900	999.000	573.600	1001.900	573.400	1004.900	573.300	1007.800	573.100	1010.700
GR	572.700	1013.700	572.400	1016.600	572.200	1019.500	572.100	1022.500	572.000	1025.400
GR	571.800	1028.300	571.700	1031.300	571.590	1034.200	572.400	1037.100	573.500	1040.000
GR	574.800	1043.000	576.900	1045.900	578.900	1048.800	581.400	1051.800	584.400	1054.700
GR	585.900	1081.600	586.600	1108.600	587.400	1135.500	588.100	1162.500	589.000	1189.400
GR	589.500	1216.400	589.900	1243.300	590.800	1270.300	591.000	1297.200	590.900	1324.200
GR	591.800	1351.100	591.900	1378.100	591.700	1405.000	591.700	1431.900	592.000	1458.900
GR	592.600	1485.800	593.400	1512.800	594.100	1539.700	593.900	1566.700	593.000	1593.600
GR	594.100	1620.600	594.500	1647.500	594.800	1674.500	596.500	1701.400	596.900	1728.400
GR	597.000	1755.300	597.200	1782.300	597.900	1809.200	598.800	1836.100	599.900	1863.100
NH	5.000	.050	500.000	.120	1311.000	.045	1388.000	.060	1400.000	.040
NH	1700.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	11.845	34.000	1311.000	1400.000	735.000	54.000	785.000	0.000	0.000	0.000
GR	598.000	0.000	597.400	100.000	596.900	200.000	596.400	300.000	595.500	400.000

GR	[illegible]	[illegible]	[illegible]	[illegible]	591.500	600.000	592.100	700.000	590.900	800.000
GR	591.900	900.000	590.900	1000.000	587.700	1100.000	588.400	1135.000	586.500	1250.000
GR	584.400	1300.000	582.300	1311.000	575.700	1315.000	575.200	1320.000	574.500	1330.000
GR	573.600	1340.000	572.700	1350.000	572.400	1360.000	572.800	1370.000	572.500	1380.000
GR	576.200	1388.000	585.500	1400.000	590.600	1450.000	593.600	1514.000	593.300	1532.000
GR	594.000	1561.000	596.900	1600.000	599.100	1630.000	599.900	1700.000	0.000	0.000
QT	4.000	8730.000	13500.000	15200.000	20000.000	0.000	0.000	0.000	0.000	0.000
NH	5.000	.040	518.000	.110	1251.900	.045	1329.200	.060	1341.200	.045
NH	1666.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	11.860	90.000	1251.900	1341.200	77.200	75.600	78.900	0.000	0.000	0.000
GR	597.800	0.000	597.500	43.100	597.300	86.300	597.100	129.500	596.800	172.600
GR	596.600	215.800	596.400	259.000	596.200	302.100	595.800	345.300	595.200	388.500
GR	593.200	431.600	592.600	474.800	592.300	518.000	591.900	561.100	592.000	604.300
GR	592.200	647.500	592.100	690.700	591.500	733.800	591.300	777.000	591.600	820.200
GR	591.900	863.300	591.500	906.500	590.900	949.700	589.700	992.800	588.200	1036.000
GR	588.400	1079.200	587.800	1122.300	587.000	1165.500	585.600	1208.700	582.200	1251.900
GR	577.500	1254.800	575.600	1257.800	575.200	1260.800	575.000	1263.800	574.700	1266.700
GR	574.500	1269.700	574.200	1272.700	573.900	1275.700	573.700	1278.600	573.500	1281.600
GR	573.200	1284.600	573.000	1287.600	572.800	1290.500	572.700	1293.500	572.600	1296.500
GR	572.500	1299.500	572.480	1302.500	572.600	1305.400	572.700	1308.400	572.800	1311.400
GR	572.800	1314.400	572.700	1317.300	572.600	1320.300	573.600	1323.300	574.900	1326.300
GR	576.200	1329.200	578.500	1332.200	580.800	1335.200	583.200	1338.200	585.600	1341.200
GR	586.500	1352.000	587.400	1362.800	588.300	1373.700	589.200	1384.500	590.100	1395.300
GR	590.600	1406.200	591.000	1417.000	591.500	1427.900	591.800	1438.700	592.100	1449.500
GR	592.600	1460.400	592.600	1471.200	592.400	1482.100	592.500	1492.900	592.700	1503.700
GR	593.000	1514.600	593.800	1525.400	594.600	1536.300	595.300	1547.100	596.100	1557.900
GR	596.900	1568.800	597.700	1579.600	598.500	1590.500	598.700	1601.300	599.000	1612.100
GR	599.100	1623.000	599.300	1633.800	599.500	1644.700	599.600	1655.500	599.800	1666.400
NH	5.000	.045	534.700	.100	1192.800	.045	1270.400	.070	1282.400	.050
NH	1632.800	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	11.875	90.000	1192.800	1282.400	77.300	75.600	78.900	0.000	0.000	0.000
GR	597.600	0.000	597.400	41.100	597.200	82.200	597.000	123.400	596.800	164.500
GR	596.600	205.600	596.400	246.800	596.200	287.900	595.800	329.000	595.300	370.200
GR	593.500	411.300	592.900	452.400	592.600	493.600	592.300	534.700	592.400	575.800
GR	592.500	617.000	592.400	658.100	591.900	699.200	591.600	740.400	591.900	781.500
GR	592.100	822.600	591.600	863.800	591.000	904.900	589.800	946.000	588.400	987.200
GR	588.500	1028.300	587.900	1069.400	587.200	1110.600	585.500	1151.700	582.200	1192.800
GR	577.700	1195.800	575.700	1198.800	575.300	1201.800	575.100	1204.800	574.800	1207.800
GR	574.500	1210.700	574.200	1213.700	573.900	1216.700	573.700	1219.700	573.500	1222.700
GR	573.300	1225.700	573.100	1228.600	572.900	1231.600	572.800	1234.600	572.700	1237.600
GR	572.700	1240.600	572.570	1243.600	572.800	1246.500	572.900	1249.500	573.000	1252.500
GR	572.900	1255.500	572.800	1258.500	572.800	1261.500	573.700	1264.400	574.900	1267.400
GR	576.200	1270.400	578.400	1273.400	580.800	1276.400	583.300	1279.400	585.700	1282.400
GR	586.500	1294.000	587.300	1305.700	588.100	1317.400	588.900	1329.100	589.700	1340.800
GR	590.200	1352.400	590.600	1364.100	591.000	1375.800	591.200	1387.500	591.400	1399.200
GR	591.800	1410.800	591.800	1422.500	591.600	1434.200	591.700	1445.900	591.800	1457.600
GR	592.200	1469.200	593.000	1480.900	593.800	1492.600	594.600	1504.300	595.500	1516.000
GR	596.300	1527.600	597.200	1539.300	598.000	1551.000	598.300	1562.700	598.700	1574.400
GR	598.900	1586.000	599.100	1597.700	599.400	1609.400	599.600	1621.100	599.800	1632.800
NH	5.000	.045	539.800	.090	978.400	.040	1056.800	.070	1068.900	.060
NH	1510.800	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	11.929	90.000	978.400	1068.900	238.500	274.700	286.800	0.000	0.000	0.000
GR	597.000	0.000	596.900	33.700	596.700	67.400	596.600	101.200	596.500	134.900
GR	596.400	168.700	596.300	202.400	596.100	236.100	595.900	269.900	595.600	303.600
GR	594.400	337.400	594.000	371.100	593.800	404.800	593.600	438.600	593.600	472.300
GR	593.700	506.100	593.500	539.800	593.000	573.500	592.800	607.300	592.900	641.000
GR	592.600	674.800	592.000	708.500	591.300	742.200	590.100	776.000	589.000	809.700
GR	588.800	843.500	588.300	877.200	587.700	910.900	585.100	944.700	582.000	978.400
GR	578.300	981.400	576.200	984.500	575.600	987.500	575.300	990.500	574.900	993.500
GR	574.500	996.500	574.000	999.500	573.800	1002.500	573.600	1005.600	573.400	1008.600
GR	573.300	1011.600	573.300	1014.600	573.300	1017.600	573.300	1020.600	573.200	1023.600
GR	573.200	1026.700	572.890	1029.700	573.200	1032.700	573.300	1035.700	573.400	1038.700
GR	573.300	1041.700	573.300	1044.700	573.300	1047.800	574.000	1050.800	575.000	1053.800

GR	578.100	1056.000	578.200	1059.800	580.800	1062.800	583.500	1065.800	586.100	1068.900
GR	586.500	1083.600	586.900	1098.300	587.300	1113.000	587.800	1127.800	588.200	1142.500
GR	588.600	1157.200	589.100	1172.000	589.200	1186.700	589.000	1201.400	588.800	1216.200
GR	588.900	1230.900	588.800	1245.600	588.600	1260.300	588.500	1275.100	588.500	1289.500
GR	589.200	1304.500	590.100	1319.300	591.000	1334.000	592.000	1348.700	593.000	1363.500
GR	594.000	1378.200	595.000	1392.900	596.100	1407.600	596.800	1422.400	597.500	1437.100
GR	598.000	1451.800	598.400	1466.600	598.900	1481.300	599.300	1496.000	599.800	1510.900
NH	6.000	.040	576.000	.080	615.000	.040	689.000	.030	700.000	.100
NH	1059.000	.030	1300.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	12.023	28.000	608.000	700.000	437.000	474.300	495.400	0.000	0.000	0.000
GR	596.000	0.000	596.100	100.000	596.100	200.000	595.900	300.000	594.500	400.000
GR	590.000	500.000	588.800	563.000	587.800	576.000	584.500	586.000	581.800	608.000
GR	576.300	615.000	575.900	620.000	573.700	630.000	573.400	640.000	574.100	650.000
GR	574.100	660.000	574.100	670.000	574.400	680.000	576.200	689.000	586.800	700.000
GR	585.600	800.000	586.700	850.000	584.300	900.000	582.800	1000.000	586.200	1059.000
GR	588.700	1100.000	595.600	1200.000	599.700	1300.000	0.000	0.000	0.000	0.000
NH	5.000	.050	1000.000	.100	1104.000	.045	1117.000	.080	1165.000	.040
NH	1300.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	12.339	24.000	1104.000	1200.000	1600.000	1600.000	1670.000	0.000	0.000	0.000
GR	596.700	0.000	596.000	100.000	594.900	200.000	592.100	300.000	591.900	400.000
GR	590.800	436.000	591.500	460.000	587.300	500.000	585.500	600.000	586.100	700.000
GR	587.200	800.000	587.700	850.000	586.900	900.000	586.000	1000.000	585.800	1104.000
GR	577.200	1117.000	574.100	1130.000	573.800	1140.000	573.000	1150.000	573.600	1160.000
GR	575.700	1165.000	578.900	1167.000	593.900	1200.000	600.000	1300.000	0.000	0.000
NH	7.000	.060	400.000	.100	598.000	.060	607.000	.045	630.000	.060
NH	692.000	.120	941.000	.040	1050.000	0.000	0.000	0.000	0.000	0.000
X1	12.544	26.000	598.000	692.000	1020.000	1050.000	1080.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	250.000	0.000	1000.000	0.000	0.000	0.000	0.000
GR	597.100	0.000	595.500	100.000	594.400	200.000	591.600	300.000	592.200	400.000
GR	591.700	422.000	586.700	500.000	587.000	598.000	577.200	607.000	576.000	610.000
GR	575.700	620.000	574.700	630.000	575.200	640.000	575.300	650.000	575.500	660.000
GR	575.600	670.000	576.400	680.000	584.400	692.000	584.500	700.000	585.000	710.000
GR	588.100	720.000	586.300	800.000	586.800	900.000	586.400	941.000	593.300	1000.000
GR	602.000	1050.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.100	.500	0.000	0.000	0.000	0.000	0.000
NH	6.000	.040	400.000	.100	1420.000	.045	1494.000	.060	1504.000	.080
NH	1570.000	.040	1600.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	12.799	30.000	1420.000	1504.000	1300.000	1200.000	1350.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	1600.000	0.000	0.000	0.000	0.000
GR	597.200	0.000	596.500	100.000	594.200	200.000	594.000	300.000	592.800	320.000
GR	590.900	400.000	590.900	500.000	590.400	600.000	588.900	700.000	587.800	800.000
GR	587.600	900.000	587.400	1000.000	588.600	1100.000	587.900	1200.000	585.800	1300.000
GR	584.100	1400.000	583.600	1420.000	578.200	1427.000	577.700	1430.000	576.400	1440.000
GR	575.000	1450.000	574.400	1460.000	573.500	1470.000	573.700	1480.000	576.000	1490.000
GR	578.100	1494.000	584.000	1504.000	587.700	1549.000	599.400	1570.000	601.000	1600.000
X1	13.144	37.000	400.000	463.000	1781.000	1800.000	1820.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	250.000	0.000	1250.000	0.000	0.000	0.000	0.000
GR	597.800	0.000	598.100	100.000	597.500	200.000	598.200	250.000	597.700	268.000
GR	597.200	300.000	596.900	310.000	585.700	363.000	584.200	400.000	578.500	406.000
GR	576.100	410.000	574.400	420.000	574.800	430.000	575.600	440.000	576.000	450.000
GR	579.200	461.000	582.400	463.000	584.000	480.000	586.300	600.000	585.800	650.000
GR	587.700	700.000	586.200	800.000	585.200	900.000	585.900	1000.000	587.200	1100.000
GR	592.100	1123.000	593.800	1200.000	592.700	1300.000	595.400	1400.000	596.300	1500.000
GR	597.800	1600.000	597.100	1700.000	597.900	1800.000	598.600	1900.000	599.100	2000.000
GR	599.800	2100.000	601.200	2200.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	7.000	.040	255.000	.075	462.200	.050	468.700	.045	522.600	.050
NH	527.000	.090	1190.300	.040	2185.400	0.000	0.000	0.000	0.000	0.000
X1	13.163	90.000	462.200	527.000	64.700	78.700	100.100	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	1275.000	0.000	0.000	0.000	0.000
GR	597.800	0.000	597.900	15.900	597.900	31.800	597.900	47.800	597.700	63.700

GR	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	597.200	[illegible]
GR	597.200	159.300	597.100	175.300	597.100	191.200	597.000	207.200	596.900	223.100
GR	597.000	239.000	597.200	255.000	597.400	270.900	597.600	286.900	597.300	302.900
GR	597.000	318.700	596.800	334.700	596.500	350.600	594.800	366.600	592.000	382.500
GR	589.300	398.400	586.500	414.400	585.300	430.300	584.800	446.300	584.300	462.200
GR	582.200	464.400	580.100	466.500	578.200	468.700	577.000	470.800	576.000	473.000
GR	575.700	475.100	575.400	477.300	575.000	479.500	574.700	481.600	574.580	483.800
GR	574.600	485.900	574.700	488.100	574.800	490.300	574.900	492.400	575.000	494.500
GR	575.100	496.700	575.300	498.900	575.500	501.000	575.700	503.200	575.800	505.400
GR	575.800	507.500	575.900	509.700	576.000	511.800	576.200	514.000	576.800	516.200
GR	577.400	518.300	578.000	520.500	578.600	522.600	579.300	524.800	582.400	527.000
GR	584.800	582.200	586.000	637.500	586.300	692.800	587.900	748.100	587.400	803.400
GR	586.600	858.600	586.100	913.900	586.000	969.200	586.400	1024.500	587.000	1079.800
GR	587.700	1135.100	593.100	1190.300	593.800	1245.600	593.200	1300.900	593.800	1356.200
GR	595.200	1411.500	595.900	1466.600	596.400	1522.000	597.300	1577.300	597.600	1632.600
GR	597.300	1687.900	597.400	1743.200	597.800	1798.400	598.300	1853.700	598.600	1909.000
GR	598.900	1964.300	599.200	2019.600	599.600	2074.900	600.300	2130.100	601.000	2185.400
NH	7.000	.040	245.600	.075	508.900	.060	513.300	.040	570.500	.060
NH	575.000	.080	1161.400	.040	2174.500	0.000	0.000	0.000	0.000	0.000

X1	13.191	90.000	508.900	575.000	48.500	59.100	75.100	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	1275.000	0.000	0.000	0.000	0.000
GR	597.800	0.000	597.900	17.500	597.900	35.000	597.900	52.600	597.500	70.100
GR	596.900	87.700	596.800	105.200	596.800	122.800	596.700	140.300	596.700	157.900
GR	596.700	175.400	596.600	193.000	596.600	210.500	596.500	228.100	596.500	245.600
GR	596.600	263.200	596.800	280.700	597.000	298.300	597.100	315.800	596.900	333.400
GR	596.600	350.900	596.400	368.500	596.000	386.000	594.400	403.600	591.700	421.100
GR	589.100	438.700	586.500	456.200	585.300	473.800	584.900	491.300	584.400	508.900
GR	582.200	511.100	580.000	513.300	578.200	515.500	577.000	517.700	576.000	519.900
GR	575.700	522.100	575.400	524.300	575.100	526.500	574.700	528.700	574.680	530.900
GR	574.700	533.100	574.800	535.300	574.800	537.500	575.000	539.700	575.000	541.900
GR	575.200	544.100	575.400	546.300	575.600	548.500	575.800	550.700	575.800	552.900
GR	575.900	555.100	576.000	557.300	576.100	559.500	576.300	561.700	576.900	563.900
GR	577.400	566.100	578.000	568.300	578.700	570.500	579.400	572.700	582.400	575.000
GR	584.800	628.300	586.100	681.600	586.600	734.900	588.200	788.200	587.700	841.500
GR	587.000	894.900	586.500	948.200	586.500	1001.500	586.900	1054.800	587.500	1108.100
GR	588.100	1161.400	593.300	1214.800	594.000	1268.100	593.400	1321.400	594.000	1374.700
GR	595.300	1428.000	596.000	1481.300	596.500	1534.700	597.300	1588.000	597.600	1641.300
GR	597.300	1694.600	597.400	1747.900	597.800	1801.200	598.300	1854.600	598.600	1907.900
GR	598.900	1961.200	599.200	2014.500	599.500	2067.800	600.200	2121.200	600.900	2174.500
NH	6.000	.040	246.200	.070	649.000	.060	656.000	.040	709.700	.060
NH	719.000	.060	2141.900	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	13.220	90.000	649.000	719.000	145.600	177.200	225.300	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	1350.000	0.000	0.000	0.000	0.000
GR	597.900	0.000	598.100	22.300	598.100	44.700	598.000	67.100	597.100	89.500
GR	595.700	111.900	595.400	134.200	595.300	156.600	595.300	179.000	595.300	201.400
GR	595.300	223.800	595.300	246.200	595.300	268.500	595.300	290.900	595.300	313.300
GR	595.500	335.700	595.700	358.100	595.800	380.400	595.900	402.800	595.800	425.200
GR	595.600	447.600	595.200	470.000	594.800	492.400	593.400	514.700	591.000	537.100
GR	588.800	559.500	586.500	581.900	585.500	604.300	585.200	626.600	584.800	649.000
GR	582.400	651.400	580.000	653.700	578.200	656.000	577.100	658.400	576.200	660.700
GR	576.000	663.000	575.700	665.400	575.400	667.700	575.100	670.000	575.030	672.300
GR	575.100	674.700	575.100	677.000	575.200	679.300	575.300	681.700	575.400	684.000
GR	575.500	686.300	575.700	688.700	575.900	691.000	576.100	693.300	576.200	695.700
GR	576.300	698.000	576.400	700.300	576.500	702.700	576.700	705.000	577.200	707.300
GR	577.700	709.700	578.300	712.000	579.100	714.300	579.900	716.700	582.700	719.000
GR	584.900	766.400	586.500	813.900	587.500	861.300	589.400	908.700	589.000	956.100
GR	588.400	1003.600	588.000	1051.000	588.000	1098.400	588.400	1145.900	589.000	1193.300
GR	589.600	1240.700	594.100	1288.200	594.700	1335.600	594.200	1383.000	594.600	1430.400
GR	595.800	1477.900	596.400	1525.300	596.800	1572.700	597.500	1620.200	597.800	1667.600
GR	597.500	1715.000	597.700	1762.500	598.000	1809.900	598.400	1857.300	598.700	1904.700
GR	599.000	1952.200	599.300	1999.600	599.600	2047.000	600.200	2094.500	600.800	2141.900
NH	8.000	.040	157.000	.050	235.000	.030	1242.000	.035	1507.000	.070
NH	1514.000	.040	1571.000	.070	1601.000	.050	1942.000	0.000	0.000	0.000

X1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	[illegible]	1750.000	0.000	0.000	0.000	0.000
GR	598.300	0.000	599.400	42.000	598.[illegible]	157.000	595.400	203.000	588.600	235.000
GR	585.700	342.000	586.400	442.000	587.000	542.000	587.200	642.000	588.100	742.000
GR	588.900	842.000	588.400	942.000	589.200	1042.000	587.000	1142.000	586.400	1242.000
GR	586.200	1342.000	586.800	1442.000	587.200	1507.000	578.700	1514.000	577.200	1521.000
GR	577.300	1531.000	577.200	1541.000	577.200	1551.000	577.400	1561.000	578.300	1571.000
GR	578.600	1581.000	579.600	1591.000	583.900	1601.000	585.900	1617.000	596.000	1642.000
GR	598.500	1742.000	598.700	1842.000	599.800	1942.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.100	.500	0.000	0.000	0.000	0.000	0.000
NH	7.000	.035	213.000	.050	416.000	.060	428.000	.040	495.000	.060
NH	513.000	.080	913.000	.040	1873.000	0.000	0.000	0.000	0.000	0.000
X1	13.799	33.000	416.000	513.000	800.000	1050.000	1650.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	1010.000	0.000	0.000	0.000	0.000
GR	600.500	0.000	600.500	13.000	601.700	113.000	593.900	213.000	587.300	292.000
GR	586.900	313.000	587.300	363.000	586.900	416.000	579.800	428.000	578.000	433.000
GR	577.500	443.000	576.300	453.000	575.900	463.000	576.800	473.000	578.200	483.000
GR	579.500	495.000	587.200	513.000	587.000	613.000	586.500	713.000	586.500	735.000
GR	593.200	758.000	592.700	813.000	594.600	913.000	599.100	1013.000	596.900	1113.000
GR	599.200	1213.000	598.000	1313.000	598.500	1413.000	599.700	1513.000	598.300	1613.000
GR	598.600	1713.000	598.100	1813.000	601.500	1873.000	0.000	0.000	0.000	0.000
NH	9.000	.040	200.000	.080	720.000	.060	733.000	.045	780.000	.060
NH	800.000	.080	1140.000	.060	1427.000	.050	1700.000	.035	1900.000	0.000
X1	14.061	36.000	720.000	828.000	1100.000	1100.000	1380.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	200.000	0.000	1400.000	0.000	0.000	0.000	0.000
GR	601.100	0.000	599.600	100.000	598.200	155.000	598.700	200.000	598.100	273.000
GR	593.100	300.000	587.000	360.000	585.800	400.000	589.300	500.000	589.200	600.000
GR	589.200	700.000	589.600	720.000	579.700	733.000	578.000	740.000	577.500	750.000
GR	578.200	760.000	578.700	770.000	579.500	780.000	580.500	790.000	581.000	796.000
GR	585.100	800.000	584.900	813.000	588.500	828.000	585.300	900.000	586.600	1000.000
GR	584.900	1100.000	586.900	1140.000	588.800	1200.000	588.200	1300.000	591.000	1400.000
GR	595.900	1427.000	595.300	1500.000	594.100	1600.000	596.200	1700.000	597.200	1800.000
GR	599.500	1900.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	7.000	.035	777.000	.050	1006.000	.060	1015.000	.045	1080.000	.060
NH	1084.000	.070	1200.000	.040	1400.000	0.000	0.000	0.000	0.000	0.000
X1	14.258	34.000	726.000	1105.000	1040.000	950.000	1040.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	400.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	599.300	0.000	597.200	100.000	596.700	200.000	598.400	270.000	597.800	300.000
GR	598.900	400.000	597.700	500.000	591.300	600.000	589.100	645.000	592.600	700.000
GR	593.400	726.000	592.200	777.000	586.900	802.000	586.500	890.000	584.900	897.000
GR	584.500	901.000	587.100	909.000	588.000	960.000	587.700	1006.000	581.200	1015.000
GR	579.400	1020.000	578.700	1030.000	578.500	1040.000	578.000	1050.000	579.100	1060.000
GR	580.400	1070.000	580.800	1080.000	581.300	1084.000	588.300	1105.000	589.200	1200.000
GR	591.000	1260.000	594.100	1300.000	599.900	1335.000	601.500	1400.000	0.000	0.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
NH	3.000	.030	995.000	.040	1065.000	.050	1276.000	0.000	0.000	0.000
X1	14.523	28.000	990.000	1085.000	1350.000	1400.000	1400.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	1300.000	0.000	0.000	0.000	0.000
GR	600.200	0.000	597.500	87.000	597.100	100.000	594.400	200.000	594.100	300.000
GR	593.200	400.000	591.300	500.000	588.200	600.000	588.100	700.000	588.400	800.000
GR	588.700	900.000	591.100	984.000	590.800	990.000	580.200	995.000	579.100	1000.000
GR	578.400	1010.000	578.900	1020.000	579.100	1030.000	579.400	1040.000	579.700	1050.000
GR	581.300	1060.000	581.600	1065.000	588.500	1078.000	589.700	1085.000	588.800	1100.000
GR	587.700	1200.000	589.000	1245.000	602.200	1276.000	0.000	0.000	0.000	0.000
QT	4.000	8830.000	13600.000	15400.000	20200.000	0.000	0.000	0.000	0.000	0.000
NH	6.000	.040	300.000	.030	600.000	.070	610.000	.040	665.000	.050
NH	680.000	.100	1500.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	15.057	33.000	600.000	680.000	2600.000	2300.000	2820.000	0.000	0.000	0.000
	0.000	0.000	0.000	250.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	599.800	0.000	600.800	100.000	598.200	200.000	596.600	300.000	596.900	335.000
	593.700	400.000	593.000	500.000	592.700	600.000	583.400	610.000	581.900	615.000

GR	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
GR	583.000	660.000	583.900	665.000	[illegible]	668.000	588.400	680.000	590.000	700.000
GR	589.100	800.000	591.500	865.000	585.800	875.000	586.100	884.000	591.300	904.000
GR	590.700	1000.000	590.500	1100.000	590.300	1200.000	591.500	1300.000	591.500	1329.000
GR	598.000	1363.000	598.700	1400.000	599.700	1500.000	0.000	0.000	0.000	0.000
NH	5.000	.040	1079.000	.100	1111.000	.040	1180.000	.100	2030.000	.040
NH	2565.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	15.722	41.000	1079.000	1200.000	2100.000	2700.000	3510.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	1000.000	0.000	2200.000	0.000	0.000	600.100	0.000
GR	601.500	0.000	600.100	100.000	600.300	200.000	597.900	300.000	596.500	368.000
GR	589.200	383.000	589.200	385.000	596.200	400.000	597.800	500.000	598.900	600.000
GR	599.600	700.000	599.500	776.000	599.300	800.000	600.200	900.000	601.400	1000.000
GR	600.700	1079.000	582.700	1111.000	579.300	1120.000	579.600	1130.000	578.700	1140.000
GR	578.200	1150.000	578.000	1160.000	580.000	1170.000	582.300	1180.000	594.100	1200.000
GR	592.600	1300.000	591.200	1400.000	591.600	1500.000	589.200	1600.000	590.200	1700.000
GR	590.200	1800.000	591.300	1900.000	593.400	2000.000	593.400	2030.000	596.600	2075.000
GR	596.800	2100.000	598.100	2200.000	599.400	2300.000	600.100	2400.000	598.100	2500.000
GR	598.700	2565.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
NH	5.000	.040	1079.000	.100	1119.000	.040	1177.000	.100	2030.000	.040
NH	2565.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	15.733	49.000	1087.000	1202.000	60.000	60.000	60.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	1000.000	0.000	2400.000	0.000	0.000	0.000	0.000
GR	601.500	0.000	600.100	100.000	600.300	200.000	597.900	300.000	596.500	368.000
GR	589.200	383.000	589.200	385.000	596.200	400.000	597.800	500.000	598.900	600.000
GR	599.600	700.000	599.500	776.000	599.300	800.000	600.200	900.000	601.400	1000.000
GR	600.700	1079.000	595.900	1087.000	590.400	1097.000	587.900	1119.000	583.300	1122.000
GR	581.000	1127.000	578.900	1137.000	578.900	1143.000	595.900	1143.000	595.900	1146.500
GR	578.600	1146.500	578.400	1157.000	578.700	1167.000	578.500	1177.000	578.000	1187.000
GR	580.800	1197.000	583.100	1202.000	594.100	1202.000	592.600	1300.000	591.200	1400.000
GR	591.600	1500.000	589.200	1600.000	590.200	1700.000	590.200	1800.000	591.300	1900.000
GR	593.400	2000.000	593.400	2030.000	596.600	2075.000	596.800	2100.000	598.100	2200.000
GR	599.400	2300.000	600.100	2400.000	598.100	2500.000	598.700	2565.000	0.000	0.000
SB	0.000	1.650	3.040	0.000	115.000	0.000	1477.500	0.000	578.000	578.000
NH	3.000	.090	1087.000	.040	1202.000	.090	2565.000	0.000	0.000	0.000
X1	15.740	0.000	0.000	0.000	34.000	34.000	34.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	595.900	596.200	0.000	0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	1000.000	0.000	2400.000	0.000	0.000	0.000	0.000
BT	24.000	0.000	601.500	0.000	100.000	600.100	0.000	200.000	600.300	0.000
BT	300.000	597.900	0.000	400.000	596.200	0.000	500.000	597.800	0.000	600.000
BT	598.900	0.000	700.000	599.600	0.000	776.000	599.500	0.000	800.000	599.300
BT	0.000	900.000	600.200	0.000	1000.000	601.400	0.000	1079.000	600.700	0.000
BT	1087.000	600.600	595.900	1143.000	600.100	595.900	1146.500	600.100	595.900	1202.000
BT	600.200	595.900	1202.000	600.200	594.100	1300.000	600.000	0.000	1400.000	600.000
BT	0.000	1500.000	599.700	0.000	2200.000	598.100	0.000	2300.000	599.400	0.000
BT	2400.000	600.100	0.000	2500.000	598.100	0.000	2565.000	598.700	0.000	0.000
NH	6.000	.050	412.000	.055	445.000	.045	520.000	.060	525.000	.050
NH	775.000	.035	925.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	16.063	25.000	325.000	525.000	1650.000	1650.000	1705.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	601.300	0.000	600.400	29.000	599.700	125.000	601.000	225.000	601.600	325.000
GR	599.100	412.000	591.900	429.000	586.100	435.000	584.200	445.000	583.200	455.000
GR	581.600	465.000	580.100	475.000	578.200	485.000	576.400	495.000	577.000	505.000
GR	580.400	515.000	583.900	520.000	589.400	525.000	591.300	534.000	589.200	625.000
GR	593.300	714.000	592.900	725.000	597.800	825.000	600.700	875.000	601.700	925.000
NC	0.000	0.000	0.000	.100	.500	0.000	0.000	0.000	0.000	0.000
NH	5.000	1.000	107.000	.060	566.000	.040	634.000	.100	760.000	.070
NH	1038.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	16.396	24.000	560.000	641.000	1700.000	1650.000	1760.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	50.000	0.000	800.000	0.000	0.000	0.000	0.000
GR	601.200	0.000	600.200	53.000	600.200	66.000	591.400	107.000	589.400	160.000

GR	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
GR	584.200	580.000	583.300	590.000	582.300	600.000	581.800	610.000	582.100	620.000
GR	581.400	630.000	583.300	634.000	591.300	641.000	593.700	664.000	594.600	733.000
GR	598.300	760.000	599.500	860.000	598.900	960.000	600.900	1038.000	0.000	0.000
NH	7.000	1.000	700.000	.100	1300.000	.080	1704.000	.100	1711.000	.040
NH	1733.000	.100	1781.000	.040	2120.000	0.000	0.000	0.000	0.000	0.000
X1	16.866	35.000	1704.000	1792.000	2400.000	2300.000	2480.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	800.000	0.000	1900.000	0.000	0.000	0.000	0.000
GR	603.900	0.000	602.800	100.000	602.000	200.000	600.900	300.000	599.800	400.000
GR	599.800	500.000	598.800	600.000	598.700	700.000	597.900	800.000	597.800	900.000
GR	597.300	1000.000	595.900	1100.000	593.000	1200.000	593.400	1300.000	593.900	1400.000
GR	593.600	1500.000	593.000	1600.000	593.400	1704.000	584.800	1711.000	582.100	1720.000
GR	582.300	1730.000	582.400	1740.000	582.200	1750.000	582.000	1760.000	582.200	1765.000
GR	584.700	1773.000	591.000	1781.000	595.500	1792.000	596.000	1800.000	600.100	1893.000
GR	600.600	1947.000	600.200	2000.000	600.600	2055.000	604.100	2100.000	605.100	2120.000
NH	6.000	.040	1000.000	.100	1308.000	.075	1319.000	.040	1371.000	.075
NH	1396.000	.040	1625.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	17.089	29.000	1308.000	1396.000	1100.000	1100.000	1180.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	950.000	0.000	1500.000	0.000	0.000	0.000	0.000
GR	601.800	0.000	601.300	100.000	599.300	200.000	598.900	300.000	598.900	400.000
GR	598.500	500.000	598.400	600.000	598.000	700.000	598.100	800.000	597.800	822.000
GR	593.400	900.000	591.900	1000.000	592.000	1100.000	592.400	1200.000	593.200	1300.000
GR	593.400	1308.000	586.800	1319.000	585.700	1325.000	584.900	1330.000	582.600	1340.000
GR	583.200	1350.000	583.200	1360.000	584.800	1371.000	589.400	1378.000	589.800	1387.000
GR	595.000	1396.000	598.900	1425.000	599.800	1500.000	601.300	1625.000	0.000	0.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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HEC2 VERSION UPDATED JAN 1976
ERROR CORRECTIONS 01,02,03,04,05,06,07,08,09
MODIFICATIONS 52,53,54,55,56,57,58
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T1      CLINTON TOWNSHIP - JOB NO. 5670-02  PROJECT MANAGER  WILLIAM ROSSOW
T2      100 YEAR FLOOD = 7100 CFS
T3         CLINTON RIVER

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC    HVINS     Q       WSEL      FQ
      -1.       4.       0.       0.  0.000000    0.00      0.0      0.   561.040    0.000

J2  NPROF    IPLOT    PRFVS    XSECV    XSECH      FN     ALLDC     IBW    CHNIM    ITRACE
     3.000    0.000   -1.000    0.000    0.000    0.000    0.000    0.000    0.000    0.000
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CCHV=    .100 CEHV=     .300
 1490 NH CARD USED
 3280 CROSS SECTION       6.06 EXTENDED       6.74 FEET

      SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
      Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
      TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
      SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST

 3470 ENCROACHMENT STATIONS=          .0      291.0  TYPE=      1  TARGET=     290.999

                 VALLEY SECTION A                                          1

       6.06     16.44    581.04      0.00    581.04    581.22       .18      0.00      0.00    585.50
      6800.        0.     6800.        0.        0.     1992.        0.        0.        0. 100000.00
       0.00      0.00      3.41      0.00     0.000      .035     0.000     0.000    564.60     92.93
    .000249     1260.     1260.     1260.         0         0         1      0.00    198.07    291.00

 1490 NH CARD USED
 3280 CROSS SECTION       6.49 EXTENDED       2.74 FEET

 3470 ENCROACHMENT STATIONS=          .0      282.0  TYPE=      1  TARGET=     281.999

 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       581.10 ELREA=       585.20

                 VALLEY SECTION B                                          2

       6.49     16.24    581.64      0.00      0.00    581.88       .24       .64       .02    581.10
      6800.        2.     6798.        0.        4.     1732.        0.       98.       10.    585.20
        .16       .56      3.92      0.00      .020      .035     0.000      .030    565.40     28.48
    .000323     2070.     2280.     2400.         2         0         1      0.00    176.45    204.93

 1490 NH CARD USED

 3470 ENCROACHMENT STATIONS=       100.0      360.0  TYPE=      1  TARGET=     100.000

                 VALLEY SECTION C                                          3

       6.88     13.10    582.30      0.00      0.00    582.47       .17       .58       .01    578.90
      6800.       56.     6716.       27.       41.     2018.       37.      189.       19.    579.40
        .34      1.38      3.33       .74      .030      .035      .040      .030    569.20    100.00
    .000245     2300.     2080.     1950.         2         0         1      0.00    225.45    325.45

 1490 NH CARD USED

                 VALLEY SECTION D                                          4

       7.10     19.43    582.53      0.00      0.00    582.79       .25       .29       .03    589.70
      6800.        0.     6800.        0.        0.     1678.        0.      238.       24.    585.10
        .41      0.00      4.05      0.00      .030      .035      .040      .030    563.10     38.78
    .000275     1125.     1125.     1125.         2         0         1      0.00    142.25    181.03
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   1490 NH CARD USED
        7.14     16.90    582.60      0.00      0.00    582.86       .26       .07       .00    594.00
       6800.        0.     6800.        0.        0.     1657.        0.      247.       25.    591.20
         .43      0.00      4.10      0.00      .030      .035      .040      .030    565.70    100.40
     .000316      250.      250.      250.         0         0         1      0.00    138.89    239.29

   3265 DIVIDED FLOW

      SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS   BANK ELEV
      Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
      TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN      ELMIN      SSTA
      SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR    TOPWID     ENDST

   NORMAL BRIDGE,NRD= 9 MIN ELTRD=  587.30 MAX ELLC=  590.60

        7.14     16.89    582.59      0.00      0.00    582.87       .28       .00       .01    594.00
       6800.        0.     6800.        0.        0.     1592.        0.      247.       25.    591.20
         .43      0.00      4.27      0.00      .030      .030      .030      .030    565.70    100.42
     .000444        1.        1.        1.         1         0         1      0.00    133.04    239.26

   3265 DIVIDED FLOW

   NORMAL BRIDGE,NRD= 9 MIN ELTRD=  587.30 MAX ELLC=  590.60

              BRIDGE SECTION E  DICKINSON STREET  UPSTREAM FACE                    5

        7.15     16.92    582.62      0.00      0.00    582.90       .28       .03       .00    594.00
       6800.        0.     6800.        0.        0.     1595.        0.      250.       25.    591.20
         .43      0.00      4.26      0.00      .030      .030      .030      .030    565.70    100.33
     .000443       58.       58.       58.         0         0         1      0.00    133.29    239.42

   1490 NH CARD USED
        7.16     16.94    582.64      0.00      0.00    582.90       .26       .00       .00    594.00
       6800.        0.     6800.        0.        0.     1663.        0.      250.       25.    591.20
         .43      0.00      4.09      0.00      .030      .040      .030      .030    565.70    100.24
     .000409        1.        1.        1.         2         0         1      0.00    139.37    239.41

   1490 NH CARD USED
        7.16     16.84    582.74      0.00      0.00    582.92       .18       .01       .01    576.90
       6800.      204.     6421.      175.      131.     1829.      104.      251.       25.    579.10
         .44      1.56      3.51      1.67      .030      .040      .030      .030    565.90     27.02
     .000239       40.       40.       40.         2         0         1      0.00    200.51    227.54

   1490 NH CARD USED

              VALLEY SECTION F                                                     6

        7.22     14.88    582.78      0.00      0.00    583.04       .27       .10       .02    578.90
       6800.       89.     6650.       61.       58.     1592.       44.      265.       27.    581.10
         .46      1.54      4.18      1.40      .030      .040      .030      .030    567.90     42.14
     .000405      315.      315.      315.         2         0         1      0.00    178.16    220.29

   1490 NH CARD USED
        7.25     16.92    582.92      0.00      0.00    583.10       .18       .05       .01    577.00
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   6800.     210.    6411.    180.     135.    1839.     107.    272.     27.    579.20
     .47     1.55     3.49    1.68     .030     .040     .030    .030  566.00    26.39
 .000234     165.     165.    165.        2        0        1    0.00  201.45   227.84

 1490 NH CARD USED
    7.29    19.01   582.91    0.00     0.00   583.18      .27     .05     .03   601.90
   6800.       0.    6800.      0.       0.    1628.       0.    280.     28.   595.50
     .48     0.00     4.18    0.00     .030     .040     .030    .030  563.90   163.00
 .000361     185.     185.    185.        2        0        1    0.00  110.00   273.00


 3265 DIVIDED FLOW

   SECNO    DEPTH    CWSEL    CRIWS    WSELK       EG       HV      HL   OLOSS  BANK ELEV
       Q     QLOB      QCH     QROB     ALOB      ACH     AROB     VOL     TWA  LEFT/RIGHT
    TIME     VLOB      VCH     VROB      XNL     XNCH      XNR     WTN   ELMIN     SSTA
   SLOPE    XLOBL     XLCH    XLOBR   ITRIAL      IDC    ICONT   CORAR  TOPWID    ENDST

 NORMAL BRIDGE,NRD=29 MIN ELTRD=  592.40 MAX ELLC=  597.90

    7.29    18.99   582.89    0.00     0.00   583.19      .30     .00     .01   601.90
   6800.       0.    6800.      0.       0.    1543.       0.    280.     28.   595.50
     .48     0.00     4.41    0.00     .026     .026     .026    .030  563.90   163.00
 .000339       1.       1.      1.        2        0        1    0.00  104.00   273.00


 3265 DIVIDED FLOW

 NORMAL BRIDGE,NRD=29 MIN ELTRD=  592.40 MAX ELLC=  597.90

                  BRIDGE SECTION G  CROCKER BLVD.  UPSTREAM FACE            7

    7.30    19.00   582.90    0.00     0.00   583.20      .30     .01     .00   601.90
   6800.       0.    6800.      0.       0.    1545.       0.    281.     28.   595.50
     .49     0.00     4.40    0.00     .026     .026     .026    .030  563.90   163.00
 .000338      42.      42.     42.        0        0        1    0.00  104.00   273.00

 1490 NH CARD USED
    7.30    19.04   582.94    0.00     0.00   583.21      .27     .00     .00   601.90
   6800.       0.    6800.      0.       0.    1631.       0.    282.     28.   595.50
     .49     0.00     4.17    0.00     .026     .040     .026    .030  563.90   163.00
 .000362       1.       1.      1.        2        0        1    0.00  110.00   273.00

 1490 NH CARD USED

 3470 ENCROACHMENT STATIONS=      1.0     343.0  TYPE=      1  TARGET=      -1.000
    7.30    19.11   583.11    0.00     0.00   583.24      .13     .02     .01   575.00
   6800.     345.    6204.    251.     280.    2105.     192.    285.     28.   577.20
     .49     1.23     2.95    1.30     .040     .041     .040    .030  564.00     1.00
 .000150      70.      70.     70.        2        0        1    0.00  234.94   235.94

 CCHV=    .100 CEHV=    .300
 1490 NH CARD USED

 3470 ENCROACHMENT STATIONS=       .0     411.0  TYPE=      1  TARGET=     410.999
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VALLEY SECTION H 8

7.73	17.04	583.54	0.00	0.00	583.69	.15	.44	.01	586.20
6800.	0.	5450.	1350.	0.	1624.	785.	412.	43.	578.40
.70	0.00	3.36	1.72	.040	.040	.040	.035	566.50	25.27
.000280	2330.	2225.	2130.	2	0	1	0.00	339.93	365.20

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 80.0 1279.0 TYPE= 1 TARGET= 1199.000

VALLEY SECTION I 9

8.02	19.52	583.92	0.00	0.00	583.99	.07	.29	.01	577.50
6800.	529.	4376.	1895.	613.	1670.	3088.	555.	69.	579.50
.92	.86	2.62	.61	.040	.036	.079	.037	564.40	172.29
.000132	1300.	1541.	1700.	2	0	1	0.00	1100.45	1272.75

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 288.0 1245.0 TYPE= 1 TARGET= 957.000

VALLEY SECTION J 10

8.28	14.69	584.09	0.00	0.00	584.24	.15	.23	.02	579.50
6800.	1167.	5499.	134.	1588.	1625.	275.	683.	98.	581.40
1.05	.73	3.38	.49	.060	.036	.090	.039	569.40	299.61
.000237	1300.	1345.	1150.	2	0	1	0.00	930.68	1230.29

1490 NH CARD USED

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3470 ENCROACHMENT STATIONS= .0 1153.0 TYPE= 1 TARGET= 1152.999

VALLEY SECTION K 11

8.71	11.89	584.49	0.00	0.00	584.53	.04	.28	.01	583.00
6800.	2172.	3862.	766.	2234.	2048.	846.	869.	139.	582.20
1.44	.97	1.89	.90	.040	.035	.030	.041	572.60	7.92
.000087	1400.	2295.	2200.	2	0	1	0.00	1112.29	1120.21

CCHV= .300 CEHV= .500
1490 NH CARD USED
WATER EL=X5 CARD= 584.400

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 584.10 ELREA= 585.70

8.72	16.60	584.40	0.00	0.00	584.62	.22	.00	.09	584.10
21300.	3926.	17374.	0.	2168.	4244.	0.	872.	140.	585.70
1.44	1.81	4.09	0.00	.035	.030	.030	.041	567.80	8.18
.000233	20.	20.	20.	0	0	1	0.00	894.82	903.00

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 355.0 996.6 TYPE= 1 TARGET= 355.000

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 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       584.60 ELREA=       585.70
      8.92     16.65    584.55      0.00      0.00    585.08       .52       .31       .15    584.60
    21300.        0.    21300.        0.        0.     3671.        0.      995.      154.    585.70
      1.49      0.00      5.80      0.00      .035      .027      .030      .040    567.90    445.16
   .000351     1001.     1087.     1106.         1         0         1      0.00    297.36    742.52

 1490 NH CARD USED

 3470 ENCROACHMENT STATIONS=       154.0      851.4   TYPE=       1   TARGET=      -154.000

 OVERBANK AREA ASSUMED NON=EFFECTIVE,ELLEA=       584.90 ELREA=       585.80

      8.97     16.69    584.59      0.00      0.00    585.24       .65       .10       .07    584.90
    21300.        0.    21300.        0.        0.     3280.        0.     1016.      156.    585.80
      1.50      0.00      6.49      0.00      .035      .027      .030      .040    567.90    406.04
   .000423      240.      258.      268.         2         0         1      0.00    254.97    661.80

 1490 NH CARD USED

 3470 ENCROACHMENT STATIONS=       200.0      706.2   TYPE=       1   TARGET=      -200.000

 OVERBANK AREA ASSUMED NON=EFFECTIVE,ELLEA=       585.20 ELREA=       585.80

      9.02     16.70    584.60      0.00      0.00    585.47       .87       .12       .11    585.20
    21300.        0.    21300.        0.        0.     2847.        0.     1034.      157.    585.80
      1.51      0.00      7.48      0.00      .035      .027      .030      .040    567.90    368.05
   .000539      240.      258.      268.         2         0         1      0.00    213.31    581.35

 1490 NH CARD USED

 3470 ENCROACHMENT STATIONS=       235.0      561.0   TYPE=       1   TARGET=      -235.000

 OVERBANK AREA ASSUMED NON=EFFECTIVE,ELLEA=       585.50 ELREA=       585.90

                 VALLEY SECTION L                                                     12

      9.07     16.67    584.57      0.00      0.00    585.84      1.27       .16       .20    585.50
    21300.        0.    21300.        0.        0.     2354.        0.     1050.      158.    585.90
      1.52      0.00      9.05      0.00      .035      .027      .030      .040    567.90    329.12
   .000762      240.      258.      268.         2         0         1      0.00    171.50    500.61

 1490 NH CARD USED
    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST


 3470 ENCROACHMENT STATIONS=       198.7      569.3   TYPE=       1   TARGET=      -220.000

 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       588.35 ELREA=       588.65

      9.11     19.07    585.22      0.00      0.00    586.05       .83       .08       .13    588.35
    21300.        0.    21300.        0.        0.     2907.        0.     1058.      159.    588.65
      1.53      0.00      7.33      0.00      .035      .029      .030      .040    566.15    284.78
   .000489      138.      138.      138.         2         0         1      0.00    194.43    479.22

 1490 NH CARD USED
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 3470 ENCROACHMENT STATIONS=      241.8      453.0  TYPE=      1  TARGET=      262.000
       9.14     19.98    585.28      0.00      0.00    586.14       .86       .09       .01    593.00
      21300.        0.    21300.        0.        0.     2865.        0.     1067.      159. 100000.00
       1.53      0.00      7.44      0.00      .035      .032      .030      .040    565.30    241.80
    .000664      138.      138.      138.         2         0         1      0.00    211.17    452.97

 3265 DIVIDED FLOW

 NORMAL BRIDGE,NRD=39 MIN ELTRD=   590.00 MAX ELLC=   590.40

       9.14     19.96    585.26      0.00      0.00    586.17       .91       .00       .03    595.70
      21300.        0.    21300.        0.        0.     2776.        0.     1067.      159.    596.80
       1.53      0.00      7.67      0.00      .018      .018      .018      .040    565.30    241.80
    .000418        1.        1.        1.         2         0         1      0.00    206.34    452.97

 3265 DIVIDED FLOW

 NORMAL BRIDGE,NRD=39 MIN ELTRD=   590.00 MAX ELLC=   590.40

                BRIDGE SECTION M  N.B. GRATIOT AVE.  UPSTREAM FACE              13

       9.15     19.99    585.29      0.00      0.00    586.20       .91       .03       .00    595.70
      21300.        0.    21300.        0.        0.     2783.        0.     1071.      160.    596.80
       1.53      0.00      7.65      0.00      .018      .018      .018      .040    565.30    241.80
    .000415       67.       67.       67.         0         0         1      0.00    206.34    452.97

 1490 NH CARD USED

 3470 ENCROACHMENT STATIONS=      241.8      453.0  TYPE=      1  TARGET=      262.000
       9.15     20.07    585.37      0.00      0.00    586.22       .85       .00       .02    593.00
      21300.        0.    21300.        0.        0.     2883.        0.     1071.      160. 100000.00
       1.53      0.00      7.39      0.00      .018      .032      .018      .040    565.30    241.80
    .000652        1.        1.        1.         2         0         1      0.00    211.17    452.97

 1490 NH CARD USED

 3265 DIVIDED FLOW

 3470 ENCROACHMENT STATIONS=      128.7      349.4  TYPE=      1  TARGET=      228.000
       9.21     16.47    585.57      0.00      0.00    586.63      1.07       .30       .11    598.60
      21300.        0.    21300.        0.        0.     2572.        0.     1092.      161. 100000.00
       1.54      0.00      8.28      0.00      .018      .032      .018      .039    569.10    128.74
    .001355      333.      333.      333.         1         0         1      0.00    202.31    349.45

      SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS  BANK ELEV
          Q      QLOB       QCH      QROB      ALOB       ACH      AROB       VOL       TWA LEFT/RIGHT
       TIME      VLOB       VCH      VROB       XNL      XNCH       XNR       WTN     ELMIN      SSTA
      SLOPE     XLOBL      XLCH     XLOBR    ITRIAL       IDC     ICONT     CORAR    TOPWID     ENDST

 NORMAL BRIDGE,NRD=23 MIN ELTRD=   593.50 MAX ELLC=   593.40

       9.21     16.32    585.42      0.00      0.00    586.78      1.36       .00       .15    598.60
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```
   21300.       0.   21300.       0.       0.    2275.       0.    1092.     161.    599.30
     1.54     0.00     9.36     0.00     .018     .018     .018     .039   569.10    128.74
  .000870       1.       1.       1.        2        0        1  -432.43   220.70    349.45

 NORMAL BRIDGE,NRD=23 MIN ELTRD=   593.50 MAX ELLC=   593.40

                BRIDGE SECTION N  S.B. GRATIOT AVE.  UPSTREAM FACE           14

     9.23    16.39   585.49     0.00     0.00   586.84     1.35      .05      .00    598.60
   21300.       0.   21300.       0.       0.    2286.       0.    1095.     162.    599.30
     1.55     0.00     9.32     0.00     .018     .018     .018     .039   569.10    128.74
  .000857      62.      62.      62.        0        0        1  -436.51   220.70    349.45

 1490 NH CARD USED

 3265 DIVIDED FLOW

 3470 ENCROACHMENT STATIONS=       124.6      338.2  TYPE=      1  TARGET=      220.700
     9.23    16.69   585.79     0.00     0.00   586.91     1.12      .00      .07    598.60
   21300.       0.   21300.       0.       0.    2508.       0.    1096.     162. 100000.00
     1.55     0.00     8.49     0.00     .018     .036     .018     .039   569.10    128.74
  .001658       1.       1.       1.        2        0        1     0.00   191.08    338.22

 1490 NH CARD USED

 3470 ENCROACHMENT STATIONS=          .0      480.0  TYPE=      1  TARGET=      479.999
     9.25    16.93   585.93     0.00     0.00   587.09     1.16      .16      .02    533.30
   21300.    1536.   19631.     133.     394.    2198.      68.    1103.     162.    583.70
     1.55     3.89     8.93     1.97     .027     .032     .027     .039   569.00     73.84
  .001104     120.     120.     120.        1        0        1     0.00   361.80    435.64

 CCHV=     .100 CEHV=     .300
 1490 NH CARD USED
 3280 CROSS SECTION      9.37 EXTENDED       .30 FEET

 3470 ENCROACHMENT STATIONS=          .0      550.0  TYPE=      1  TARGET=      549.999
     9.37    18.50   586.90     0.00     0.00   587.68      .78      .55      .04    582.70
   21300.    2448.   18399.     452.     631.    2465.     195.    1147.     168.    583.10
     1.58     3.88     7.47     2.32     .027     .032     .027     .038   568.40     46.25
  .000683     644.     644.     644.        2        0        1     0.00   425.90    472.15

 1490 NH CARD USED
 3280 CROSS SECTION      9.49 EXTENDED       .28 FEET

 3470 ENCROACHMENT STATIONS=          .0      533.0  TYPE=      1  TARGET=      532.999

                VALLEY SECTION O                                             15

     9.49    19.69   587.49     0.00     0.00   588.06      .58      .37      .02    582.10
   21300.    3069.   17412.     820.     819.    2664.     321.    1199.     175.    582.50
     1.61     3.75     6.53     2.55     .027     .032     .027     .038   567.80     43.67
  .000480     644.     644.     644.        0        0        1     0.00   453.84    497.51
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 1490 NH CARD USED
   SECNO      DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL       OLOSS     BANK ELEV
   Q          QLOB      QCH       QROB      ALOB      ACH       AROB      VOL      TWA       LEFT/RIGHT
   TIME       VLOB      VCH       VROB      XNL       XNCH      XNR       WTN      ELMIN     SSTA
   SLOPE      XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR    TOPWID    ENDST


 3470 ENCROACHMENT STATIONS=        .0     410.0  TYPE=      1  TARGET=      409.999
       9.63     19.45    587.70      0.00      0.00    588.44       .74       .32       .05    582.75
     21300.      958.    19743.      600.      378.     2765.      254.     1259.      182.     582.65
       1.63      2.53      7.14      2.36      .032      .028      .027      .037    568.25     28.04
    .000424      720.      720.      720.         2         0         1      0.00    381.96    410.00

 1490 NH CARD USED

 3470 ENCROACHMENT STATIONS=        .0     296.0  TYPE=      1  TARGET=      295.999

               VALLEY SECTION P                                                16

       9.77     19.19    587.89      0.00      0.00    588.86       .97       .35       .07    584.50
     21300.       85.    21063.      152.       54.     2652.       89.     1310.      187.     584.00
       1.66      1.57      7.94      1.71      .032      .028      .032      .036    568.70     23.84
    .000569      720.      720.      720.         2         0         1      0.00    264.91    288.74

 1490 NH CARD USED

 3470 ENCROACHMENT STATIONS=        .0     445.0  TYPE=      1  TARGET=      444.999
       9.86     20.32    588.36      0.00      0.00    589.09       .73       .21       .02    583.94
     21300.     1313.    19802.      185.      577.     2790.      109.     1341.      190.     584.24
       1.68      2.27      7.10      1.70      .032      .028      .032      .036    568.04     39.86
    .000430      428.      428.      428.         2         0         1      0.00    402.93    433.85

 1490 NH CARD USED
       9.94     21.30    588.68      0.00      0.00    589.28       .60       .17       .01    584.48
     21300.     3150.    18044.      106.     1360.     2702.       66.     1378.      195.     585.48
       1.70      2.32      6.68      1.61      .036      .029      .027      .036    567.38     50.45
    .000387      428.      428.      428.         2         0         1      0.00    522.45    572.40

 1490 NH CARD USED

 3470 ENCROACHMENT STATIONS=     450.0     832.4  TYPE=      1  TARGET=     -450.000
      10.07     22.66    588.86      0.00      0.00    589.73       .87       .37       .08    585.30
     21300.     1756.    19526.       18.      608.     2518.       14.     1442.      202.     587.50
       1.73      2.89      7.75      1.29      .036      .031      .027      .035    566.20    450.00
    .000625      764.      764.      764.         2         0         1      0.00    324.62    774.62

 1490 NH CARD USED

 3470 ENCROACHMENT STATIONS=     600.0     892.0  TYPE=      1  TARGET=     -600.000

               VALLEY SECTION Q                                                17

      10.09     22.93    588.83      0.00      0.00    589.95      1.12       .14       .07    585.60
     21300.      372.    20923.        5.      139.     2448.        5.     1454.      203.     588.00
       1.73      2.68      8.55       .91      .036      .033      .027      .035    565.90    600.00
    .000884      191.      191.      191.         2         0         1      0.00    224.65    824.65

 1490 NH CARD USED
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3470 ENCROACHMENT STATIONS= 670.0 973.0 TYPE= 1 TARGET= 10.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 596.88 ELREA= 597.68

10.12	21.45	588.83	0.00	0.00	590.23	1.40	.20	.08	596.88
21300.	0.	21300.	0.	0.	2246.	0.	1464.	204.	597.68
1.74	0.00	9.48	0.00	.036	.041	.027	.035	567.38	687.87
.001524	175.	175.	175.	2	0	1	0.00	129.74	817.61

CCHV= .300 CEHV= .500

1490 NH CARD USED

10.13	20.75	588.75	0.00	0.00	590.50	1.75	.09	.18	602.50
21300.	0.	21300.	0.	0.	2005.	0.	1467.	204.	602.80
1.74	0.00	10.62	0.00	.036	.036	.027	.035	568.00	700.44
.001598	58.	58.	58.	2	0	1	0.00	122.07	822.51

3265 DIVIDED FLOW

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

NORMAL BRIDGE,NRD=17 MIN ELTRD= 602.10 MAX ELLC= 594.10

10.13	20.61	588.61	0.00	0.00	590.64	2.03	.00	.14	602.50
21300.	0.	21300.	0.	0.	1861.	0.	1467.	204.	602.80
1.74	0.00	11.44	0.00	.018	.018	.018	.035	568.00	700.45
.000824	1.	1.	1.	2	0	1	0.00	115.57	822.50

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD=17 MIN ELTRD= 602.10 MAX ELLC= 594.10

BRIDGE SECTION R GRAND TRUNK AND WESTERN R.R. UPSTREAM FACE 18

10.14	20.64	588.64	0.00	0.00	590.67	2.02	.03	.00	602.50
21300.	0.	21300.	0.	0.	1866.	0.	1468.	204.	602.80
1.74	0.00	11.42	0.00	.018	.018	.018	.035	568.00	700.45
.000819	32.	32.	32.	0	0	1	0.00	115.58	822.50

1490 NH CARD USED

10.14	21.09	589.09	0.00	0.00	590.77	1.68	.00	.10	602.50
21300.	0.	21300.	0.	0.	2048.	0.	1468.	204.	602.80
1.74	0.00	10.40	0.00	.018	.036	.018	.035	568.00	700.41
.001491	1.	1.	1.	2	0	1	0.00	122.12	822.53

1490 NH CARD USED

10.15	22.12	589.68	0.00	0.00	590.98	1.29	.09	.12	601.96
21300.	0.	21300.	0.	0.	2336.	0.	1472.	205.	602.26
1.74	0.00	9.12	0.00	.018	.036	.018	.035	567.56	649.93
.001048	70.	70.	70.	2	0	1	0.00	131.00	780.93

1490 NH CARD USED

10.17	23.03	590.14	0.00	.00	591.13	.98	.06	.09	601.51
21300.	0.	21300.	0.	0.	2675.	0.	1476.	205.	601.71
1.74	0.00	7.96	0.00	.018	.036	.018	.035	567.11	598.60
.000737	70.	70.	70.	2	0	1	0.00	141.75	740.35

1490 NH CARD USED

10.19	24.49	590.71	0.00	0.00	591.32	.61	.07	.11	600.62
21300.	0.	21300.	0.	0.	3399.	0.	1486.	205.	600.62
1.75	0.00	6.27	0.00	.018	.036	.018	.034	566.22	497.20
.000404	140.	140.	140.	2	0	1	0.00	164.14	661.34

1490 NH CARD USED

10.25	26.74	591.14	0.00	0.00	591.48	.34	.08	.08	599.90
21300.	0.	21300.	0.	0.	4545.	0.	1512.	206.	599.60
1.77	0.00	4.69	0.00	.018	.036	.018	.034	564.40	285.96
.000205	287.	287.	287.	2	0	1	0.00	199.54	485.50

3265 DIVIDED FLOW

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

NORMAL BRIDGE,NRD=19 MIN ELTRD= 598.50 MAX ELLC= 594.10

10.25	26.72	591.12	0.00	0.00	591.49	.37	.00	.01	599.90
21300.	0.	21300.	0.	0.	4384.	0.	1512.	206.	599.60
1.77	0.00	4.86	0.00	.018	.018	.018	.034	564.40	285.96
.000109	1.	1.	1.	1	0	1	0.00	193.33	485.50

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD=19 MIN ELTRD= 598.50 MAX ELLC= 594.10

BRIDGE SECTION S GROESBECK HIGHWAY (M-97) UPSTREAM FACE 19

10.26	26.73	591.13	0.00	0.00	591.50	.37	.01	.00	599.90
21300.	0.	21300.	0.	0.	4386.	0.	1520.	207.	599.60
1.77	0.00	4.86	0.00	.018	.018	.018	.034	564.40	285.96
.000109	85.	85.	85.	1	0	1	0.00	193.33	485.50

1490 NH CARD USED

10.26	26.77	591.17	0.00	0.00	591.51	.34	.00	.01	599.90
21300.	0.	21300.	0.	0.	4551.	0.	1520.	207.	599.60
1.77	0.00	4.68	0.00	.018	.036	.018	.034	564.40	285.96
.000204	1.	1.	1.	2	0	1	0.00	199.54	485.50

1490 NH CARD USED

10.32	26.06	591.46	0.00	0.00	591.61	.16	.05	.05	555.00
21300.	4859.	12350.	4091.	2001.	3396.	1665.	1562.	210.	584.30
1.80	2.43	3.64	2.46	.027	.036	.027	.034	565.40	130.55
.000137	320.	310.	330.	2	0	1	0.00	725.20	855.75

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 CCHV=     .100 CEHV=     .300
 1490 NH CARD USED

 3470 ENCROACHMENT STATIONS=         .0     877.0  TYPE=      1  TARGET=      876.999

                  VALLEY SECTION T                                                20

I       10.38     25.27    591.47      0.00      0.00    591.67       .20       .05       .01    585.60
       21300.     4178.    13586.     3536.     1758.     3262.     1481.     1613.      216.     585.10
         1.83      2.38      4.16      2.39      .027      .032      .027      .034    566.20    148.41
      .000148      330.      320.      340.         2         0         1      0.00    701.78    850.18

 1490 NH CARD USED

 3470 ENCROACHMENT STATIONS=      520.0     927.0  TYPE=      1  TARGET=     -520.000

                  VALLEY SECTION U                                                21

        10.70     21.36    591.66      0.00      0.00    592.20       .54       .43       .10    585.50
J      21300.     3569.    17580.      151.      982.     2794.      126.     1807.      235.     579.50
         1.90      3.63      6.29      1.21      .027      .042      .090      .033    570.30    520.00
      .000586     1530.     1660.     1620.         2         0         1      0.00    382.65    902.65

 1490 NH CARD USED

 3470 ENCROACHMENT STATIONS=      550.0    1433.0  TYPE=      1  TARGET=     -550.000

                  VALLEY SECTION V                                                22

        10.82     24.04    592.14      0.00      0.00    592.47       .33       .25       .02    583.40
       21300.      330.    15150.     5820.      274.     2944.     2005.     1875.      243.     583.00
K        1.95      1.21      5.15      2.90      .063      .036      .027      .032    568.10    550.00
      .000263      650.      650.      650.         2         0         1      0.00    615.77   1165.77

 CCHV=     .300 CEHV=     .500
 1490 NH CARD USED
       SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS  BANK ELEV
           Q      QLOB       QCH      QROB      ALOB       ACH      AROB       VOL       TWA  LEFT/RIGHT
        TIME      VLOB       VCH      VROB       XNL      XNCH       XNR       WTN     ELMIN      SSTA
       SLOPE     XLOBL      XLCH     XLOBR    ITRIAL       IDC     ICONT     CORAR    TOPWID     ENDST


 3470 ENCROACHMENT STATIONS=      556.7     743.4  TYPE=      1  TARGET=      196.500
        10.85     27.15    592.15      0.00      0.00    592.61       .46       .07       .07    585.70
       21300.        0.    21065.      235.        0.     3854.      404.     1891.      245.     591.00
         1.95       .01      5.47       .58      .040      .061      .090      .032    565.00    556.70
      .001057      150.      150.      150.         2         0         1      0.00    551.40   1108.10
                                                                                                        Moravians

 SPECIAL BRIDGE

 SB  XK          XKOR       COFQ       RDLEN       BWC       BWP       BAREA        SS        ELCHU      ELCHD
     0.00        1.55       3.05        0.00    197.50      0.00     3423.90      0.00      565.00     565.00

 PRESSURE AND WEIR FLOW

    EGPRS      EGLWC        H3       QWEIR       QPR      BAREA      ELLC      ELTRD      CLASS

   593.08     592.61      0.00        769.    20477.      3424.    589.90    591.10      30.00
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 3470 ENCROACHMENT STATIONS=      556.7      743.4   TYPE=       1   TARGET=       196.500

                  BRIDGE SECTION W  MORAVIAN DRIVE  UPSTREAM FACE                    23

       10.85     27.65    592.65      0.00      0.00    593.01       .36       .40      0.00    585.70
     21300.         0.    19571.     1729.        0.     3947.      589.     1894.      245.    591.00
        1.95       .01      4.96      2.94      .090      .090      .040      .032    565.00    556.70
     .003328       32.       32.       32.         2         0         3      0.00    562.03   1118.73

 1490 NH CARD USED

 3470 ENCROACHMENT STATIONS=      500.0     1785.0   TYPE=       1   TARGET=      -500.000
*      10.91     26.44    593.10      0.00      0.00    593.22       .12       .14       .07    574.36   * additional section
     21300.       819.    11432.     9048.      702.     3036.    10991.     1983.      254.    579.96
        1.99      1.17      3.77       .82      .077      .041      .110      .033    566.66    500.00
     .000150      300.      300.      470.         2         0         1      0.00   1256.18   1756.18

 1490 NH CARD USED

 3470 ENCROACHMENT STATIONS=      550.0     2520.0   TYPE=       1   TARGET=      -550.000
       11.05     22.37    593.17      0.00      0.00    593.38       .20       .12       .04    578.50   * additional section
*    21300.       303.    12013.     8983.      229.     2541.    10300.     2120.      269.    584.10
        2.05      1.32      4.73       .87      .100      .041      .110      .035    570.80    550.00
     .000298      750.      750.      330.         2         0         1      0.00   1823.76   2373.76

 1490 NH CARD USED

                  VALLEY SECTION X                                                   25

       11.29     24.16    593.56      0.00      0.00    593.62       .07       .21       .04    593.20
     15000.         0.     4853.    10146.        3.     1415.    13428.     2317.      292.    581.70
        2.19       .07      3.43       .76      .100      .040      .104      .038    569.40     26.04
     .000191     1350.     1268.      500.         2         0         1      0.00   2136.85   2162.89

 1490 NH CARD USED
       11.39     23.62    593.57      0.00      0.00    593.73       .16       .06       .05    591.20
     15000.        36.     6757.     8207.      125.     1465.     9293.     2345.      296.    582.30
        2.22       .29      4.61       .88      .100      .040      .106      .039    569.95     96.70
     .000335      479.      529.       37.         2         0         1      0.00   1946.52   2043.22

 CCHV=      .100 CEHV=      .300
 1490 NH CARD USED

 3265 DIVIDED FLOW

       11.70     22.28    593.87      0.00      0.00    594.19       .31       .41       .05    585.20
     15000.      1352.     8940.     4708.     1791.     1629.     1807.     2448.      316.    584.40
        2.28       .75      5.49      2.61      .114      .046      .040      .043    571.59    319.30
     .000591     1486.     1586.      110.         2         0         1      0.00   1259.19   1615.02

 1490 NH CARD USED
       SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS   BANK ELEV
           Q      QLOB       QCH      QROB      ALOB       ACH      AROB       VOL       TWA  LEFT/RIGHT
        TIME      VLOB       VCH      VROB       XNL      XNCH       XNR       WTN     ELMIN       SSTA
       SLOPE     XLOBL      XLCH     XLOBR    ITRIAL       IDC     ICONT     CORAR    TOPWID      ENDST
```

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
17.089	13600.000	601.806	2.303	.559	0.000	549.999	-24.721	1180.000
17.089	15400.000	602.429	.622	.572	0.000	549.999	-24.721	1180.000
17.089	20200.000	604.011	1.582	.573	0.000	549.999	-24.721	1180.000

DATA FOR LAST CROSS SECTION

PROFILE	TYPE ENC	TARGET	TOP WIDTH AREA-ACRES	TOP WIDTH AREA-DIFF
1	1.000	550.000	687.841	0.000
2	1.000	550.000	867.054	179.213
3	1.000	550.000	900.144	212.303
4	1.000	550.000	1005.609	317.768

SUMMARY PRINTOUT FOR MULTIPLE PROFILES

CLINTON RIVER

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	HV	HL	OLOSS	QCH	DEPTH	TOPWID
6.06	1260.00	0.00	0.00	564.60	3600.00	578.27	.09	0.00	0.00	3600.00	13.67	186.80
6.06	1260.00	0.00	0.00	564.60	5900.00	580.31	.16	0.00	0.00	5900.00	15.71	195.96
6.06	1260.00	0.00	0.00	564.60	6800.00	581.04	.18	0.00	0.00	6800.00	16.44	198.07
6.06	1260.00	0.00	0.00	564.60	10000.00	583.09	.27	0.00	0.00	10000.00	18.49	204.01
6.49	2280.00	0.00	0.00	565.40	3600.00	578.70	.13	.45	.01	3600.00	13.30	156.45
6.49	2280.00	0.00	0.00	565.40	5900.00	580.88	.21	.60	.02	5900.00	15.48	158.97
6.49	2280.00	0.00	0.00	565.40	6800.00	581.64	.24	.64	.02	6797.64	16.24	176.45
6.49	2280.00	0.00	0.00	565.40	10000.00	583.83	.34	.78	.02	9798.88	18.43	210.53
6.88	2080.00	0.00	0.00	569.20	3600.00	579.18	.10	.45	.00	3599.62	9.98	187.33
6.88	2080.00	0.00	0.00	569.20	5900.00	581.50	.15	.56	.01	5858.90	12.30	216.96
6.88	2080.00	0.00	0.00	569.20	6800.00	582.30	.17	.58	.01	6716.11	13.10	225.45
6.88	2080.00	0.00	0.00	569.20	10000.00	584.60	.24	.67	.01	9677.13	15.40	245.63
7.10	1125.00	0.00	0.00	563.10	3600.00	579.37	.13	.21	.01	3600.00	16.27	128.91
7.10	1125.00	0.00	0.00	563.10	5900.00	581.73	.22	.27	.02	5900.00	18.63	138.84
7.10	1125.00	0.00	0.00	563.10	6800.00	582.53	.25	.29	.03	6200.00	19.43	142.25
7.10	1125.00	0.00	0.00	563.10	10000.00	584.85	.38	.35	.04	10000.00	21.75	152.04
7.14	250.00	0.00	0.00	565.70	3600.00	579.42	.13	.05	.00	3600.00	13.72	132.34
7.14	250.00	0.00	0.00	565.70	5900.00	581.79	.23	.07	.00	5900.00	16.09	132.34
7.14	250.00	0.00	0.00	565.70	6800.00	582.60	.26	.07	.00	6800.00	16.90	138.89
7.14	250.00	0.00	0.00	565.70	10000.00	584.95	.38	.09	.00	10000.00	19.25	166.05
7.14	1.00	587.30	590.60	565.70	3600.00	579.41	.14	.00	.00	3600.00	13.71	126.55
7.14	1.00	587.30	590.60	565.70	5900.00	581.78	.24	.00	.01	5900.00	16.08	126.55
7.14	1.00	587.30	590.60	565.70	6800.00	582.59	.28	.00	.01	6800.00	16.89	133.04
7.14	1.00	587.30	590.60	565.70	10000.00	584.93	.41	.00	.01	10000.00	19.23	160.18
7.15	58.00	587.30	590.60	565.70	3600.00	579.43	.14	.02	.00	3600.00	13.73	126.55
7.15	58.00	587.30	590.60	565.70	5900.00	581.80	.24	.02	.00	5900.00	16.10	126.55
7.15	58.00	587.30	590.60	565.70	6800.00	582.62	.28	.03	.00	6800.00	16.92	133.29
7.15	58.00	587.30	590.60	565.70	10000.00	584.96	.41	.04	.00	10000.00	19.26	160.52
7.16	1.00	0.00	0.00	565.70	3600.00	579.44	.13	.00	.00	3600.00	13.74	132.34
7.16	1.00	0.00	0.00	565.70	5900.00	581.82	.22	.00	.00	5900.00	16.12	132.34
7.16	1.00	0.00	0.00	565.70	6800.00	582.64	.26	.00	.00	6800.00	16.94	139.37
7.16	1.00	0.00	0.00	565.70	10000.00	585.00	.38	.00	.00	10000.00	19.30	166.77
7.16	40.00	0.00	0.00	565.90	3600.00	579.49	.10	.01	.00	3575.96	13.59	163.45
7.16	40.00	0.00	0.00	565.90	5900.00	581.90	.16	.01	.01	5661.71	16.00	191.00
7.16	40.00	0.00	0.00	565.90	6800.00	582.74	.18	.01	.01	6421.31	16.84	200.51
7.16	40.00	0.00	0.00	565.90	10000.00	585.16	.25	.01	.01	8859.50	19.26	236.48
7.22	315.00	0.00	0.00	567.90	3600.00	579.52	.14	.07	.01	3599.41	11.62	125.67
7.22	315.00	0.00	0.00	567.90	5900.00	581.94	.24	.09	.02	5833.61	14.04	168.65
7.22	315.00	0.00	0.00	567.90	6800.00	582.78	.27	.10	.02	6649.56	14.88	178.16
7.22	315.00	0.00	0.00	567.90	10000.00	585.19	.36	.11	.03	9349.27	17.29	213.74

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	HV	HL	OLOSS	QCH	DEPTH	TOPWID
7.25	165.00	0.00	0.00	566.00	3600.00	579.61	.10	.04	.00	3575.26	13.61	163.71
7.25	165.00	0.00	0.00	566.00	5900.00	582.07	.16	.05	.01	5654.41	16.07	191.80
7.25	165.00	0.00	0.00	566.00	6800.00	582.92	.18	.05	.01	6410.65	16.92	201.45
7.25	165.00	0.00	0.00	566.00	10000.00	585.38	.24	.06	.01	8829.52	19.38	236.92
7.29	185.00	0.00	0.00	563.90	3600.00	579.62	.13	.04	.01	3600.00	15.72	110.00
7.29	185.00	0.00	0.00	563.90	5900.00	582.07	.23	.05	.02	5900.00	18.17	110.00
7.29	185.00	0.00	0.00	563.90	6800.00	582.91	.27	.05	.03	6800.00	19.01	110.00
7.29	185.00	0.00	0.00	563.90	10000.00	585.31	.43	.07	.06	10000.00	21.41	110.00
7.29	1.00	592.40	597.90	563.90	3600.00	579.61	.14	.00	.00	3600.00	15.71	104.00
7.29	1.00	592.40	597.90	563.90	5900.00	582.06	.25	.00	.01	5900.00	18.16	104.00
7.29	1.00	592.40	597.90	563.90	6800.00	582.89	.30	.00	.01	6800.00	18.99	104.00
7.29	1.00	592.40	597.90	563.90	10000.00	585.28	.48	.00	.02	10000.00	21.38	104.00
7.30	42.00	592.40	597.90	563.90	3600.00	579.62	.14	.01	.00	3600.00	15.72	104.00
7.30	42.00	592.40	597.90	563.90	5900.00	582.07	.25	.01	.00	5900.00	18.17	104.00
7.30	42.00	592.40	597.90	563.90	6800.00	582.90	.30	.01	.00	6800.00	19.00	104.00
7.30	42.00	592.40	597.90	563.90	10000.00	585.30	.48	.02	.00	10000.00	21.40	104.00
7.30	1.00	0.00	0.00	563.90	3600.00	579.64	.13	.00	.00	3600.00	15.74	110.00
7.30	1.00	0.00	0.00	563.90	5900.00	582.10	.23	.00	.00	5900.00	18.20	110.00
7.30	1.00	0.00	0.00	563.90	6800.00	582.94	.27	.00	.00	6800.00	19.04	110.00
7.30	1.00	0.00	0.00	563.90	10000.00	585.36	.43	.00	.01	10000.00	21.46	110.00
7.30	70.00	0.00	0.00	564.00	3600.00	579.71	.06	.01	.01	3500.88	15.71	187.69
7.30	70.00	0.00	0.00	564.00	5900.00	582.24	.11	.01	.01	5488.90	18.24	231.72
7.30	70.00	0.00	0.00	564.00	6800.00	583.11	.13	.02	.01	6203.94	19.11	234.94
7.30	70.00	0.00	0.00	564.00	10000.00	585.65	.18	.02	.03	9616.20	21.65	244.33
7.73	2225.00	0.00	0.00	566.50	3600.00	580.02	.13	.36	.02	3422.12	13.52	277.88
7.73	2225.00	0.00	0.00	566.50	5900.00	582.65	.15	.43	.01	4932.02	16.15	316.22
7.73	2225.00	0.00	0.00	566.50	6800.00	583.54	.15	.44	.01	5450.19	17.04	339.93
7.73	2225.00	0.00	0.00	566.50	10000.00	586.15	.16	.48	.00	7125.48	19.65	390.91
8.02	1541.00	0.00	0.00	564.40	3600.00	580.43	.14	.41	.00	3565.07	16.03	236.61
8.02	1541.00	0.00	0.00	564.40	5900.00	583.04	.08	.32	.01	4153.20	18.64	1051.31
8.02	1541.00	0.00	0.00	564.40	6800.00	583.92	.07	.29	.01	4375.77	19.52	1100.45
8.02	1541.00	0.00	0.00	564.40	10000.00	586.51	.05	.24	.01	5053.32	22.11	1199.00
8.28	1345.00	0.00	0.00	569.40	3600.00	580.76	.15	.34	.00	3574.62	11.36	281.08
8.28	1345.00	0.00	0.00	569.40	5900.00	583.24	.16	.26	.02	5168.79	13.84	922.55
8.28	1345.00	0.00	0.00	569.40	6800.00	584.09	.15	.23	.02	5498.86	14.69	930.63
8.28	1345.00	0.00	0.00	569.40	10000.00	586.63	.11	.17	.02	6448.12	17.23	954.83
8.71	2295.00	0.00	0.00	572.60	3600.00	581.40	.10	.58	.00	3600.00	8.80	194.78
8.71	2295.00	0.00	0.00	572.60	5900.00	583.69	.04	.33	.01	3688.85	11.09	1066.41
8.71	2295.00	0.00	0.00	572.60	6800.00	584.49	.04	.28	.01	3862.36	11.89	1112.29
8.71	2295.00	0.00	0.00	572.60	10000.00	586.91	.03	.19	.01	4443.09	14.31	1141.64

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	HV	HL	OLOSS	QCH	DEPTH	TOPWID
8.72	20.00	0.00	0.00	567.80	12600.00	581.30	.25	.01	.08	12600.00	13.50	338.11
8.72	20.00	0.00	0.00	567.80	19000.00	583.50	.37	.00	.16	19000.00	15.70	384.54
8.72	20.00	0.00	0.00	567.80	21300.00	584.40	.22	.00	.09	17374.05	16.60	894.82
8.72	20.00	0.00	0.00	567.80	28900.00	586.75	.22	.00	.09	21488.46	18.95	942.14
8.92	1087.00	0.00	0.00	567.90	12600.00	581.58	.31	.31	.03	12600.00	13.68	276.73
8.92	1087.00	0.00	0.00	567.90	19000.00	583.82	.47	.37	.05	19000.00	15.92	291.87
8.92	1087.00	0.00	0.00	567.90	21300.00	584.55	.52	.31	.15	21300.00	16.65	297.36
8.92	1087.00	0.00	0.00	567.90	28900.00	586.83	.64	.29	.21	28277.71	18.93	416.98
8.97	258.00	0.00	0.00	567.90	12600.00	581.62	.38	.08	.03	12600.00	13.72	239.98
8.97	258.00	0.00	0.00	567.90	19000.00	583.86	.58	.09	.06	19000.00	15.96	251.09
8.97	258.00	0.00	0.00	567.90	21300.00	584.59	.65	.10	.07	21300.00	16.69	254.97
8.97	258.00	0.00	0.00	567.90	28900.00	586.92	.65	.10	.00	26209.37	19.02	532.87
9.02	258.00	0.00	0.00	567.90	12600.00	581.66	.49	.09	.06	12600.00	13.76	201.99
9.02	258.00	0.00	0.00	567.90	19000.00	583.88	.77	.12	.09	19000.00	15.98	210.44
9.02	258.00	0.00	0.00	567.90	21300.00	584.60	.87	.12	.11	21300.00	16.70	213.31
9.02	258.00	0.00	0.00	567.90	28900.00	586.86	1.02	.12	.19	27620.28	18.96	400.77
9.07	258.00	0.00	0.00	567.90	12600.00	581.67	.71	.12	.11	12600.00	13.77	162.84
9.07	258.00	0.00	0.00	567.90	19000.00	583.86	1.12	.15	.18	19000.00	15.96	169.39
9.07	258.00	0.00	0.00	567.90	21300.00	584.57	1.27	.16	.20	21300.00	16.67	171.50
9.07	258.00	0.00	0.00	567.90	28900.00	586.71	1.67	.18	.32	28494.94	18.81	282.25
9.11	137.50	0.00	0.00	566.15	12600.00	582.03	.47	.06	.07	12600.00	15.88	189.57
9.11	137.50	0.00	0.00	566.15	19000.00	584.44	.74	.08	.12	19000.00	18.29	193.75
9.11	137.50	0.00	0.00	566.15	21300.00	585.22	.83	.08	.13	21300.00	19.07	194.43
9.11	137.50	0.00	0.00	566.15	28900.00	587.48	1.16	.10	.15	28900.00	21.33	196.41
9.14	137.50	0.00	0.00	565.30	12600.00	582.08	.50	.06	.01	12600.00	16.78	189.39
9.14	137.50	0.00	0.00	565.30	19000.00	584.50	.77	.07	.02	19000.00	19.20	206.26
9.14	137.50	0.00	0.00	565.30	21300.00	585.28	.86	.08	.01	21300.00	19.98	211.17
9.14	137.50	0.00	0.00	565.30	28900.00	587.57	1.16	.09	.00	28900.00	22.27	211.17
9.14	1.00	590.00	590.40	565.30	12600.00	582.06	.53	.00	.02	12600.00	16.76	184.42
9.14	1.00	590.00	590.40	565.30	19000.00	584.47	.82	.00	.03	19000.00	19.17	201.10
9.14	1.00	590.00	590.40	565.30	21300.00	585.26	.91	.00	.03	21300.00	19.96	206.34
9.14	1.00	590.00	590.40	565.30	28900.00	587.53	1.23	.00	.04	28900.00	22.23	206.34
9.15	67.00	590.00	590.40	565.30	12600.00	582.08	.53	.02	.00	12600.00	16.78	184.55
9.15	67.00	590.00	590.40	565.30	19000.00	584.50	.82	.03	.00	19000.00	19.20	201.54
9.15	67.00	590.00	590.40	565.30	21300.00	585.29	.91	.03	.00	21300.00	19.99	206.34
9.15	67.00	590.00	590.40	565.30	28900.00	587.57	1.22	.03	.00	28900.00	22.27	206.34
9.15	1.00	0.00	0.00	565.30	12600.00	582.13	.49	.00	.01	12600.00	16.83	189.59
9.15	1.00	0.00	0.00	565.30	19000.00	584.57	.76	.00	.02	19000.00	19.27	207.29
9.15	1.00	0.00	0.00	565.30	21300.00	585.37	.85	.00	.02	21300.00	20.07	211.17
9.15	1.00	0.00	0.00	565.30	28900.00	587.68	1.14	.00	.03	28900.00	22.38	211.17

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	HV	HL	OLOSS	QCH	DEPTH	TOPWID
9.21	333.00	0.00	0.00	569.10	12600.00	582.27	.68	.24	.09	12600.00	13.17	202.31
9.21	333.00	0.00	0.00	569.10	19000.00	584.76	.97	.29	.10	19000.00	15.66	202.31
9.21	333.00	0.00	0.00	569.10	21300.00	585.57	1.07	.30	.11	21300.00	16.47	202.31
9.21	333.00	0.00	0.00	569.10	28900.00	587.90	1.40	.34	.13	28900.00	18.80	202.31
9.21	1.00	593.50	593.40	569.10	12600.00	582.21	.80	.00	.06	12600.00	13.11	220.70
9.21	1.00	593.50	593.40	569.10	19000.00	584.64	1.21	.00	.12	19000.00	15.54	220.70
9.21	1.00	593.50	593.40	569.10	21300.00	565.42	1.36	.00	.15	21300.00	16.32	220.70
9.21	1.00	593.50	593.40	569.10	28900.00	587.67	1.86	.00	.23	28900.00	18.57	220.70
9.23	62.00	593.50	593.40	569.10	12600.00	582.27	.79	.04	.00	12600.00	13.17	220.70
9.23	62.00	593.50	593.40	569.10	19000.00	584.70	1.20	.05	.00	19000.00	15.60	220.70
9.23	62.00	593.50	593.40	569.10	21300.00	585.49	1.35	.05	.00	21300.00	16.39	220.70
9.23	62.00	593.50	593.40	569.10	28900.00	587.75	1.85	.06	.01	28900.00	18.65	220.70
9.23	1.00	0.00	0.00	569.10	12600.00	582.36	.72	.00	.02	12600.00	13.26	191.08
9.23	1.00	0.00	0.00	569.10	19000.00	564.95	1.02	.00	.06	19000.00	15.85	191.08
9.23	1.00	0.00	0.00	569.10	21300.00	585.79	1.12	.00	.07	21300.00	16.69	191.08
9.23	1.00	0.00	0.00	569.10	28900.00	588.25	1.46	.00	.12	28900.00	19.15	191.08
9.25	120.00	0.00	0.00	569.00	12600.00	582.41	.94	.15	.11	12504.87	13.41	213.62
9.25	120.00	0.00	0.00	569.00	19000.00	585.05	1.14	.16	.06	17972.52	16.05	320.70
9.25	120.00	0.00	0.00	569.00	21300.00	525.93	1.16	.16	.02	19630.57	16.93	361.30
9.25	120.00	0.00	0.00	569.00	28900.00	589.02	.98	.14	.14	23257.06	20.02	437.08
9.37	644.00	0.00	0.00	568.40	12600.00	583.28	.66	.57	.03	12240.72	14.88	267.51
9.37	644.00	0.00	0.00	568.40	19000.00	586.02	.77	.57	.04	17049.90	17.62	403.81
9.37	644.00	0.00	0.00	568.40	21300.00	586.90	.78	.55	.04	18399.42	18.50	425.90
9.37	644.00	0.00	0.00	568.40	28900.00	589.73	.72	.42	.03	21847.27	21.33	509.95
9.49	644.00	0.00	0.00	567.80	12600.00	583.84	.50	.38	.02	11919.76	16.04	320.54
9.49	644.00	0.00	0.00	567.80	19000.00	586.63	.57	.38	.02	16167.52	18.83	428.90
9.49	644.00	0.00	0.00	567.80	21300.00	587.49	.58	.37	.02	17411.75	19.69	453.84
9.49	644.00	0.00	0.00	567.80	28900.00	590.20	.57	.31	.01	20809.71	22.40	495.30
9.63	720.00	0.00	0.00	568.25	12600.00	584.13	.52	.31	.01	12481.82	15.88	253.81
9.63	720.00	0.00	0.00	568.25	19000.00	586.86	.70	.33	.04	17990.25	18.61	366.24
9.63	720.00	0.00	0.00	568.25	21300.00	587.70	.74	.32	.05	19742.51	19.45	381.96
9.63	720.00	0.00	0.00	568.25	28900.00	590.32	.82	.30	.08	24884.26	22.07	389.09
9.77	720.00	0.00	0.00	568.70	12600.00	584.37	.60	.29	.02	12599.87	15.67	181.61
9.77	720.00	0.00	0.00	568.70	19000.00	587.08	.88	.34	.05	18898.55	18.38	253.30
9.77	720.00	0.00	0.00	568.70	21300.00	587.89	.97	.35	.07	21062.61	19.19	264.91
9.77	720.00	0.00	0.00	568.70	28900.00	590.42	1.20	.36	.11	27808.74	21.72	296.00
9.86	427.50	0.00	0.00	568.04	12600.00	584.61	.54	.18	.01	12587.46	16.57	253.05
9.86	427.50	0.00	0.00	568.04	19000.00	587.48	.70	.20	.02	18091.62	19.44	391.37
9.86	427.50	0.00	0.00	568.04	21300.00	588.36	.73	.21	.02	19802.40	20.32	402.98
9.86	427.50	0.00	0.00	568.04	28900.00	591.09	.78	.21	.04	24791.08	23.05	428.51

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	HV	HL	OLOSS	QCH	DEPTH	TOPWID
9.94	427.50	0.00	0.00	567.38	12600.00	584.76	.57	.17	.01	12342.29	17.38	428.38
9.94	427.50	0.00	0.00	567.38	19000.00	587.76	.60	.18	.01	16719.24	20.38	496.78
9.94	427.50	0.00	0.00	567.38	21300.00	588.68	.60	.17	.01	18044.01	21.30	522.45
9.94	427.50	0.00	0.00	567.38	28900.00	591.48	.58	.16	.02	21812.07	24.10	549.92
10.07	764.00	0.00	0.00	566.20	12600.00	585.04	.70	.37	.04	12600.00	18.84	161.56
10.07	764.00	0.00	0.00	566.20	19000.00	587.98	.82	.37	.07	17772.61	21.78	311.82
10.07	764.00	0.00	0.00	566.20	21300.00	588.86	.87	.37	.08	19526.47	22.66	324.62
10.07	764.00	0.00	0.00	566.20	28900.00	591.57	.95	.35	.11	24792.04	25.37	364.23
10.09	191.00	0.00	0.00	565.90	12600.00	585.14	.73	.12	.01	12600.00	19.24	157.34
10.09	191.00	0.00	0.00	565.90	19000.00	587.98	1.02	.14	.06	18782.12	22.08	211.92
10.09	191.00	0.00	0.00	565.90	21300.00	588.83	1.12	.14	.07	20922.98	22.93	224.65
10.09	191.00	0.00	0.00	565.90	28900.00	591.42	1.37	.15	.13	27639.38	25.52	264.18
10.12	174.80	0.00	0.00	567.38	12600.00	585.26	.77	.15	.01	12600.00	17.88	127.19
10.12	174.80	0.00	0.00	567.38	19000.00	588.02	1.22	.19	.06	19000.00	20.64	129.23
10.12	174.80	0.00	0.00	567.38	21300.00	588.83	1.40	.20	.08	21300.00	21.45	129.74
10.12	174.80	0.00	0.00	567.38	28900.00	591.22	1.98	.23	.18	28900.00	23.84	131.03
10.13	58.20	0.00	0.00	568.00	12600.00	585.22	.99	.07	.11	12600.00	17.22	121.59
10.13	58.20	0.00	0.00	568.00	19000.00	587.95	1.54	.08	.16	19000.00	19.95	121.96
10.13	58.20	0.00	0.00	568.00	21300.00	588.75	1.75	.09	.18	21300.00	20.75	122.07
10.13	58.20	0.00	0.00	568.00	28900.00	591.09	2.47	.11	.24	28900.00	23.09	122.39
10.13	1.00	602.10	594.10	568.00	12600.00	585.14	1.15	.00	.08	12600.00	17.14	114.80
10.13	1.00	602.10	594.10	568.00	19000.00	587.83	1.79	.00	.12	19000.00	19.83	115.40
10.13	1.00	602.10	594.10	568.00	21300.00	588.61	2.03	.00	.14	21300.00	20.61	115.57
10.13	1.00	602.10	594.10	568.00	28900.00	590.89	2.87	.00	.20	28900.00	22.89	116.08
10.14	32.00	602.10	594.10	568.00	12600.00	585.17	1.15	.02	.00	12600.00	17.17	114.81
10.14	32.00	602.10	594.10	568.00	19000.00	587.86	1.78	.02	.00	19000.00	19.86	115.41
10.14	32.00	602.10	594.10	568.00	21300.00	588.64	2.02	.03	.00	21300.00	20.64	115.58
10.14	32.00	602.10	594.10	568.00	28900.00	590.94	2.85	.03	.00	28900.00	22.94	116.09
10.14	1.00	0.00	0.00	568.00	12600.00	585.40	.96	.00	.05	12600.00	17.40	121.61
10.14	1.00	0.00	0.00	568.00	19000.00	588.25	1.48	.00	.09	19000.00	20.25	122.00
10.14	1.00	0.00	0.00	568.00	21300.00	589.09	1.68	.00	.10	21300.00	21.09	122.12
10.14	1.00	0.00	0.00	568.00	28900.00	591.62	2.33	.00	.16	28900.00	23.62	122.46
10.15	70.00	0.00	0.00	567.56	12600.00	585.76	.74	.07	.07	12600.00	18.20	129.00
10.15	70.00	0.00	0.00	567.56	19000.00	588.77	1.14	.08	.10	19000.00	21.21	130.53
10.15	70.00	0.00	0.00	567.56	21300.00	589.68	1.29	.09	.12	21300.00	22.12	131.00
10.15	70.00	0.00	0.00	567.56	28900.00	592.44	1.78	.10	.17	28900.00	24.88	132.27
10.17	70.00	0.00	0.00	567.11	12600.00	586.04	.56	.05	.05	12600.00	18.93	139.46
10.17	70.00	0.00	0.00	567.11	19000.00	589.18	.87	.06	.08	19000.00	22.07	141.28
10.17	70.00	0.00	0.00	567.11	21300.00	590.14	.98	.06	.09	21300.00	23.03	141.75
10.17	70.00	0.00	0.00	567.11	28900.00	593.06	1.36	.07	.13	28900.00	25.95	142.43

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	HV	HL	OLOSS	QCH	DEPTH	TOPWID
10.19	140.00	0.00	0.00	566.22	12600.00	586.39	.34	.06	.07	12600.00	20.17	164.11
10.19	140.00	0.00	0.00	566.22	19000.00	589.69	.54	.07	.10	19000.00	23.47	164.13
10.19	140.00	0.00	0.00	566.22	21300.00	590.71	.61	.07	.11	21300.00	24.49	164.14
10.19	140.00	0.00	0.00	566.22	28900.00	593.81	.85	.09	.15	28900.00	27.59	164.16
10.25	287.00	0.00	0.00	564.40	12600.00	586.65	.19	.06	.05	12600.00	22.25	199.54
10.25	287.00	0.00	0.00	564.40	19000.00	590.07	.30	.07	.07	19000.00	25.67	199.54
10.25	287.00	0.00	0.00	564.40	21300.00	591.14	.34	.08	.08	21300.00	26.74	199.54
10.25	287.00	0.00	0.00	564.40	28900.00	594.38	.48	.10	.11	28900.00	29.98	199.54
10.25	1.00	598.50	594.10	564.40	12600.00	586.64	.20	.00	.01	12600.00	22.24	193.33
10.25	1.00	598.50	594.10	564.40	19000.00	590.06	.32	.00	.01	19000.00	25.66	193.33
10.25	1.00	598.50	594.10	564.40	21300.00	591.12	.37	.00	.01	21300.00	26.72	193.33
10.25	1.00	598.50	594.10	564.40	28900.00	594.36	.53	.00	.02	28900.00	29.96	199.54
10.26	85.00	598.50	594.10	564.40	12600.00	586.64	.20	.01	.00	12600.00	22.24	193.33
10.26	85.00	598.50	594.10	564.40	19000.00	590.07	.32	.01	.00	19000.00	25.67	193.33
10.26	85.00	598.50	594.10	564.40	21300.00	591.13	.37	.01	.00	21300.00	26.73	193.33
10.26	85.00	598.50	594.10	564.40	28900.00	594.38	.53	.02	.00	28900.00	29.98	199.54
10.26	1.00	0.00	0.00	564.40	12600.00	586.66	.18	.00	.00	12600.00	22.26	199.54
10.26	1.00	0.00	0.00	564.40	19000.00	590.10	.30	.00	.01	19000.00	25.70	199.54
10.26	1.00	0.00	0.00	564.40	21300.00	591.17	.34	.00	.01	21300.00	26.77	199.54
10.26	1.00	0.00	0.00	564.40	28900.00	594.45	.48	.00	.01	28900.00	30.05	199.54
10.32	310.00	0.00	0.00	565.40	12600.00	586.71	.21	.05	.01	10272.25	21.31	610.75
10.32	310.00	0.00	0.00	565.40	19000.00	590.32	.16	.05	.04	11849.63	24.92	691.41
10.32	310.00	0.00	0.00	565.40	21300.00	591.46	.16	.05	.05	12350.38	26.06	725.20
10.32	310.00	0.00	0.00	565.40	28900.00	594.93	.14	.05	.10	13736.23	29.53	835.60
10.38	320.00	0.00	0.00	566.20	12600.00	586.73	.28	.07	.02	11087.71	20.53	600.28
10.38	320.00	0.00	0.00	566.20	19000.00	590.34	.22	.05	.02	13004.67	24.14	667.92
10.38	320.00	0.00	0.00	566.20	21300.00	591.47	.20	.05	.01	13586.18	25.27	701.78
10.38	320.00	0.00	0.00	566.20	28900.00	594.94	.18	.03	.01	15192.12	28.74	810.46
10.70	1660.00	0.00	0.00	570.30	12600.00	587.17	.52	.61	.07	12508.30	16.87	249.88
10.70	1660.00	0.00	0.00	570.30	19000.00	590.57	.55	.47	.10	16548.25	20.27	380.82
10.70	1660.00	0.00	0.00	570.30	21300.00	591.66	.54	.43	.10	17579.79	21.36	382.65
10.70	1660.00	0.00	0.00	570.30	28900.00	595.02	.53	.33	.11	20472.54	24.72	388.36
10.82	650.00	0.00	0.00	568.10	12600.00	587.66	.33	.28	.02	11304.35	19.56	321.18
10.82	650.00	0.00	0.00	568.10	19000.00	591.06	.34	.26	.02	14476.90	22.96	591.26
10.82	650.00	0.00	0.00	568.10	21300.00	592.14	.33	.25	.02	15150.07	24.04	615.77
10.82	650.00	0.00	0.00	568.10	28900.00	595.48	.28	.19	.02	16730.76	27.38	690.85
10.85	150.00	0.00	0.00	565.00	12600.00	587.82	.26	.07	.02	12600.00	22.82	174.80
10.85	150.00	0.00	0.00	565.00	19000.00	591.10	.42	.07	.04	18996.36	26.10	528.92
10.85	150.00	0.00	0.00	565.00	21300.00	592.15	.46	.07	.07	21065.47	27.15	551.40
10.85	150.00	0.00	0.00	565.00	28900.00	595.43	.50	.06	.11	26505.77	30.43	620.64

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	HV	HL	OLOSS	QCH	DEPTH	TOPWID
10.85	32.00	591.10	589.90	565.00	12600.00	587.86	.26	.04	.00	12600.00	22.86	174.80
10.85	32.00	591.10	589.90	565.00	19000.00	591.43	.39	.31	0.00	19809.41	26.43	536.17
10.85	32.00	591.10	589.90	565.00	21300.00	592.65	.36	.40	0.00	19570.74	27.65	562.03
10.85	32.00	591.10	589.90	565.00	28900.00	595.71	.32	.10	0.00	20162.56	30.71	626.02
10.91	300.00	0.00	0.00	566.66	12600.00	588.18	.13	.14	.04	8504.77	21.52	1207.33
10.91	300.00	0.00	0.00	566.66	19000.00	591.92	.12	.14	.08	10704.82	25.26	1243.82
10.91	300.00	0.00	0.00	566.66	21300.00	593.10	.12	.14	.07	11432.47	26.44	1256.18
10.91	300.00	0.00	0.00	566.66	28900.00	596.10	.13	.14	.06	13922.73	29.44	1285.00
11.05	750.00	0.00	0.00	570.80	12600.00	588.26	.32	.17	.09	9888.27	17.46	1197.89
11.05	750.00	0.00	0.00	570.80	19000.00	592.00	.23	.13	.05	11615.93	21.20	1812.04
11.05	750.00	0.00	0.00	570.80	21300.00	593.17	.20	.12	.04	12013.46	22.37	1823.76
11.05	750.00	0.00	0.00	570.80	28900.00	596.19	.17	.10	.02	13594.62	25.39	1890.59
11.29	1268.00	0.00	0.00	569.40	8580.00	588.90	.21	.50	.03	4959.31	19.50	1568.54
11.29	1268.00	0.00	0.00	569.40	13300.00	592.44	.08	.25	.04	4887.90	23.04	2106.09
11.29	1268.00	0.00	0.00	569.40	15000.00	593.56	.07	.21	.04	4853.44	24.16	2136.95
11.29	1268.00	0.00	0.00	569.40	19800.00	596.49	.04	.14	.04	4902.66	27.09	2229.49
11.39	528.70	0.00	0.00	569.95	8580.00	589.01	.42	.22	.11	6470.69	19.06	1289.47
11.39	528.70	0.00	0.00	569.95	13300.00	592.46	.20	.08	.06	6754.39	22.51	1777.80
11.39	528.70	0.00	0.00	569.95	15000.00	593.57	.16	.06	.05	6756.95	23.62	1946.52
11.39	528.70	0.00	0.00	569.95	19800.00	596.49	.09	.03	.02	6684.66	26.54	2119.19
11.70	1586.30	0.00	0.00	571.59	8580.00	590.05	.44	1.05	.01	7359.48	18.46	464.64
11.70	1586.30	0.00	0.00	571.59	13300.00	592.88	.38	.54	.05	8936.31	21.29	1140.19
11.70	1586.30	0.00	0.00	571.59	15000.00	593.87	.31	.41	.05	8940.28	22.28	1259.19
11.70	1586.30	0.00	0.00	571.59	19800.00	596.64	.17	.20	.02	8348.23	25.05	1667.21
11.85	785.00	0.00	0.00	572.40	8580.00	590.65	.40	.55	.00	7610.88	18.25	443.31
11.85	785.00	0.00	0.00	572.40	13300.00	593.31	.44	.47	.02	10009.31	20.91	1062.76
11.85	785.00	0.00	0.00	572.40	15000.00	594.21	.41	.40	.03	10456.36	21.81	1136.91
11.85	785.00	0.00	0.00	572.40	19800.00	596.78	.29	.23	.04	10977.69	24.38	1373.87
11.86	78.90	0.00	0.00	572.48	8730.00	590.72	.39	.05	.00	7581.89	18.24	453.01
11.86	78.90	0.00	0.00	572.48	13500.00	593.39	.41	.06	.00	9893.42	20.91	1092.43
11.86	78.90	0.00	0.00	572.48	15200.00	594.30	.38	.05	.00	10251.73	21.82	1124.17
11.86	78.90	0.00	0.00	572.48	20000.00	596.86	.26	.04	.00	10572.47	24.38	1404.08
11.88	78.90	0.00	0.00	572.57	8730.00	590.79	.38	.05	.00	7524.19	18.22	456.74
11.88	78.90	0.00	0.00	572.57	13500.00	593.47	.39	.05	.00	9708.81	20.90	1074.67
11.88	78.90	0.00	0.00	572.57	15200.00	594.37	.35	.05	.00	10036.87	21.80	1109.57
11.88	78.90	0.00	0.00	572.57	20000.00	596.91	.24	.04	.00	10338.25	24.34	1392.22
11.93	286.80	0.00	0.00	572.89	8730.00	590.99	.34	.16	.00	7284.00	18.10	583.04
11.93	286.80	0.00	0.00	572.89	13500.00	593.69	.34	.16	.00	9331.85	20.80	941.76
11.93	286.80	0.00	0.00	572.89	15200.00	594.55	.33	.15	.00	9810.65	21.66	1052.72
11.93	286.80	0.00	0.00	572.89	20000.00	597.02	.24	.11	.00	10396.76	24.13	1427.11

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	HV	HL	OLOSS	QCH	DEPTH	TOPWID
12.02	495.40	0.00	0.00	573.40	8730.00	591.37	.17	.19	.02	5757.08	17.97	669.16
12.02	495.40	0.00	0.00	573.40	13500.00	594.06	.17	.19	.02	7285.24	20.66	767.98
12.02	495.40	0.00	0.00	573.40	15200.00	594.90	.17	.18	.02	7725.26	21.50	818.77
12.02	495.40	0.00	0.00	573.40	20000.00	597.27	.14	.14	.01	8455.33	23.87	1240.78
12.34	1670.00	0.00	0.00	573.00	8730.00	592.05	.06	.56	.01	2989.72	19.05	872.35
12.34	1670.00	0.00	0.00	573.00	13500.00	594.66	.06	.48	.01	3472.51	21.66	1003.98
12.34	1670.00	0.00	0.00	573.00	15200.00	595.48	.06	.45	.01	3645.61	22.48	1078.19
12.34	1670.00	0.00	0.00	573.00	20000.00	597.73	.06	.36	.01	4035.37	24.73	1262.75
12.54	1080.00	0.00	0.00	574.70	8730.00	592.39	.22	.45	.05	6448.94	17.69	720.26
12.54	1080.00	0.00	0.00	574.70	13500.00	594.92	.24	.39	.05	8344.28	20.22	750.00
12.54	1080.00	0.00	0.00	574.70	15200.00	595.72	.24	.37	.05	8915.50	21.02	750.00
12.54	1080.00	0.00	0.00	574.70	20000.00	597.91	.24	.31	.05	10328.75	23.21	750.00
12.80	1350.00	0.00	0.00	573.50	8730.00	592.98	.10	.46	.01	4716.69	19.48	1241.52
12.80	1350.00	0.00	0.00	573.50	13500.00	595.52	.09	.44	.01	5672.39	22.02	1420.56
12.80	1350.00	0.00	0.00	573.50	15200.00	596.31	.09	.43	.02	5940.86	22.81	1456.26
12.80	1350.00	0.00	0.00	573.50	20000.00	598.47	.07	.38	.02	6495.24	24.97	1568.32
13.14	1820.00	0.00	0.00	574.40	8730.00	593.60	.04	.55	.01	1992.97	19.20	897.75
13.14	1820.00	0.00	0.00	574.40	13500.00	596.09	.05	.52	.00	2486.32	21.69	936.17
13.14	1820.00	0.00	0.00	574.40	15200.00	596.86	.05	.51	.00	2649.63	22.46	939.81
13.14	1820.00	0.00	0.00	574.40	20000.00	598.94	.06	.46	.00	3045.77	24.54	1000.00
13.16	100.10	0.00	0.00	574.58	8730.00	593.61	.08	.02	.02	3652.90	19.03	868.87
13.16	100.10	0.00	0.00	574.58	13500.00	596.10	.09	.03	.02	4676.97	21.52	920.69
13.16	100.10	0.00	0.00	574.58	15200.00	596.87	.09	.03	.02	5006.42	22.29	946.35
13.16	100.10	0.00	0.00	574.58	20000.00	598.95	.09	.02	.02	5727.03	24.37	1275.00
13.19	75.10	0.00	0.00	574.68	8730.00	593.62	.09	.01	.00	3818.95	18.94	831.11
13.19	75.10	0.00	0.00	574.68	13500.00	596.11	.10	.02	.00	4867.03	21.43	894.11
13.19	75.10	0.00	0.00	574.68	15200.00	596.88	.10	.02	.00	5201.09	22.20	1139.05
13.19	75.10	0.00	0.00	574.68	20000.00	598.96	.10	.01	.00	5901.43	24.28	1275.00
13.22	225.30	0.00	0.00	575.03	8730.00	593.66	.09	.04	.00	3924.65	18.63	773.22
13.22	225.30	0.00	0.00	575.03	13500.00	596.15	.09	.04	.00	4878.40	21.12	1245.46
13.22	225.30	0.00	0.00	575.03	15200.00	596.93	.09	.04	.00	5128.30	21.90	1257.78
13.22	225.30	0.00	0.00	575.03	20000.00	599.01	.09	.04	.00	5661.36	23.98	1350.00
13.48	1379.50	0.00	0.00	577.20	8730.00	593.81	.01	.06	.01	1448.21	16.61	1426.10
13.48	1379.50	0.00	0.00	577.20	13500.00	596.29	.02	.06	.01	1741.60	19.09	1463.63
13.48	1379.50	0.00	0.00	577.20	15200.00	597.06	.02	.06	.01	1846.27	19.86	1505.43
13.48	1379.50	0.00	0.00	577.20	20000.00	599.13	.02	.05	.01	2121.11	21.93	1701.02
13.80	1680.00	0.00	0.00	575.90	8730.00	593.82	.13	.07	.06	5072.86	17.92	658.27
13.80	1680.00	0.00	0.00	575.90	13500.00	596.29	.15	.06	.07	6644.04	20.39	768.30
13.80	1680.00	0.00	0.00	575.90	15200.00	597.06	.15	.06	.07	7133.42	21.16	795.13
13.80	1680.00	0.00	0.00	575.90	20000.00	599.12	.16	.06	.07	8330.46	23.22	863.92

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	HV	HL	OLOSS	QCH	DEPTH	TOPWID
14.06	1380.00	0.00	0.00	577.50	8730.00	594.20	.03	.27	.01	2927.79	16.70	1105.96
14.06	1380.00	0.00	0.00	577.50	13500.00	596.68	.04	.27	.01	3751.55	19.18	1119.33
14.06	1380.00	0.00	0.00	577.50	15200.00	597.45	.04	.27	.01	4036.63	19.95	1123.47
14.06	1380.00	0.00	0.00	577.50	20000.00	599.50	.04	.25	.01	4795.96	22.00	1200.00
14.26	1040.00	0.00	0.00	578.00	8730.00	594.41	.07	.22	.02	6882.14	16.41	750.36
14.26	1040.00	0.00	0.00	578.00	13500.00	596.86	.08	.20	.02	9513.76	18.86	803.54
14.26	1040.00	0.00	0.00	578.00	15200.00	597.62	.08	.20	.02	10406.80	19.62	820.04
14.26	1040.00	0.00	0.00	578.00	20000.00	599.66	.09	.18	.02	12694.76	21.66	933.54
14.52	1400.00	0.00	0.00	578.40	8730.00	594.65	.05	.22	.00	2741.23	16.25	1067.65
14.52	1400.00	0.00	0.00	578.40	13500.00	597.08	.05	.18	.00	3169.57	18.68	1163.05
14.52	1400.00	0.00	0.00	578.40	15200.00	597.83	.05	.17	.00	3310.47	19.43	1189.38
14.52	1400.00	0.00	0.00	578.40	20000.00	599.85	.05	.15	.00	3673.23	21.45	1259.04
15.06	2820.00	0.00	0.00	579.00	8830.00	595.10	.21	.56	.05	4744.78	16.10	976.20
15.06	2820.00	0.00	0.00	579.00	13600.00	597.42	.16	.43	.03	5374.13	18.42	1109.98
15.06	2820.00	0.00	0.00	579.00	15400.00	598.16	.15	.40	.03	5588.23	19.16	1121.28
15.06	2820.00	0.00	0.00	579.00	20200.00	600.12	.14	.33	.03	6021.08	21.12	1250.00
15.72	3510.00	0.00	0.00	578.00	8830.00	596.51	.12	1.32	.01	5333.46	18.51	987.27
15.72	3510.00	0.00	0.00	578.00	13600.00	598.64	.13	1.18	.00	6885.06	20.64	1117.33
15.72	3510.00	0.00	0.00	578.00	15400.00	599.32	.13	1.14	.00	7391.58	21.32	1118.54
15.72	3510.00	0.00	0.00	578.00	20200.00	601.11	.13	.99	.00	8553.59	23.11	1167.30
15.73	60.00	0.00	0.00	578.00	8830.00	596.58	.08	.02	.01	4727.11	18.58	988.86
15.73	60.00	0.00	0.00	578.00	13600.00	598.71	.09	.02	.01	5956.81	20.71	1164.87
15.73	60.00	0.00	0.00	578.00	15400.00	599.40	.09	.02	.01	6345.47	21.40	1218.62
15.73	60.00	0.00	0.00	578.00	20200.00	601.19	.08	.02	.01	7107.31	23.19	1376.82
15.74	34.00	596.20	595.90	578.00	8830.00	597.37	.08	.78	0.00	4790.69	19.37	1059.24
15.74	34.00	596.20	595.90	578.00	13600.00	599.55	.09	.84	0.00	6313.67	21.55	1240.77
15.74	34.00	596.20	595.90	578.00	15400.00	600.00	.10	.61	0.00	6945.12	22.00	1305.47
15.74	34.00	596.20	595.90	578.00	20200.00	601.35	.12	.18	0.00	8388.65	23.35	1393.93
16.06	1705.00	0.00	0.00	576.40	8830.00	597.75	.15	.42	.04	5841.78	21.35	408.85
16.06	1705.00	0.00	0.00	576.40	13600.00	599.98	.20	.49	.06	7880.39	23.58	481.32
16.06	1705.00	0.00	0.00	576.40	15400.00	600.48	.22	.54	.06	8690.88	24.08	507.08
16.06	1705.00	0.00	0.00	576.40	20200.00	601.89	.25	.61	.07	10443.56	25.49	925.00
16.40	1760.00	0.00	0.00	581.40	8830.00	598.23	.05	.36	.01	3079.05	16.83	684.27
16.40	1760.00	0.00	0.00	581.40	13600.00	600.55	.07	.43	.01	4261.41	19.15	750.00
16.40	1760.00	0.00	0.00	581.40	15400.00	601.11	.08	.48	.01	4721.41	19.71	750.00
16.40	1760.00	0.00	0.00	581.40	20200.00	602.60	.11	.55	.01	5878.39	21.20	750.00
16.87	2480.00	0.00	0.00	582.00	8830.00	598.88	.09	.67	.02	4011.02	16.88	1065.35
16.87	2480.00	0.00	0.00	582.00	13600.00	601.25	.08	.70	.00	4627.33	19.25	1100.00
16.87	2480.00	0.00	0.00	582.00	15400.00	601.86	.08	.74	.00	4927.45	19.86	1100.00
16.87	2480.00	0.00	0.00	582.00	20200.00	603.44	.09	.82	.00	5617.44	21.44	1100.00

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	HV	HL	OLOSS	QCH	DEPTH	TOPWID
17.09	1180.00	0.00	0.00	582.60	8830.00	599.50	.17	.66	.04	4834.84	16.90	525.28
17.09	1180.00	0.00	0.00	582.60	13600.00	601.81	.20	.62	.06	6495.33	19.21	550.00
17.09	1180.00	0.00	0.00	582.60	15400.00	602.43	.22	.64	.07	7115.73	19.83	550.00
17.09	1180.00	0.00	0.00	582.60	20200.00	604.01	.26	.66	.09	8654.92	21.41	550.00

SECTION NUMBER	DISCHARGE CFS	CWSEL	CWSEL DIFF EACH Q	CWSEL DIFF EACH SECTION	CWSEL-WSELK	TOPWID	T.W. DIFF	LENGTH
6.057	3600.000	578.270	0.000	0.000	0.000	186.796	0.000	1260.000
6.057	5900.000	580.310	2.040	0.000	0.000	195.956	-9.160	1260.000
6.057	6800.000	581.040	.730	0.000	0.000	198.071	-11.276	1260.000
6.057	10000.000	583.090	2.050	0.000	0.000	204.013	-17.218	1260.000
6.489	3600.000	578.696	0.000	.426	0.000	156.454	0.000	2280.000
6.489	5900.000	580.878	2.182	.568	0.000	158.969	-2.515	2280.000
6.489	6800.000	581.643	.765	.603	0.000	176.454	-20.000	2280.000
6.489	10000.000	583.826	2.183	.736	0.000	210.527	-54.073	2280.000
6.883	3600.000	579.183	0.000	.486	0.000	187.333	0.000	2080.000
6.883	5900.000	581.499	2.316	.621	0.000	216.958	-29.625	2080.000
6.883	6800.000	582.302	.803	.658	0.000	225.454	-38.121	2080.000
6.883	10000.000	584.601	2.300	.775	0.000	245.625	-58.293	2080.000
7.096	3600.000	579.371	0.000	.188	0.000	128.906	0.000	1125.000
7.096	5900.000	581.725	2.354	.226	0.000	138.841	-9.935	1125.000
7.096	6800.000	582.534	.809	.232	0.000	142.256	-13.349	1125.000
7.096	10000.000	584.854	2.320	.253	0.000	152.045	-23.138	1125.000
7.142	3600.000	579.416	0.000	.046	0.000	132.342	0.000	250.000
7.142	5900.000	581.789	2.373	.064	0.000	132.342	0.000	250.000
7.142	6800.000	582.603	.814	.069	0.000	138.894	-6.552	250.000
7.142	10000.000	584.947	2.344	.093	0.000	166.054	-33.712	250.000
7.143	3600.000	579.409	0.000	-.007	0.000	126.546	0.000	1.000
7.143	5900.000	581.777	2.367	-.013	0.000	126.546	0.000	1.000
7.143	6800.000	582.588	.812	-.015	0.000	133.038	-6.492	1.000
7.143	10000.000	584.925	2.337	-.022	0.000	160.176	-33.630	1.000
7.154	3600.000	579.426	0.000	.016	0.000	126.546	0.000	58.000
7.154	5900.000	581.800	2.374	.023	0.000	126.546	0.000	58.000
7.154	6800.000	582.615	.815	.027	0.000	133.294	-6.748	58.000
7.154	10000.000	584.964	2.349	.039	0.000	160.522	-33.976	58.000
7.155	3600.000	579.438	0.000	.012	0.000	132.342	0.000	1.000
7.155	5900.000	581.821	2.384	.021	0.000	132.342	0.000	1.000
7.155	6800.000	582.641	.819	.025	0.000	139.374	-7.032	1.000
7.155	10000.000	585.002	2.361	.038	0.000	166.772	-34.430	1.000
7.163	3600.000	579.486	0.000	.048	0.000	163.453	0.000	40.000
7.163	5900.000	581.903	2.417	.081	0.000	190.999	-27.546	40.000
7.163	6800.000	582.737	.835	.097	0.000	200.514	-37.061	40.000
7.163	10000.000	585.159	2.422	.157	0.000	236.481	-73.028	40.000
7.222	3600.000	579.523	0.000	.037	0.000	125.666	0.000	315.000
7.222	5900.000	581.942	2.419	.039	0.000	168.650	-42.984	315.000
7.222	6800.000	582.776	.834	.038	0.000	178.156	-52.490	315.000
7.222	10000.000	585.191	2.415	.031	0.000	213.742	-88.077	315.000
7.253	3600.000	579.608	0.000	.085	0.000	163.706	0.000	165.000
7.253	5900.000	582.073	2.465	.131	0.000	191.798	-28.092	165.000
7.253	6800.000	582.920	.847	.144	0.000	201.451	-37.745	165.000
7.253	10000.000	585.379	2.459	.188	0.000	236.923	-73.216	165.000

7.288	3600.000	579.622	0.000	.014	0.000	110.000	0.000	185.000
7.288	5900.000	582.073	2.451	.000	0.000	110.000	0.000	185.000
7.288	6800.000	582.909	.837	-.010	0.000	110.000	0.000	185.000
7.288	10000.000	585.312	2.403	-.067	0.000	110.000	0.000	185.000
7.289	3600.000	579.613	0.000	-.009	0.000	104.000	0.000	1.000
7.289	5900.000	582.055	2.443	-.018	0.000	104.000	0.000	1.000
7.289	6800.000	582.888	.833	-.021	0.000	104.000	0.000	1.000
7.289	10000.000	585.277	2.389	-.035	0.000	104.000	0.000	1.000
7.296	3600.000	579.620	0.000	.008	0.000	104.000	0.000	42.000
7.296	5900.000	582.068	2.448	.013	0.000	104.000	0.000	42.000
7.296	6800.000	582.903	.835	.015	0.000	104.000	0.000	42.000
7.296	10000.000	585.299	2.396	.022	0.000	104.000	0.000	42.000
7.297	3600.000	579.636	0.000	.015	0.000	110.000	0.000	1.000
7.297	5900.000	582.096	2.461	.028	0.000	110.000	0.000	1.000
7.297	6800.000	582.938	.841	.035	0.000	110.000	0.000	1.000
7.297	10000.000	585.356	2.418	.057	0.000	110.000	0.000	1.000
7.300	3600.000	579.712	0.000	.077	0.000	187.689	0.000	70.000
7.300	5900.000	582.241	2.529	.144	0.000	231.720	-44.031	70.000
7.300	6800.000	583.112	.871	.174	0.000	234.937	-47.247	70.000
7.300	10000.000	585.655	2.543	.299	0.000	244.326	-56.637	70.000
7.731	3600.000	580.020	0.000	.308	0.000	277.885	0.000	2225.000
7.731	5900.000	582.646	2.626	.405	0.000	316.222	-38.337	2225.000
7.731	6800.000	583.538	.892	.426	0.000	339.934	-62.049	2225.000
7.731	10000.000	586.153	2.615	.498	0.000	390.907	-113.022	2225.000
8.023	3600.000	580.427	0.000	.407	0.000	236.607	0.000	1541.000
8.023	5900.000	583.035	2.608	.390	0.000	1051.314	-814.708	1541.000
8.023	6800.000	583.916	.880	.378	0.000	1100.454	-863.847	1541.000
8.023	10000.000	586.507	2.591	.354	0.000	1198.999	-962.392	1541.000
8.278	3600.000	580.764	0.000	.337	0.000	281.078	0.000	1345.000
8.278	5900.000	583.235	2.471	.200	0.000	922.553	-641.474	1345.000
8.278	6800.000	584.091	.856	.175	0.000	930.679	-649.601	1345.000
8.278	10000.000	586.634	2.543	.127	0.000	954.828	-673.750	1345.000
8.713	3600.000	581.395	0.000	.631	0.000	194.783	0.000	2295.000
8.713	5900.000	583.694	2.299	.459	0.000	1066.406	-871.623	2295.000
8.713	6800.000	584.488	.794	.398	0.000	1112.291	-917.507	2295.000
8.713	10000.000	586.908	2.420	.274	0.000	1141.638	-946.855	2295.000
8.717	12600.000	581.300	0.000	-.095	0.000	338.108	0.000	20.000
8.717	19000.000	583.500	2.200	-.194	0.000	364.538	-26.430	20.000
8.717	21300.000	584.400	.900	-.088	0.000	894.820	-556.712	20.000
8.717	28900.000	586.750	2.350	-.158	0.000	942.143	-604.034	20.000
8.922	12600.000	581.580	0.000	.280	0.000	276.726	0.000	1087.000
8.922	19000.000	583.823	2.242	.323	0.000	291.875	-15.148	1087.000
8.922	21300.000	584.555	.732	.155	0.000	297.357	-20.631	1087.000
8.922	28900.000	586.829	2.274	.079	0.000	416.983	-140.256	1087.000
8.972	12600.000	581.621	0.000	.041	0.000	239.984	0.000	258.000
8.972	19000.000	583.860	2.238	.037	0.000	251.088	-11.104	258.000
8.972	21300.000	584.588	.729	.033	0.000	254.967	-14.983	258.000
8.972	28900.000	586.922	2.334	.094	0.000	532.873	-292.889	258.000
9.023	12600.000	581.656	0.000	.034	0.000	201.993	0.000	258.000
9.023	19000.000	583.882	2.226	.022	0.000	210.441	-8.448	258.000
9.023	21300.000	584.604	.722	.016	0.000	213.307	-11.313	258.000
9.023	28900.000	586.855	2.252	-.067	0.000	400.769	-198.776	258.000

9.074	12600.000	[illegible]	0.000	.014	0.000	[illegible]	0.000	258.000
9.074	19000.000	583.860	2.193	-.022	0.000	169.388	-6.545	258.000
9.074	21300.000	584.567	.707	-.037	0.000	171.500	-8.657	258.000
9.074	28900.000	586.710	2.143	-.145	0.000	282.245	-119.402	258.000
9.106	12600.000	582.033	0.000	.366	0.000	189.575	0.000	137.500
9.106	19000.000	584.438	2.405	.578	0.000	193.753	-4.178	137.500
9.106	21300.000	585.218	.781	.651	0.000	194.434	-4.860	137.500
9.106	28900.000	587.478	2.260	.768	0.000	196.406	-6.832	137.500
9.137	12600.000	582.075	0.000	.042	0.000	189.385	0.000	137.500
9.137	19000.000	584.495	2.420	.058	0.000	206.259	-16.874	137.500
9.137	21300.000	585.284	.789	.066	0.000	211.171	-21.786	137.500
9.137	28900.000	587.570	2.286	.092	0.000	211.171	-21.786	137.500
9.138	12600.000	582.058	0.000	-.017	0.000	184.417	0.000	1.000
9.138	19000.000	584.471	2.412	-.025	0.000	201.103	-16.686	1.000
9.138	21300.000	585.256	.786	-.027	0.000	206.336	-21.919	1.000
9.138	28900.000	587.533	2.277	-.037	0.000	206.336	-21.919	1.000
9.150	12600.000	582.080	0.000	.022	0.000	184.545	0.000	67.000
9.150	19000.000	584.502	2.422	.032	0.000	201.543	-16.998	67.000
9.150	21300.000	585.291	.789	.034	0.000	206.336	-21.791	67.000
9.150	28900.000	587.574	2.284	.041	0.000	206.336	-21.791	67.000
9.151	12600.000	582.127	0.000	.046	0.000	189.594	0.000	1.000
9.151	19000.000	584.575	2.448	.073	0.000	207.289	-17.695	1.000
9.151	21300.000	585.372	.797	.081	0.000	211.171	-21.577	1.000
9.151	28900.000	587.684	2.312	.109	0.000	211.171	-21.577	1.000
9.213	12600.000	582.271	0.000	.145	0.000	202.311	0.000	333.000
9.213	19000.000	584.760	2.489	.186	0.000	202.311	-.000	333.000
9.213	21300.000	585.566	.805	.194	0.000	202.311	-.000	333.000
9.213	28900.000	587.899	2.333	.215	0.000	202.311	-.000	333.000
9.214	12600.000	582.212	0.000	-.059	0.000	220.704	0.000	1.000
9.214	19000.000	584.637	2.425	-.123	0.000	220.704	0.000	1.000
9.214	21300.000	585.418	.781	-.147	0.000	220.704	0.000	1.000
9.214	28900.000	587.668	2.250	-.230	0.000	220.704	0.000	1.000
9.225	12600.000	582.266	0.000	.054	0.000	220.704	0.000	62.000
9.225	19000.000	584.704	2.438	.067	0.000	220.704	0.000	62.000
9.225	21300.000	585.489	.785	.071	0.000	220.704	0.000	62.000
9.225	28900.000	587.752	2.263	.084	0.000	220.704	0.000	62.000
9.226	12600.000	582.362	0.000	.096	0.000	191.082	0.000	1.000
9.226	19000.000	584.946	2.584	.241	0.000	191.082	-.000	1.000
9.226	21300.000	585.787	.842	.298	0.000	191.082	-.000	1.000
9.226	28900.000	588.254	2.467	.502	0.000	191.082	-.000	1.000
9.250	12600.000	582.406	0.000	.044	0.000	213.615	0.000	120.000
9.250	19000.000	585.046	2.640	.100	0.000	320.704	-107.089	120.000
9.250	21300.000	585.929	.883	.142	0.000	361.802	-148.187	120.000
9.250	28900.000	589.018	3.089	.763	0.000	437.078	-223.463	120.000
9.371	12600.000	583.281	0.000	.875	0.000	267.508	0.000	644.000
9.371	19000.000	586.024	2.743	.978	0.000	403.808	-136.300	644.000
9.371	21300.000	586.901	.877	.972	0.000	425.902	-158.394	644.000
9.371	28900.000	589.729	2.829	.712	0.000	509.954	-242.446	644.000
9.493	12600.000	583.842	0.000	.561	0.000	320.538	0.000	644.000
9.493	19000.000	586.628	2.785	.603	0.000	428.904	-108.365	644.000
9.493	21300.000	587.485	.858	.585	0.000	453.839	-133.300	644.000
9.493	28900.000	590.199	2.714	.470	0.000	495.299	-174.760	644.000
9.629	12600.000	584.134	0.000	.292	0.000	253.809	0.000	720.000

9.629	19000.000	[illegible]	2.728	.235	0.000	366.241	-112.432	720.000
9.629	21300.000	587.696	.834	.211	0.000	381.962	-128.153	720.000
9.629	28900.000	590.325	2.629	.126	0.000	389.087	-135.278	720.000
9.765	12600.000	584.367	0.000	.233	0.000	181.607	0.000	720.000
9.765	19000.000	587.076	2.709	.213	0.000	253.295	-71.688	720.000
9.765	21300.000	587.888	.812	.192	0.000	264.905	-83.298	720.000
9.765	28900.000	590.422	2.534	.098	0.000	295.998	-114.391	720.000
9.856	12600.000	584.611	0.000	.244	0.000	253.048	0.000	427.500
9.856	19000.000	587.476	2.865	.400	0.000	391.375	-138.327	427.500
9.856	21300.000	588.358	.882	.470	0.000	402.982	-149.934	427.500
9.856	28900.000	591.094	2.736	.672	0.000	428.508	-175.460	427.500
9.937	12600.000	584.764	0.000	.153	0.000	428.383	0.000	427.500
9.937	19000.000	587.764	3.000	.288	0.000	496.785	-68.401	427.500
9.937	21300.000	588.680	.916	.321	0.000	522.448	-94.065	427.500
9.937	28900.000	591.481	2.802	.387	0.000	549.920	-121.536	427.500
10.068	12600.000	585.043	0.000	.279	0.000	161.558	0.000	764.000
10.068	19000.000	587.978	2.935	.214	0.000	311.816	-150.258	764.000
10.068	21300.000	588.863	.885	.183	0.000	324.620	-163.061	764.000
10.068	28900.000	591.567	2.704	.085	0.000	364.234	-202.675	764.000
10.089	12600.000	585.143	0.000	.100	0.000	157.343	0.000	191.000
10.089	19000.000	587.977	2.834	-.001	0.000	211.920	-54.577	191.000
10.089	21300.000	588.829	.852	-.034	0.000	224.645	-67.303	191.000
10.089	28900.000	591.421	2.592	-.145	0.000	264.180	-106.837	191.000
10.122	12600.000	585.262	0.000	.119	0.000	127.192	0.000	174.800
10.122	19000.000	588.023	2.761	.046	0.000	129.231	-2.039	174.800
10.122	21300.000	588.832	.809	.003	0.000	129.744	-2.552	174.800
10.122	28900.000	591.224	2.392	-.197	0.000	131.034	-3.842	174.800
10.132	12600.000	585.219	0.000	-.043	0.000	121.589	0.000	58.200
10.132	19000.000	587.949	2.730	-.074	0.000	121.962	-.372	58.200
10.132	21300.000	588.745	.796	-.087	0.000	122.070	-.481	58.200
10.132	28900.000	591.090	2.345	-.134	0.000	122.390	-.800	58.200
10.133	12600.000	585.140	0.000	-.079	0.000	114.800	0.000	1.000
10.133	19000.000	587.826	2.686	-.123	0.000	115.400	-.600	1.000
10.133	21300.000	588.605	.779	-.140	0.000	115.573	-.774	1.000
10.133	28900.000	590.891	2.286	-.199	0.000	116.084	-1.284	1.000
10.139	12600.000	585.165	0.000	.025	0.000	114.806	0.000	32.000
10.139	19000.000	587.861	2.696	.035	0.000	115.408	-.601	32.000
10.139	21300.000	588.644	.783	.039	0.000	115.582	-.776	32.000
10.139	28900.000	590.944	2.299	.052	0.000	116.094	-1.288	32.000
10.140	12600.000	585.404	0.000	.239	0.000	121.615	0.000	1.000
10.140	19000.000	588.248	2.844	.386	0.000	122.003	-.388	1.000
10.140	21300.000	589.094	.846	.449	0.000	122.118	-.503	1.000
10.140	28900.000	591.625	2.531	.681	0.000	122.464	-.849	1.000
10.153	12600.000	585.765	0.000	.360	0.000	128.997	0.000	70.000
10.153	19000.000	588.772	3.008	.524	0.000	130.532	-1.535	70.000
10.153	21300.000	589.684	.912	.591	0.000	130.998	-2.001	70.000
10.153	28900.000	592.442	2.758	.817	0.000	132.272	-3.275	70.000
10.166	12600.000	586.045	0.000	.280	0.000	139.459	0.000	70.000
10.166	19000.000	589.183	3.138	.411	0.000	141.279	-1.820	70.000
10.166	21300.000	590.145	.962	.460	0.000	141.755	-2.296	70.000
10.166	28900.000	593.061	2.917	.619	0.000	142.434	-2.975	70.000
10.192	12600.000	586.386	0.000	.341	0.000	164.108	0.000	140.000
10.192	19000.000	589.686	3.300	.503	0.000	164.129	-.021	140.000

10.192	21300.000	[illegible]	1.021	.362	0.000	164.156	-.025	140.000
10.192	28900.000	593.811	3.105	.750	0.000	164.156	-.048	140.000
10.245	12600.000	586.645	0.000	.259	0.000	199.540	0.000	287.000
10.245	19000.000	590.070	3.425	.384	0.000	199.540	0.000	287.000
10.245	21300.000	591.136	1.066	.429	0.000	199.540	0.000	287.000
10.245	28900.000	594.385	3.249	.574	0.000	199.540	0.000	287.000
10.246	12600.000	586.638	0.000	-.007	0.000	193.326	0.000	1.000
10.246	19000.000	590.059	3.420	-.011	0.000	193.326	0.000	1.000
10.246	21300.000	591.123	1.065	-.013	0.000	193.326	0.000	1.000
10.246	28900.000	594.362	3.239	-.023	0.000	199.540	-6.214	1.000
10.261	12600.000	586.644	0.000	.006	0.000	193.326	0.000	85.000
10.261	19000.000	590.068	3.423	.009	0.000	193.326	0.000	85.000
10.261	21300.000	591.133	1.065	.010	0.000	193.326	0.000	85.000
10.261	28900.000	594.384	3.251	.022	0.000	199.540	-6.214	85.000
10.262	12600.000	586.663	0.000	.019	0.000	199.540	0.000	1.000
10.262	19000.000	590.097	3.434	.030	0.000	199.540	0.000	1.000
10.262	21300.000	591.167	1.070	.034	0.000	199.540	0.000	1.000
10.262	28900.000	594.448	3.281	.064	0.000	199.540	0.000	1.000
10.317	12600.000	586.705	0.000	.043	0.000	610.752	0.000	310.000
10.317	19000.000	590.324	3.618	.226	0.000	691.410	-80.658	310.000
10.317	21300.000	591.456	1.132	.289	0.000	725.205	-114.453	310.000
10.317	28900.000	594.931	3.475	.483	0.000	835.601	-224.849	310.000
10.381	12600.000	586.725	0.000	.020	0.000	600.276	0.000	320.000
10.381	19000.000	590.339	3.613	.015	0.000	667.922	-67.646	320.000
10.381	21300.000	591.470	1.131	.014	0.000	701.777	-101.501	320.000
10.381	28900.000	594.943	3.472	.012	0.000	810.462	-210.186	320.000
10.695	12600.000	587.172	0.000	.447	0.000	249.876	0.000	1660.000
10.695	19000.000	590.574	3.401	.235	0.000	380.819	-130.943	1660.000
10.695	21300.000	591.662	1.088	.192	0.000	382.652	-132.776	1660.000
10.695	28900.000	595.021	3.359	.079	0.000	388.356	-138.480	1660.000
10.818	12600.000	587.663	0.000	.491	0.000	321.182	0.000	650.000
10.818	19000.000	591.063	3.400	.490	0.000	591.258	-270.076	650.000
10.818	21300.000	592.141	1.078	.480	0.000	615.769	-294.587	650.000
10.818	28900.000	595.484	3.343	.463	0.000	690.850	-369.668	650.000
10.846	12600.000	587.822	0.000	.159	0.000	174.800	0.000	150.000
10.846	19000.000	591.098	3.276	.035	0.000	528.924	-354.124	150.000
10.846	21300.000	592.147	1.049	.005	0.000	551.398	-376.598	150.000
10.846	28900.000	595.434	3.287	-.051	0.000	620.644	-445.844	150.000
10.853	12600.000	587.864	0.000	.042	0.000	174.800	0.000	32.000
10.853	19000.000	591.431	3.567	.333	0.000	536.167	-361.368	32.000
10.853	21300.000	592.646	1.215	.499	0.000	562.033	-387.233	32.000
10.853	28900.000	595.713	3.067	.280	0.000	626.075	-451.276	32.000
10.910	12600.000	588.178	0.000	.315	0.000	1207.327	0.000	300.000
10.910	19000.000	591.924	3.745	.493	0.000	1243.825	-36.498	300.000
10.910	21300.000	593.096	1.172	.450	0.000	1256.183	-48.856	300.000
10.910	28900.000	596.099	3.003	.386	0.000	1284.999	-77.672	300.000
11.052	12600.000	588.258	0.000	.079	0.000	1197.888	0.000	750.000
11.052	19000.000	592.001	3.743	.077	0.000	1812.035	-614.148	750.000
11.052	21300.000	593.175	1.174	.079	0.000	1823.764	-625.876	750.000
11.052	28900.000	596.186	3.011	.087	0.000	1890.594	-692.707	750.000
11.292	8580.000	588.901	0.000	.643	0.000	1568.541	0.000	1268.000
11.292	13300.000	592.443	3.541	.442	0.000	2106.094	-537.552	1268.000
11.292	15000.000	593.559	1.116	.384	0.000	2136.845	-568.304	1268.000

11.292	19800.000	[illegible]	[illegible]	.004	0.000	[illegible]	[illegible]	[illegible]
11.393	8580.000	589.015	0.000	.113	0.000	1289.469	0.000	528.700
11.393	13300.000	592.463	3.448	.020	0.000	1777.796	-488.327	528.700
11.393	15000.000	593.570	1.107	.011	0.000	1946.522	-657.053	528.700
11.393	19800.000	596.494	2.924	.004	0.000	2119.189	-829.720	528.700
11.695	8580.000	590.054	0.000	1.039	0.000	464.637	0.000	1586.300
11.695	13300.000	592.876	2.823	.413	0.000	1140.191	-675.554	1586.300
11.695	15000.000	593.873	.997	.303	0.000	1259.188	-794.551	1586.300
11.695	19800.000	596.639	2.766	.145	0.000	1667.211	-1202.574	1586.300
11.845	8580.000	590.651	0.000	.597	0.000	443.306	0.000	785.000
11.845	13300.000	593.306	2.656	.430	0.000	1062.762	-619.456	785.000
11.845	15000.000	594.208	.901	.335	0.000	1136.907	-693.601	785.000
11.845	19800.000	596.783	2.575	.144	0.000	1373.865	-930.559	785.000
11.860	8730.000	590.722	0.000	.071	0.000	453.010	0.000	78.900
11.860	13500.000	593.392	2.670	.086	0.000	1092.434	-639.425	78.900
11.860	15200.000	594.296	.904	.088	0.000	1124.172	-671.163	78.900
11.860	20000.000	596.859	2.563	.076	0.000	1404.076	-951.066	78.900
11.875	8730.000	590.786	0.000	.064	0.000	456.736	0.000	78.900
11.875	13500.000	593.473	2.687	.081	0.000	1074.666	-617.930	78.900
11.875	15200.000	594.372	.899	.076	0.000	1109.571	-652.835	78.900
11.875	20000.000	596.912	2.540	.053	0.000	1392.221	-935.484	78.900
11.929	8730.000	590.993	0.000	.207	0.000	583.043	0.000	286.800
11.929	13500.000	593.685	2.692	.212	0.000	941.755	-358.712	286.800
11.929	15200.000	594.550	.864	.178	0.000	1052.723	-469.680	286.800
11.929	20000.000	597.019	2.470	.108	0.000	1427.109	-844.066	286.800
12.023	8730.000	591.371	0.000	.378	0.000	669.165	0.000	495.400
12.023	13500.000	594.062	2.691	.377	0.000	767.981	-98.816	495.400
12.023	15200.000	594.904	.842	.354	0.000	818.768	-149.604	495.400
12.023	20000.000	597.272	2.368	.252	0.000	1240.775	-571.611	495.400
12.339	8730.000	592.053	0.000	.682	0.000	872.353	0.000	1670.000
12.339	13500.000	594.662	2.609	.600	0.000	1003.975	-131.622	1670.000
12.339	15200.000	595.476	.814	.572	0.000	1078.190	-205.837	1670.000
12.339	20000.000	597.728	2.252	.456	0.000	1262.750	-390.397	1670.000
12.544	8730.000	592.386	0.000	.333	0.000	720.255	0.000	1080.000
12.544	13500.000	594.921	2.535	.259	0.000	749.999	-29.744	1080.000
12.544	15200.000	595.716	.795	.240	0.000	749.999	-29.744	1080.000
12.544	20000.000	597.911	2.195	.184	0.000	749.999	-29.744	1080.000
12.799	8730.000	592.982	0.000	.596	0.000	1241.518	0.000	1350.000
12.799	13500.000	595.523	2.541	.602	0.000	1420.558	-179.040	1350.000
12.799	15200.000	596.312	.789	.596	0.000	1456.262	-214.744	1350.000
12.799	20000.000	598.466	2.154	.555	0.000	1568.322	-326.805	1350.000
13.144	8730.000	593.604	0.000	.622	0.000	897.754	0.000	1820.000
13.144	13500.000	596.091	2.487	.568	0.000	936.172	-38.418	1820.000
13.144	15200.000	596.860	.769	.549	0.000	939.812	-42.058	1820.000
13.144	20000.000	598.941	2.081	.475	0.000	999.999	-102.245	1820.000
13.163	8730.000	593.609	0.000	.004	0.000	868.871	0.000	100.100
13.163	13500.000	596.097	2.488	.006	0.000	920.694	-51.823	100.100
13.163	15200.000	596.866	.770	.006	0.000	946.347	-77.476	100.100
13.163	20000.000	598.950	2.083	.009	0.000	1274.998	-406.127	100.100
13.191	8730.000	593.620	0.000	.011	0.000	831.107	0.000	75.100
13.191	13500.000	596.108	2.489	.011	0.000	894.112	-63.005	75.100
13.191	15200.000	596.878	.770	.012	0.000	1139.052	-307.945	75.100
13.191	20000.000	598.961	2.083	.012	0.000	1274.998	-443.891	75.100

13.220	8730.000	593.660	0.000	.040	0.000	773.223	0.000	225.300
13.220	13500.000	596.152	2.492	.043	0.000	1245.459	-472.236	225.300
13.220	15200.000	596.925	.773	.047	0.000	1257.778	-484.555	225.300
13.220	20000.000	599.009	2.084	.047	0.000	1349.998	-576.775	225.300
13.481	8730.000	593.810	0.000	.150	0.000	1426.096	0.000	1379.500
13.481	13500.000	596.294	2.485	.143	0.000	1463.630	-37.534	1379.500
13.481	15200.000	597.063	.769	.138	0.000	1505.435	-79.339	1379.500
13.481	20000.000	599.131	2.068	.122	0.000	1701.024	-274.928	1379.500
13.799	8730.000	593.824	0.000	.014	0.000	658.269	0.000	1680.000
13.799	13500.000	596.293	2.469	-.001	0.000	768.301	-110.032	1680.000
13.799	15200.000	597.058	.766	-.005	0.000	795.127	-136.858	1680.000
13.799	20000.000	599.120	2.061	-.011	0.000	863.918	-205.649	1680.000
14.061	8730.000	594.204	0.000	.379	0.000	1105.959	0.000	1380.000
14.061	13500.000	596.681	2.477	.388	0.000	1119.334	-13.375	1380.000
14.061	15200.000	597.447	.767	.389	0.000	1123.473	-17.515	1380.000
14.061	20000.000	599.498	2.051	.378	0.000	1199.999	-94.040	1380.000
14.258	8730.000	594.405	0.000	.201	0.000	750.360	0.000	1040.000
14.258	13500.000	596.860	2.455	.180	0.000	803.539	-53.179	1040.000
14.258	15200.000	597.622	.762	.175	0.000	820.039	-69.679	1040.000
14.258	20000.000	599.658	2.036	.160	0.000	933.539	-183.178	1040.000
14.523	8730.000	594.653	0.000	.248	0.000	1067.653	0.000	1400.000
14.523	13500.000	597.075	2.422	.215	0.000	1163.050	-95.397	1400.000
14.523	15200.000	597.830	.755	.208	0.000	1189.377	-121.724	1400.000
14.523	20000.000	599.845	2.015	.188	0.000	1259.044	-191.391	1400.000
15.057	8830.000	595.097	0.000	.444	0.000	976.197	0.000	2820.000
15.057	13600.000	597.423	2.326	.348	0.000	1109.984	-133.788	2820.000
15.057	15400.000	598.157	.733	.326	0.000	1121.280	-145.084	2820.000
15.057	20200.000	600.115	1.959	.270	0.000	1249.999	-273.802	2820.000
15.722	8830.000	596.511	0.000	1.413	0.000	987.273	0.000	3510.000
15.722	13600.000	598.636	2.125	1.212	0.000	1117.328	-130.055	3510.000
15.722	15400.000	599.318	.682	1.161	0.000	1118.541	-131.269	3510.000
15.722	20200.000	601.113	1.795	.998	0.000	1167.298	-180.026	3510.000
15.733	8830.000	596.580	0.000	.070	0.000	988.857	0.000	60.000
15.733	13600.000	598.713	2.133	.078	0.000	1164.874	-176.017	60.000
15.733	15400.000	599.397	.684	.079	0.000	1218.620	-229.763	60.000
15.733	20200.000	601.195	1.797	.082	0.000	1376.820	-387.963	60.000
15.740	8830.000	597.369	0.000	.789	0.000	1059.237	0.000	34.000
15.740	13600.000	599.552	2.183	.838	0.000	1240.773	-181.536	34.000
15.740	15400.000	599.999	.448	.602	0.000	1305.468	-246.231	34.000
15.740	20200.000	601.346	1.347	.152	0.000	1393.928	-334.691	34.000
16.063	8830.000	597.753	0.000	.383	0.000	408.852	0.000	1705.000
16.063	13600.000	599.982	2.230	.430	0.000	481.319	-72.468	1705.000
16.063	15400.000	600.477	.495	.478	0.000	507.083	-98.231	1705.000
16.063	20200.000	601.891	1.413	.544	0.000	925.000	-516.148	1705.000
16.396	8830.000	598.227	0.000	.474	0.000	684.270	0.000	1760.000
16.396	13600.000	600.551	2.325	.569	0.000	749.999	-65.729	1760.000
16.396	15400.000	601.108	.557	.631	0.000	749.999	-65.729	1760.000
16.396	20200.000	602.597	1.489	.707	0.000	749.999	-65.729	1760.000
16.866	8830.000	598.881	0.000	.654	0.000	1065.348	0.000	2480.000
16.866	13600.000	601.247	2.366	.696	0.000	1099.999	-34.651	2480.000
16.866	15400.000	601.856	.609	.748	0.000	1099.999	-34.651	2480.000
16.866	20200.000	603.438	1.581	.841	0.000	1099.999	-34.651	2480.000

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Clinton Twp.

3) WATERCOURSE: Clinton River Upstream of forks

4) DOCUMENT TYPE: 100, 500 year floods Clinton Twp restudy

00BREAK00

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**************************************************          **************************************
*  WATER SURFACE PROFILES                        *          *  U.S. ARMY CORPS OF ENGINEERS      *
*  VERSION OF NOVEMBER 1976                      *          *  THE HYDROLOGIC ENGINEERING CENTER *
*  UPDATED MAY 1984                              *          *  609 SECOND STREET, SUITE D        *
*                                                *          *  DAVIS, CALIFORNIA 95616           *
*  RUN DATE  16 MAY 90 TIME   13:44:13           *          *  (916) 440-2105 (FTS) 448-2105     *
**************************************************          **************************************


                 X     X  XXXXXXX   XXXXX            XXXXX
                 X     X  X        X     X          X     X
                 X     X  X        X                      X
                 XXXXXXX  XXXX     X         XXXXX   XXXXX
                 X     X  X        X                X
                 X     X  X        X     X          X
                 X     X  XXXXXXX   XXXXX           XXXXXXX
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LMMP
CLINTON TOWNSHIP RESTUDY
CLINTON RIVER U/S OF FORKS
100-YR & 500-YEAR FLOODS

THIS RUN EXECUTED 16 MAY 90 13:44:13

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
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T1 CLINTON TOWNSHIP FLOOD INSURANCE RESTUDY
T2 MODIFICATION OF ORIGINAL MODEL
T3 CLINTON RIVER U/S OF THE FORKS, NEW 100-YEAR DISCHARGE

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	4.	0.	0.	0.000000	0.00	0.0	0.	593.174	0.000

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	1.000	0.000	-1.000	0.000	0.000	1.200	0.000	0.000	0.000	0.000

NC	0.090	0.090	0.040	0.300	0.500	0.000	0.000	0.000	0.000	0.000
NH	4.000	0.040	530.000	0.100	571.000	0.040	685.000	0.110	2520.000	0.000
QT	4.000	12600.000	19000.000	21300.000	28900.000	0.000	0.000	0.000	0.000	0.000
X1	11.052	56.000	569.000	691.000	750.000	330.000	750.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	550.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	589.000	0.000	599.900	100.000	595.300	200.000	591.000	300.000	591.600	394.000
GR	591.300	400.000	591.100	500.000	590.400	530.000	582.000	556.000	578.500	569.000
GR	574.300	571.000	572.000	580.000	571.700	590.000	571.400	600.000	571.200	610.000
GR	570.800	620.000	570.800	630.000	570.900	640.000	571.600	650.000	572.800	660.000
GR	573.000	670.000	572.900	680.000	575.300	685.000	584.100	691.000	583.000	700.000
GR	584.500	700.000	587.400	750.000	589.100	785.000	585.400	800.000	584.900	800.000
GR	578.800	820.000	582.900	900.000	585.500	900.000	585.800	1000.000	582.600	1000.100
GR	582.100	1050.000	585.600	1050.000	586.000	1100.000	587.800	1150.000	587.500	1250.000
GR	587.000	1350.000	587.800	1450.000	590.100	1550.000	591.000	1710.000	581.200	1750.000
GR	584.900	1850.000	584.100	1950.000	582.100	2010.000	588.400	2020.000	588.800	2050.000
GR	590.600	2150.000	590.700	2250.000	591.200	2354.000	593.300	2375.000	596.600	2450.000
GR	600.200	2520.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	4.000	8580.000	13300.000	10400.000	13000.000	0.000	0.000	0.000	0.000	0.000
NH	5.000	0.100	41.000	0.040	126.000	0.110	1802.000	0.060	2032.000	0.030
NH	2302.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	11.292	39.000	41.000	126.000	1350.000	500.000	1268.000	0.000	0.000	0.000
GR	594.200	0.000	593.800	16.000	593.200	41.000	575.600	72.000	575.200	82.000
GR	573.500	87.000	571.200	92.000	569.400	102.000	569.900	112.000	574.500	122.000
GR	581.700	126.000	584.500	162.000	584.200	232.000	584.400	332.000	584.400	432.000
GR	585.200	532.000	585.600	632.000	588.700	732.000	585.600	832.000	586.000	882.000
GR	586.000	882.000	587.800	932.000	587.500	1032.000	587.000	1132.000	587.800	1232.000
GR	590.100	1332.000	591.000	1492.000	581.200	1532.000	584.900	1632.000	584.100	1732.000
GR	582.100	1792.000	588.400	1802.000	588.800	1832.000	590.600	1932.000	590.700	2032.000
GR	591.200	2136.000	593.300	2157.000	596.600	2232.000	600.200	2302.000	0.000	0.000

NH	5.000	0.100	272.400	0.040	358.100	0.110	1764.300	0.060	2008.800	0.030
NH	2192.200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	11.393	90.000	272.400	358.100	478.700	36.500	528.700	0.000	0.000	0.000
GR	594.800	0.000	594.700	9.300	594.700	18.700	594.600	28.100	594 500	37.500
GR	594.500	46.900	594.400	56.300	594 300	65.700	594.200	75.100	594.100	84.500
GR	593.600	93.900	593.500	103.300	593.400	112.700	593.300	122.100	593.300	131.500
GR	593.300	140.900	593.300	150.300	593.100	159.700	593.100	169.100	593.100	178.500
GR	593.200	187.800	593.000	197.200	592.900	206.600	592.700	216.000	592.400	225.400
GR	592.400	234.800	592.200	244.200	592.100	253.600	591.800	263.000	591.200	272.400
GR	588.900	275.300	587.300	278.100	585.900	281.000	584.500	283.800	583.200	286.700
GR	581.900	289.500	580.500	292.400	579.100	295.300	577.800	298.100	576.400	301.000
GR	575.100	303.800	575.000	306 700	574.800	309.500	574.700	312.400	574.200	315.300
GR	573.400	318.100	572.400	321.000	571.400	323.800	571.000	326.700	570.600	329.500
GR	570.200	332.400	569.950	335.300	570.100	338.100	570.400	341.000	570.700	343.800
GR	572.000	346.700	573.500	349.600	575.000	352.400	577.700	355.300	582.300	358.100
GR	584.700	419.300	584.800	480.400	585.100	541.500	585.300	602.700	585.800	663.800
GR	586.300	724.900	586.700	786.100	588.600	847.200	588.100	908.400	587.000	969.500
GR	588.500	1030.600	588.600	1091.800	588.400	1152.900	588.200	1214.000	588.700	1275.200
GR	589.900	1336.300	591.000	1397.400	591.500	1458.600	589.400	1519.700	585.300	1580.900
GR	587.000	1642.000	586.700	1703.100	586.300	1764.300	591.100	1825.400	592.100	1886.500
GR	592.200	1947.700	592.500	2008.800	594.400	2069.900	597.000	2131.000	600.100	2192.200

NC	0.000	0.000	0.000	0.100	0.300	0.000	0.000	0.000	0.000	0.000
NH	5.000	0.050	433.400	0.120	966.800	0.045	1045.900	0 060	1054.700	0.040
NH	1863.100	0.000	0.000	0.000	0.000	0.000	0.000	0 000	0.000	0.000
X1	11.695	90.000	966.800	1054.700	1486.300	109.500	1586.300	0.000	0.000	0.000
GR	596.900	0.000	596.700	33.300	596.500	66.600	596.300	100.000	596.100	133.300
GR	596.000	166.600	595.800	200.000	595.600	233.300	595.300	266.700	594.800	300.000
GR	593.200	333.300	592.700	366.700	592.400	400.000	592.100	433 400	592.200	466.700
GR	592.400	500.000	592.300	533.400	591.900	566.700	591.700	600.100	592.000	633.400
GR	592.300	666.700	591.900	700.100	591.600	733.400	590.600	766.700	589.500	800.100
GR	589.600	833.400	589.200	866.800	588.600	900.100	587.800	933.400	585 200	966.800
GR	581.200	969.700	579.400	972.600	578.700	975.600	578.100	978.500	577.600	981.400
GR	577.000	984.400	576.400	987.300	575.700	990.200	575.100	993.200	574.500	996.100
GR	573.900	999.000	573.600	1001.900	573.400	1004.900	573.300	1007.800	573.100	1010.700
GR	572.700	1013.700	572.400	1016.600	572.200	1019.500	572.100	1022.500	572.000	1025.400
GR	571.800	1028.300	571.700	1031.300	571.590	1034.200	572.400	1037.100	573.500	1040.000
GR	574.800	1043.000	576.900	1045.900	578.900	1048.800	581.400	1051.800	584.400	1054.700
GR	585.900	1081.600	586.600	1108.600	587.400	1135.500	588.100	1162.500	589.000	1189.400
GR	589.500	1216.400	589.900	1243.300	590.800	1270.300	591.000	1297.200	590.900	1324.200
GR	591.800	1351.100	591.900	1378.100	591.700	1405.000	591.700	1431.900	592.000	1458.900
GR	592 600	1485.800	593.400	1512 800	594.100	1539.700	593.900	1566.700	593.000	1593.600
GR	594.100	1620.600	594.500	1647.500	594.800	1674.500	596.500	1701.400	596.900	1728.400
GR	597.000	1755.300	597.200	1782.300	597.900	1809.200	598.800	1836.100	599.900	1863.100

NH	5.000	0.050	500.000	0.120	1311.000	0.045	1388.000	0 060	1400.000	0.040
NH	1700.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	11.845	34.000	1311.000	1400.000	735.000	54.000	785.000	0.000	0.000	0.000
GR	598.000	0.000	597.400	100.000	596.900	200.000	596.400	300.000	595.500	400.000
GR	591.800	477.000	592.400	500.000	591.500	600.000	592.100	700.000	590.900	800 000
GR	591.900	900.000	590.900	1000.000	587.700	1100.000	588.400	1135.000	586.500	1250.000
GR	584.400	1300.000	582.300	1311.000	575.700	1315.000	575.200	1320.000	574.500	1330.000
GR	573.600	1340.000	572.700	1350.000	572.400	1360.000	572.800	1370.000	572.500	1380.000

GR	576.200	1388.000	585.500	1400.000	590.600	1450.000	593.600	1514.000	593.300	1532.000
GR	594.000	1561.000	596.900	1600.000	599.100	1630.000	599.900	1700.000	0.000	0.000

NH	5.000	0.040	518.000	0.110	1251.900	0.045	1329.200	0.060	1341.200	0.045
NH	1666.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	11.860	90.000	1251.900	1341.200	77.200	75.600	78.900	0.000	0.000	0.000
GR	597.800	0.000	597.500	43.100	597.300	86.300	597.100	129 500	596.800	172.600
GR	596.600	215.800	596.400	259.000	596.200	302.100	595.800	345.300	595.200	388.500
GR	593.200	431.600	592.600	474.800	592.300	518.000	591.900	561.100	592.000	604.300
GR	592.200	647.500	592.100	690.700	591.500	733.800	591.300	777.000	591.600	820.200
GR	591.900	863.300	591.500	906.500	590.900	949.700	589.700	992.800	588.200	1036.000
GR	588.400	1079.200	587.800	1122.300	587.000	1165.500	585.600	1208.700	582.200	1251.900
GR	577.500	1254.800	575.600	1257.800	575.200	1260.800	575.000	1263.800	574.700	1266.700
GR	574.500	1269.700	574.200	1272.700	573.900	1275.700	573.700	1278.600	573.500	1281.600
GR	573.200	1284.600	573.000	1287.600	572.800	1290.500	572.700	1293.500	572.600	1296.500
GR	572.500	1299.500	572.480	1302.500	572.600	1305.400	572.700	1308.400	572.800	1311.400
GR	572.800	1314.400	572.700	1317.300	572.600	1320.300	573.600	1323.300	574.900	1326.300
GR	576.200	1329.200	578.500	1332.200	580.800	1335.200	583.200	1338.200	585.600	1341.200
GR	586.500	1352.000	587.400	1362.800	588.300	1373.700	589.200	1384.500	590.100	1395.300
GR	590.600	1406.200	591.000	1417.000	591.500	1427.900	591.800	1438.700	592.100	1449.500
GR	592.600	1460.400	592.600	1471.200	592.400	1482.100	592.500	1492.900	592.700	1503.700
GR	593.000	1514.600	593.800	1525.400	594.600	1536.300	595.300	1547.100	596.100	1557.900
GR	596.900	1568.800	597.700	1579.600	598.500	1590.500	598.700	1601.300	599.000	1612.100
GR	599.100	1623.000	599.300	1633.800	599.500	1644.700	599.600	1655.500	599.800	1666.400

NH	5 000	0.045	534.700	0.100	1192.800	0.045	1270.400	0.070	1282.400	0.050
NH	1632.800	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	11.875	90.000	1192.800	1282.400	77.300	75.600	78.900	0.000	0.000	0.000
GR	597.600	0.000	597.400	41.100	597.200	82 200	597.000	123.400	596.800	164.500
GR	596.600	205.600	596.400	246.800	596.200	287.900	595.800	329.000	595.300	370.200
GR	593.500	411.300	592.900	452.400	592.600	493.600	592.300	534.700	592.400	575.800
GR	592.500	617.000	592.400	658.100	591.900	699.200	591.600	740.400	591.900	781.500
GR	592.100	822.600	591.600	863.800	591.000	904.900	589.800	946.000	588.400	987.200
GR	588.500	1028.300	587.900	1069.400	587.200	1110.600	585.500	1151.700	582.200	1192.800
GR	577.700	1195.800	575.700	1198.800	575.300	1201.800	575.100	1204 800	574.800	1207.800
GR	574.500	1210.700	574.200	1213.700	573.900	1216.700	573.700	1219.700	573.500	1222.700
GR	573.300	1225.700	573.100	1228.600	572.900	1231.600	572.800	1234.600	572.700	1237.600
GR	572.700	1240.600	572.570	1243.600	572.800	1246.500	572.900	1249.500	573.000	1252.500
GR	572.900	1255.500	572.800	1258.500	572.800	1261.500	573.700	1264.400	574.900	1267.400
GR	576.200	1270.400	578.400	1273.400	580.800	1276.400	583.300	1279.400	585.700	1282.400
GR	586.500	1294.000	587.300	1305.700	588.100	1317.400	588.900	1329.100	589.700	1340.800
GR	590.200	1352.400	590.600	1364.100	591.000	1375.800	591.200	1387.500	591.400	1399.200
GR	591.800	1410.800	591.800	1422.500	591.600	1434.200	591.700	1445.900	591.800	1457.600
GR	592.200	1469.200	593.000	1480.900	593.800	1492.600	594.600	1504.300	595.500	1516.000
GR	596.300	1527.600	597.200	1539.300	598.000	1551.000	598.300	1562.700	598.700	1574.400
GR	598.900	1586.000	599.100	1597.700	599.400	1609.400	599.600	1621.100	599.800	1632.800

NH	5.000	0.045	539.800	0.090	978.400	0.040	1056.800	0.070	1068.900	0.060
NH	1510.300	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	11.929	90.000	978.400	1068.900	238.500	274.700	286.800	0.000	0.000	0.000
GR	597.000	0.000	596.900	33.700	596.700	67.400	596.600	101.200	596.500	134.900
GR	596.400	168.700	596.300	202.400	596.100	236.100	595.900	269.900	595.600	303.600
GR	594.400	337.400	594.000	371.100	593.800	404.800	593.600	438.600	593.600	472.300
GR	593.700	506.100	593.500	539.800	593.000	573.500	592.800	607.300	592.700	641.000

GR	592.600	674.800	592.000	708.500	591.300	742.200	590.100	776.000	589.000	809.700
GR	588.800	843.500	588.300	877.200	587.700	910.900	585.100	944.700	582.000	978.400
GR	578.300	981.400	576.200	984.500	575.600	987.500	575.300	990.500	574.900	993.500
GR	574.500	996.500	574.000	999.500	573.800	1002.500	573.600	1005.600	573.400	1008.600
GR	573.300	1011.600	573.300	1014.600	573.300	1017.600	573.300	1020.600	573.200	1023.600
GR	573.200	1026.700	572.890	1029.700	573.200	1032.700	573.300	1035.700	573.400	1038.700
GR	573.300	1041.700	573.300	1044.700	573.300	1047.800	574.000	1050.800	575.000	1053.800
GR	576.100	1056.800	578 200	1059.800	580.800	1062.800	583.500	1065.800	586.100	1068.900
GR	586.500	1083.600	586.900	1098.300	587.300	1113.000	587.800	1127.800	588.200	1142.500
GR	588.600	1157.200	589.100	1172.000	589.200	1186.700	589.000	1201.400	588.800	1216.200
GR	588.900	1230.900	588.800	1245.600	588.600	1260.300	588.500	1275.100	588.500	1289.800
GR	589.200	1304.500	590.100	1319.300	591.000	1334.000	592.000	1348.700	593.000	1363.500
GR	594.000	1378.200	595.000	1392.900	596.100	1407.600	596.800	1422.400	597.500	1437.100
GR	598.000	1451.800	598.400	1466.600	598.900	1481.300	599.300	1496.000	599.800	1510.300

NH	6.000	0.040	576.000	0.080	615.000	0.040	689.000	0.080	700.000	0.100
NH	1059.000	0.030	1300.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	12.023	28.000	608.000	700.000	437.000	474.300	495.400	0.000	0.000	0.000
GR	596.000	0.000	596.100	100.000	596.100	200.000	595.900	300.000	594.500	400.000
GR	590.000	500.000	588.800	563.000	587.800	576.000	584.500	586.000	581.800	608.000
GR	576.300	615.000	575.900	620.000	573.700	630.000	573.400	640.000	574 100	650.000
GR	574.100	660.000	574.100	670.000	574.400	680.000	576.200	689.000	586.800	700.000
GR	585.600	800 000	586.700	850.000	584.300	900.000	582.800	1000.000	586.200	1059.000
GR	588.700	1100 000	595.600	1200.000	599.700	1300.000	0.000	0.000	0.000	0.000

NH	5.000	0.050	1000.000	0.100	1104.000	0.045	1117.000	0.080	1165.000	0.040
NH	1300 000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	12.339	24 000	1104.000	1200.000	1600.000	1600.000	1670.000	0.000	0.000	0.000
GR	596.700	0.000	596.000	100.000	594.900	200.000	592.100	300.000	591.900	400.000
GR	590.800	436.000	591.500	460.000	587.300	500.000	585.500	600.000	586.100	700.000
GR	587.200	800.000	587.700	850.000	586.900	900.000	586.000	1000.000	585.800	1104.000
GR	577.200	1117.000	574.100	1130.000	573.800	1140.000	573.000	1150.000	573.600	1160.000
GR	575.700	1165.000	578.900	1167.000	593.900	1200.000	600.000	1300.000	0.000	0.000

NH	7.000	0.060	400.000	0.100	598.000	0.060	607.000	0.045	680.000	0.060
NH	692.000	0.120	941.000	0.040	1050.000	0.000	0.000	0.000	0.000	0.000
X1	12.544	26.000	598.000	692.000	1020.000	1050.000	1080.000	0.000	0.000	0 000
X3	0.000	0.000	0.000	250.000	0.000	1000.000	0.000	0.000	0.000	0.000
GR	597.100	0.000	595.500	100.000	594.400	200.000	591.600	300.000	592.200	400.000
GR	591.700	422.000	586.700	500.000	587.000	598.000	577.200	607.000	576.000	610.000
GR	575.700	620.000	574.700	630.000	575.200	640.000	575.300	650.000	575.500	660.000
GR	575.600	670.000	576.400	680.000	584.400	692.000	584.500	700.000	585.000	710.000
GR	588.100	720.000	586.300	800.000	586.800	900.000	586.400	941.000	593.300	1000.000
GR	602.000	1050.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

NC	0.000	0.000	0.000	0.100	0.500	0.000	0.000	0.000	0.000	0.000
NH	6.000	0.040	400.000	0.100	1420.000	0.045	1494.000	0.060	1504.000	0.080
NH	1570.000	0.040	1600.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	12.799	30.000	1420.000	1504.000	1300.000	1200.000	1350.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	1600.000	0.000	0.000	0.000	0.000
GR	597.200	0.000	596.500	100.000	594.200	200.000	594.000	300.000	592.800	320.000
GR	590.900	400.000	590.900	500.000	590.400	600.000	588.900	700.000	587.800	800.000
GR	587.600	900.000	587.400	1000.000	588.600	1100.000	587.900	1200.000	585.800	1300.000
GR	584.100	1400.000	583.600	1420.000	578.200	1427.000	577.700	1430.000	576.400	1440.000

GR	575.000	1450.000	574.400	1460.000	573.500	1470.000	573.700	1480.000	576.000	1490.000
GR	578.100	1494.000	584.000	1504.000	587.700	1549.000	599.400	1570.000	601.000	1600.000

NC	0.090	0.090	0.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	13.144	37.000	400.000	463.000	1781.000	1800.000	1820.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	250.000	0.000	1250.000	0.000	0.000	0.000	0.000
GR	597.800	0.000	598.100	100.000	597.500	200.000	598.200	250.000	597.700	268.000
GR	597.200	300.000	596.900	310.000	585.700	363.000	584.200	400.000	578.500	406.000
GR	576.100	410.000	574.400	420.000	574.800	430.000	575.600	440.000	576.000	450.000
GR	579.200	461.000	582.400	463.000	584.000	480.000	586.300	600.000	585.800	659.000
GR	587.700	700.000	586.200	800.000	585.200	900.000	585.900	1000.000	587.200	1100.000
GR	592.100	1123.000	593.800	1200.000	592.700	1300.000	595.400	1400.000	596.300	1500.000
GR	597.800	1600.000	597.100	1700.000	597.900	1800.000	598.600	1900.000	599.100	2000.000
GR	599.800	2100.000	601.200	2200 000	0.000	0.000	0.000	0.000	0.000	0.000

NH	7.000	0.040	255.000	0.075	462.200	0.050	468.700	0.045	522.600	0 050
NH	527.000	0.090	1190.300	0.040	2185.400	0.000	0.000	0.000	0.000	0.000
X1	13.163	90.000	462.200	527.000	64.700	78.700	100.100	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	1275.000	0.000	0.000	0.000	0.000
GR	597.800	0.000	597.900	15.900	597.900	31.800	597.900	47.800	597.700	63.700
GR	597.400	79.600	597.300	95.600	597.300	111.500	597.300	127.500	597.200	143.400
GR	597.200	159.300	597.100	175.300	597.100	191.200	597.000	207.200	596.900	223.100
GR	597.000	239.000	597.200	255.000	597.400	270.900	597.600	286.900	597.300	302.800
GR	597.000	318.700	596.800	334.700	596.500	350.600	594.800	366.600	592.000	382.500
GR	589.300	398.400	586.500	414.400	585.300	430.300	584.800	446.300	584.300	462.200
GR	582.200	464.400	580.100	466.500	578.200	468.700	577.000	470.800	576.000	473.000
GR	575.700	475.100	575.400	477.300	575.000	479.500	574.700	481.600	574.580	483.800
GR	574.600	485.900	574.700	488.100	574.800	490.300	574.900	492.400	575.000	494.600
GR	575.100	496.700	575.300	498.900	575.500	501.000	575.700	503.200	575.800	505.400
GR	575.800	507.500	575.900	509.700	576.000	511.800	576.200	514.000	576.800	516.200
GR	577.400	518.300	578.000	520.500	578.600	522.600	579.300	524.800	582.400	527.000
GR	584.800	582.200	586.000	637.500	586.300	692.800	587.900	748.100	587.400	803.400
GR	586.600	858.600	586.100	913.900	586.000	969.200	586.400	1024.500	587.000	1079.800
GR	587.700	1135.100	593.100	1190.300	593.800	1245.600	593.200	1300.900	593.800	1356.200
GR	595.200	1411.500	595.900	1466.800	596.400	1522.000	597.300	1577.300	597.600	1632.600
GR	597.300	1687.900	597.400	1743.200	597.800	1798.400	598.300	1853.700	598.600	1909.000
GR	598.900	1964.300	599.200	2019.600	599.600	2074.900	600.300	2130.100	601.000	2185.400

NH	7.000	0.040	245.600	0.075	508.900	0.060	513.300	0.040	570.500	0.060
NH	575.000	0.080	1161.400	0.040	2174.500	0.000	0.000	0.000	0.000	0.000
X1	13.191	90.000	508.900	575.000	48.500	59.100	75.100	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	1275.000	0.000	0.000	0.000	0.000
GR	597.800	0 000	597.900	17.500	597.900	35.000	597.900	52.600	597.500	70.100
GR	596.900	87.700	596.800	105.200	596.800	122.800	596.700	140.300	596.700	157.900
GR	596.700	175.400	596.600	193.000	596.600	210.500	596.500	228.100	596.500	245.600
GR	596.600	263.200	596.800	280.700	597.000	298.300	597.100	315.800	596.900	333.400
GR	596.600	350.900	596.400	368.500	596.000	386.000	594.400	403.600	591.700	421.100
GR	589.100	438.700	586.500	456.200	585.300	473.800	584.900	491.300	584.400	508.900
GR	582.200	511.100	580.000	513.300	578.200	515.500	577.000	517.800	576.000	519.900
GR	575.700	522.100	575.400	524.300	575.100	526.500	574.700	528.700	574.680	530.900
GR	574.700	533.100	574.800	535.300	574.800	537.500	575.000	539.700	575.000	541.900
GR	575.200	544.100	575.400	546.300	575.600	548.500	575.800	550.700	575.800	552.900
GR	575.900	555.100	576.000	557.300	576.100	559.500	576.300	561.700	576.900	563.900
GR	577.400	566.100	578.000	568.300	578 700	570.500	579.400	572.700	582.400	575.000

GR	584.800	628.300	586.100	681.600	586.600	734.900	588.200	788.200	587.700	841.500
GR	587.000	894.900	586.500	948.200	586.500	1001.500	586.900	1054.800	587.500	1108.100
GR	588.100	1161.400	593.300	1214.800	594.000	1268.100	593.400	1321.400	594.000	1374.700
GR	595.300	1428.000	596.000	1481.300	596.500	1534.700	597.300	1588.000	597.600	1641.300
GR	597.300	1694.600	597.400	1747.900	597.800	1801.200	598.300	1854.600	598.600	1907.900
GR	598.900	1961.200	599.200	2014.500	599.500	2067.800	600.200	2121.200	600.900	2174.500

NH	6.000	0.040	246.200	0.070	649.000	0.060	656.000	0.040	709.700	0.060
NH	719.000	0.060	2141.900	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	13.220	90.000	649.000	719.000	145.600	177.200	225.300	0.000	0.000	0.000
X3	0.000	0.000	0.000	360.000	0.000	1350.000	0.000	0.000	0.000	0.000
GR	597.900	0.000	598.100	22.300	598.100	44.700	598.000	67.100	597.100	89.500
GR	595.700	111.900	595.400	134.200	595.300	156.600	595.300	179.000	595.300	201.400
GR	595.300	223.800	595.300	246.200	595.300	268.500	595.300	290.900	595.300	313.300
GR	595.500	335.700	595.700	358.100	595.800	380.400	595.900	402.800	595.800	425.200
GR	595.600	447.600	595.200	470.000	594.800	492.400	593.400	514.700	591.000	537.100
GR	588.800	559.500	586.500	581.900	585.500	604.300	585.200	626.600	584.800	649.000
GR	582.400	651.400	580.000	653.700	578.200	656.000	577.100	658.400	576.200	660.700
GR	576.000	663.000	575.700	665.400	575.400	667.700	575.100	670.000	575.030	672.300
GR	575.100	674.700	575.100	677.000	575.200	679.300	575.300	681.700	575.400	684.000
GR	575.500	686.300	575.700	688.700	575.900	691.000	576.100	693.300	576.200	695.700
GR	576.300	698.000	576.400	700.300	576.500	702.700	576.700	705.000	577.200	707.300
GR	577.700	709.700	578.300	712.000	579.100	714.300	579.900	716.700	582.700	719.000
GR	584.900	766.400	586.500	813.900	587.500	861.300	589.400	908.700	589.000	956.100
GR	588.400	1003.600	588.000	1051.000	588.000	1098.400	588.400	1145.900	589.000	1193.300
GR	589.600	1240.700	594.100	1288.200	594.700	1335.600	594.200	1383.000	594.600	1430.400
GR	595.800	1477.900	596.400	1525.300	596.800	1572.700	597.500	1620.200	597.800	1667.600
GR	597.500	1715.000	597.700	1762.500	598.000	1809.900	598.400	1857.300	598.700	1904.700
GR	599.000	1952.200	599.300	1999.600	599.600	2047.000	600.200	2094.500	600.800	2141.900

NH	8.000	0.040	157.000	0.050	235.000	0.030	1242.000	0.035	1507.000	0.070
NH	1514.000	0.040	1571.000	0.070	1601.000	0.050	1942.000	0.000	0.000	0.000
X1	13.481	33.000	1507.000	1601.000	891.200	1085.600	1379.500	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	1750.000	0.000	0.000	0.000	0.000
GR	598.300	0.000	599.400	42.000	598.600	157.000	595.400	203.000	588.600	235.000
GR	585.700	342.000	586.400	442.000	587.200	542.000	587.200	642.000	588.100	742.000
GR	588.900	842.000	588.400	942.000	589.200	1042.000	587.000	1142.000	586.400	1242.000
GR	586.200	1342.000	586.800	1442.000	587.200	1507.000	578.700	1514.000	577.200	1521.000
GR	577.300	1531.000	577.200	1541.000	577.200	1551.000	577.400	1561.000	578.300	1571.000
GR	578.600	1581.000	579.600	1591.000	583.900	1601.000	585.900	1617.000	596.000	1642.000
GR	598.500	1742.000	598.700	1842.000	599.800	1942.000	0.000	0.000	0.000	0.000

NC	0.000	0.000	0.000	0.100	0.500	0.000	0.000	0.000	0.000	0.000
NH	7.000	0.035	213.000	0.050	416.000	0.060	428.000	0.040	495.000	0.060
NH	513.000	0.080	913.000	0.040	1873.000	0.000	0.000	0.000	0.000	0.000
X1	13.799	33.000	416.000	513.000	800.000	1050.000	1680.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	1010.000	0.000	0.000	0.000	0.000
GR	600.500	0.000	600.500	13.000	601.700	113.000	593.900	213.000	587.300	292.000
GR	586.900	313.000	587.300	363.000	586.900	416.000	579.800	428.000	578.000	433.000
GR	577.500	443.000	576.300	453.000	575.900	463.000	576.800	473.000	578.200	483.000
GR	579.500	495.000	587.200	513.000	587.000	613.000	586.500	713.000	586.500	735.000
GR	593.200	758.000	592.700	813.000	594.600	913.000	599.100	1013.000	596.900	1113.000
GR	599.200	1213.000	598.000	1313.000	598.500	1413.000	599.700	1513.000	598.300	1613.000
GR	598.600	1713.000	598.100	1813.000	601.500	1873.000	0.000	0.000	0.000	0.000

NH	9.000	0.040	200.000	0.080	720.000	0.060	733.000	0.045	780.000	0.060
NH	800.000	0.080	1140.000	0.060	1427.000	0.050	1700.000	0 035	1900.000	0.000
X1	14.061	36.000	720.000	828.000	1100.000	1100.000	1380.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	200.000	0.000	1400.000	0.000	0.000	0.000	0.000
GR	601.100	0.000	599.600	100.000	598.200	155.000	598.700	200.000	598.100	273.000
GR	593.100	300.000	587.000	360.000	585.800	400.000	589.300	500.000	589.200	609.000
GR	589.200	700.000	589.600	720.000	579.700	733.000	578.000	740.000	577.500	750.000
GR	578.200	760.000	578.700	770.000	579.500	780.000	580.500	790.000	581.000	796.000
GR	585.100	800.000	584.900	813.000	588.500	828.000	585.300	900.000	586.600	1000.000
GR	584.900	1100.000	586.900	1140.000	588.800	1200.000	588.200	1300.000	591.000	1400.000
GR	595.900	1427.000	595.300	1500.000	594.100	1600.000	596 200	1700.000	597.200	1800.000
GR	599.500	1900.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

NH	7.000	0.035	777.000	0.050	1006.000	0.060	1015.000	0.045	1080.000	0.060
NH	1084.000	0.070	1200.000	0.040	1400.000	0.000	0.000	0.000	0.000	0.000
X1	14.258	34.000	726.000	1105.000	1040.000	950.000	1040.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	400.000	0 000	0.000	0.000	0.000	0.000	0.000
GR	599.300	0.000	597.200	100.000	596.700	200.000	598.400	270.000	597.800	300.000
GR	598.900	400.000	597.700	500.000	591.300	600.000	589.100	645.000	592.600	700.000
GR	593.400	726.000	592.200	777.000	586.900	802.000	586.500	890.000	584.800	897 000
GR	584.500	901.000	587.100	909.000	588.000	960.000	587.700	1006.000	581.200	1015.000
GR	579.400	1020.000	578.700	1030.000	578.500	1040.000	578.000	1050.000	579.100	1060.000
GR	580.400	1070.000	580.800	1080.000	581.300	1084.000	588.300	1105.000	589.200	1200.000
GR	591.000	1260 000	594.100	1300.000	599.900	1335.000	601.500	1400.000	0.000	0.000

NC	0.000	0.000	0.000	0.100	0.300	0.000	0.000	0.000	0.000	0.000
NH	3.000	0.030	995.000	0.040	1065.000	0.050	1276.000	0.000	0.000	0.000
X1	14.523	28.000	990.000	1085.000	1350.000	1400.000	1400.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	1300.000	0 000	0.000	0.000	0.000
GR	600.200	0.000	597.500	87.000	597.100	100.000	594.400	200.000	594.100	300.000
GR	593.200	400.000	591.300	500.000	588.200	600.000	588.100	700.000	588.400	800.000
GR	588.700	900.000	591.100	984.000	590.800	990.000	580.200	995.000	579.100	1000.000
GR	578.400	1010.000	578.900	1020.000	579.100	1030.000	579.400	1040.000	579.700	1050.000
GR	581.300	1060.000	581.600	1065.000	588.500	1078.000	589.700	1085.000	588.800	1100.000
GR	587.700	1200.000	589.000	1245.000	602.200	1276.000	0.000	0.000	0.000	0.000

NH	6.000	0.040	300.000	0.030	600.000	0.070	610.000	0.040	665.000	0.050
NH	680.000	0.100	1500.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	15.057	33.000	600.000	680.000	2600.000	2300.000	2820.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	250.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	599.800	0.000	600.800	100.000	598.200	200.000	596.600	300.000	596.900	335.000
GR	593.700	400.000	593.000	500.000	592.700	600.000	583.400	610.000	581.900	615.000
GR	581.300	620.000	579.000	630.000	579.000	640.000	580.000	650 000	581.300	655.000
GR	583.000	660.000	583.900	665.000	586.600	668.000	588.400	680.000	590.000	700.000
GR	589.100	800.000	591.500	865.000	585.800	875.000	586.100	884.000	591.500	904.000
GR	590.700	1000.000	590.500	1100.000	590.300	1200.000	591.500	1300.000	591.500	1329.000
GR	598.000	1363.000	598.700	1400.000	599.700	1500.000	0.000	0.000	0.000	0.000

NH	5.000	0.040	1079.000	0.100	1111.000	0.040	1180.000	0.100	2030.000	0.040
NH	2565.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	15.722	41.000	1079.000	1200.000	2100.000	2700.000	3510.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	1000.000	0.000	2200.000	0.000	0.000	0.000	0.000
GR	601.500	0.000	600.100	100.000	600.300	200.000	597.900	300.000	596.500	368.000
GR	589.200	383.000	589.200	385.000	596.200	400.000	597.800	500.000	598.900	600.000
GR	599.600	700.000	599.500	776.000	599.300	800.000	600.200	900.000	601.400	1000.000
GR	600.700	1079.000	582.700	1111.000	579.300	1120.000	579.600	1130.000	578.700	1140.000
GR	578.200	1150.000	578.000	1160.000	580.000	1170.000	582.300	1180.000	594.100	1200.000
GR	592.600	1300.000	591.200	1400.000	591.600	1500.000	589.200	1600.000	590.200	1700.000
GR	590.200	1800.000	591.300	1900.000	593.400	2000.000	593.400	2030.000	596.600	2075.000
GR	596.800	2100.000	598.100	2200.000	599.400	2300.000	600.100	2400.000	598.100	2500.000
GR	598.700	2565.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

NC	0.000	0.000	0.000	0.300	0.500	0.000	0.000	0.000	0.000	0.000
NH	5.000	0.040	1079.000	0.100	1115.000	0.040	1195.000	0.100	2030.000	0.040
NH	2565.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	15.736	54.000	1085.000	1231.000	80.000	80.000	80.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	1000.000	0.000	2400.000	0.000	0.000	0.000	0.000
GR	601.500	0.000	600.100	100.000	600.300	200.000	597.900	300.000	596.500	368.000
GR	589.200	383.000	589.200	385.000	596.200	400.000	597.800	500.000	598.900	600.000
GR	599.600	700.000	599.500	776.000	599.300	800.000	600.200	900.000	601.000	1000.000
GR	600.700	1079.000	595.300	1085.000	592.500	1086.000	592.000	1095.000	590.800	1105.000
GR	587.700	1115.000	584.900	1125.000	582.300	1132.000	582.300	1132.100	582.300	1134.900
GR	582.300	1135.000	582.400	1145.000	581.500	1155.000	581.300	1165.000	579.900	1175.000
GR	576.700	1182.000	576.700	1182.100	577.200	1184.900	577.200	1185.000	578.200	1195.000
GR	591.200	1225.000	592.200	1230.000	592.200	1231.000	592.600	1300.000	591.200	1400.000
GR	591.600	1500.000	589.200	1600.000	590.200	1700.000	590.200	1800.000	591.300	1900.000
GR	593.400	2000.000	593.400	2030.000	596.600	2075.000	596.800	2100.000	598.100	2200.000
GR	599.400	2300.000	600.100	2400.000	598.100	2500.000	598.700	2565.000	0.000	0.000

SB	0.000	2.100	3.040	0.000	115.000	0.000	1512.000	0.000	0.000	0.000
NH	3.000	0.090	1085.000	0.040	1231.000	0.090	2565.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	6.110	6.110	1000.000	2400.000	0.000	0.000	0.000
X1	15.748	0.000	0.000	0.000	71.000	71.000	71.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	595.300	596.200	0.000	0.000	0.000	0.000	0.000
BT	-30.000	0.000	601.500	0.000	100.000	600.100	0.000	200.000	600.300	0.000
BT	0.000	300.000	597.900	0.000	400.000	596.200	0.000	500.000	597.800	0.000
BT	0.000	600.000	598.900	0.000	700.000	599.600	0.000	776.000	599.500	0.000
BT	0.000	800.000	599.300	0.000	900.000	600.200	0.000	1000.000	601.000	0.000
BT	0.000	1085.000	601.700	595.300	1086.000	601.700	597.000	1132.000	601.700	597.000
BT	0.000	1132.100	601.700	582.300	1134.900	601.700	582.300	1135.000	601.700	597.000
BT	0.000	1182.000	601.700	597.000	1182.100	601.700	576.700	1184.900	601.700	577.200
BT	0.000	1185.000	601.700	597.000	1230.000	601.800	597.000	1231.000	601.800	592.200
BT	0.000	1300.000	601.000	0.000	1400.000	599.300	0.000	1500.000	599.000	0.000
BT	0.000	2200.000	598.100	0.000	2300.000	599.400	0.000	2400.000	600.100	0.000

NH	6.000	0.050	412.000	0.055	445.000	0.045	520.000	0.060	525.000	0.050
NH	825.000	0.035	925.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	16.063	25.000	325.000	525.000	1694.000	1694.000	1749.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	601.300	0.000	600.400	29.000	599.700	125.000	601.000	225.000	601.600	325.000
GR	599.100	412.000	591.900	429.000	586.100	435.000	584.200	445.000	583.200	455.000
GR	581.600	465.000	580.100	475.000	578.200	485.000	576.400	495.000	577.000	505.000
GR	580.400	515 000	583.900	520.000	589.400	525.000	591.300	534.000	589.200	625.000
GR	593.300	714.000	592.900	725.000	597.800	825.000	600.700	875.000	601.700	925.000

NC	0.000	0.000	0.000	0.100	0.500	0.000	0.000	0.000	0.000	0.000
NH	5.000	1.000	107.000	0.060	566.000	0.040	634.000	0.100	760.000	0.070
NH	1038.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	16.396	24.000	560.000	641.000	1700.000	1650.000	1760.000	0.000	0.000	0 000
X3	0.000	0.000	0.000	50.000	0.000	800.000	0.000	0.000	0.000	0.000
GR	601.200	0.000	600.200	53.000	600.200	66.000	591.400	107.000	589.400	160 000
GR	589.100	260.000	588.700	360.000	588.200	460.000	589.700	560.000	584.300	566.000
GR	584.200	580.000	583.300	590.000	582.300	600.000	581.800	610.000	582.100	620.000
GR	581.400	630.000	583.300	634.000	591.300	641.000	593.700	664.000	594.600	733.000
GR	598.300	760.000	599.500	860.000	598.900	960.000	600.900	1038.000	0.000	0.000

NH	7.000	1.000	700.000	0.100	1300.000	0.080	1704.000	0.100	1711.000	0.040
NH	1730.000	0.100	1781.000	0.040	2120.000	0.000	0.000	0.000	0.000	0.000
X1	16.866	35.000	1704.000	1792.000	2400.000	2300.000	2480.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	800.000	0.000	1900.000	0.000	0.000	0.000	0.000
GR	603.900	0.000	602.800	100.000	602.000	200.000	600.900	300.000	599.800	400.000
GR	599 800	500.000	598.800	600.000	598.700	700.000	597.900	800.000	597.800	900.000
GR	597.300	1000.000	595.900	1100.000	593.000	1200.000	593.400	1300.000	593.900	1400.000
GR	593.600	1500.000	593.000	1600.000	593.400	1704.000	584.800	1711.000	582.100	1720.000
GR	582.300	1730.000	582.400	1740.000	582.200	1750.000	582.000	1760.000	582.200	1765.000
GR	584.700	1773.000	591.000	1781.000	595.500	1792.000	596.000	1800.000	600.100	1893.000
GR	600.600	1947.000	600.200	2000.000	600.600	2055.000	604.100	2100.000	605.100	2120.000

NH	6.000	0.040	1000.000	0.100	1308.000	0.075	1319.000	0.040	1371.000	0.075
NH	1396.000	0.040	1625.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	17.089	29.000	1308.000	1396.000	1100.000	1100.000	1180.000	0 000	0.000	0.000
X3	0.000	0.000	0 000	950.000	0.000	1500.000	0.000	0.000	0.000	0.000
GR	601.800	0.000	601.300	100.000	599.300	200.000	598.900	300.000	598.900	400 000
GR	598.500	500.000	598 400	600.000	598.000	700.000	598.100	800.000	597.800	822.000
GR	593.400	900.000	591.900	1000.000	592.000	1100.000	592.400	1200.000	593.200	1300.000
GR	593.400	1308.000	586.800	1319.000	585.700	1325.000	584.900	1330.000	582.600	1340.000
GR	583.200	1350.000	583.200	1360.000	584.800	1371.000	589.400	1378.000	589.800	1387.000
GR	595.000	1396.000	598.900	1425.000	599.800	1500.000	601.300	1625.000	0.000	0.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST

 *PROF 1

 CCHV=   0.300 CEHV=   0.500
 1490 NH CARD USED
 *SECNO 11.052

 3470 ENCROACHMENT STATIONS=      550.0    2520.0  TYPE=     1  TARGET=    -550.000
     11.05    22.37   593.17     0.00   593.17   593.38     0.20     0.00     0.00   578.50
   21300.     272.   12024.    9004.     229.    2541.   10296.       0.       0.    584.10
      0.00     1.19     4.73     0.87    0.120    0.047    0.132    0.000   570.80   550.00
  0.000431     750.     750.     330.       0        0        0     0.00  1823.74  2373.74


 1490 NH CARD USED
 *SECNO 11.292
     11.29    24.23   593.63     0.00     0.00   593.66     0.03     0.23     0.05   593.20
   10400.       0.    3110.    7290.       4.    1421.   13568.     198.      25.    581.70
      0.23     0.05     2.19     0.54    0.120    0.048    0.124    0.000   569.40    23.18
  0.000137    1350.     1268     500.       1        0        0     0.00  2141.27  2164.45


 1490 NH CARD USED
 *SECNO 11.393
     11.39    23.70   593.65     0.00     0.00   593.72     0.06     0.04     0.02   591.20
   10400.      29.    4415.    5956.     140.    1472.    9432.     226.      29.    582.30
      0.26     0.21     3.00     0.63    0.120    0.048    0.128    0.000   569.95    92.91
  0.000243     479.     529.      37.       2        0        0     0.00  1952.96  2045.87


 CCHV=   0.100 CEHV=   0.300
 1490 NH CARD USED
 *SECNO 11.695

 3265 DIVIDED FLOW

     11.69    22.29   593.88     0.00     0.00   594.03     0.15     0.29     0.02   585.20
   10400.     957.    6117.    3326.    1799.    1630.    1813.     330.      49.    584.40
      0.35     0.53     3.75     1.83    0.137    0.054    0.048    0.000   571.59   319.06
  0.000421    1486.    1586.     110.       2        0        0     0.00  1260.48  1615.30


 1490 NH CARD USED
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 11.845

11.84	21.74	594.14	0.00	0.00	594.33	0.20	0.29	0.02	582.30
10400.	2294.	7246.	860.	3386.	1721.	461.	405.	64.	585.50
0.41	0.68	4.21	1.86	0.141	0.054	0.048	0.000	572.40	428.36
0.000503	735.	785.	54.	2	0	0	0.00	1134.48	1562.85

1490 NH CARD USED
*SECNO 11.860

11.86	21.71	594.19	0.00	0.00	594.37	0.18	0.04	0.00	582.20
10400.	2358.	7035.	1007.	3184.	1731.	622.	415.	66.	585.60
0.41	0.74	4.07	1.62	0.128	0.054	0.054	0.000	572.48	410.16
0.000463	77.	79.	76.	2	0	0	0.00	1120.62	1530.78

1490 NH CARD USED
*SECNO 11.875

11.88	21.67	594.24	0.00	0.00	594.41	0.17	0.04	0.00	582.20
10400.	2329.	6917.	1154.	2888.	1732.	791.	425.	68.	585.70
0.42	0.81	3.99	1.46	0.116	0.054	0.060	0.000	572.57	394.58
0.000453	77.	79.	76.	0	0	0	0.00	1104.34	1498.92

1490 NH CARD USED
*SECNO 11.929

11.93	21.47	594.36	0.00	0.00	594.52	0.16	0.11	0.00	582.00
10400.	1595.	6777.	2027.	1987.	1741.	1644.	457.	74.	586.10
0.45	0.80	3.89	1.23	0.106	0.048	0.072	0.000	572.89	340.55
0.000343	239.	287.	275.	0	0	0	0.00	1042.98	1383.53

1490 NH CARD USED
*SECNO 12.023

12.02	21.17	594.57	0.00	0.00	594.66	0.09	0.13	0.01	581.80
10400.	1144.	5410.	3847.	976.	1747.	3952.	523.	83.	586.80
0 51	1.17	3.10	0.97	0.064	0.049	0.098	0.000	573.40	394.65
0.000225	437.	495.	474.	2	0	0	0.00	790.49	1185.14

1490 NH CARD USED
*SECNO 12.339

12.34	21.99	594.99	0.00	0.00	595.02	0.03	0.35	0.01	585.80
10400.	7801.	2596.	3.	6067.	1490.	10.	787.	117.	593.90
0.83	1.29	1.74	0.30	0.066	0.073	0.048	0.000	573.00	191.92
0.000211	1600.	1670.	1600.	2	0	0	0.00	1025.93	1217.85

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

1490 NH CARD USED
*SECNO 12.544

3470 ENCROACHMENT STATIONS=      250.0     1000.0  TYPE=      1  TARGET=      750.000
     12.54     20.51    595.21     0.00      0.00    595.34     0.13      0.29      0.03    587.00
    10400.     1670.     6310.    2420.     1839.     1735.     2456.      949.      138.    584.40
      0.95      0.91      3.64     0.99     0.108     0.054     0.121     0.000    574.70    250.00
  0.000393     1020.     1080.    1050.         0         0         0      0.00    750.00   1000.00


CCHV=   0.100 CEHV=    0.500
1490 NH CARD USED
*SECNO 12.799

3470 ENCROACHMENT STATIONS=        0.0     1600.0  TYPE=      1  TARGET=     1599.999
     12.80     22.16    595.66     0.00      0.00    595.71     0.05      0.35      0.01    583.60
    10400.     5655.     4280.     465.     8164.     1618.      498.     1191.      170.    584.00
      1.19      0.69      2.65     0.93     0.114     0.055     0.096     0.000    573.50    136.69
  0.000196     1300.     1350.    1200.         2         0         0      0.00   1426.59   1563.28


*SECNO 13.144

3470 ENCROACHMENT STATIONS=      250.0     1250.0  TYPE=      1  TARGET=     1000.000
     13.14     21.61    596.01     0.00      0.00    596.07     0.06      0.36      0.00    584.20
    10400.      544.      3720    6136.      661.     1228.     6924.     1584.      219.    582.40
      1.49      0.82      3.03     0.89     0.108     0.048     0.108     0.000    574.40    314.21
  0.000204     1781.     1820.    1800.         2         0         0      0.00    935.79   1250.00


1490 NH CARD USED
*SECNO 13.163

3470 ENCROACHMENT STATIONS=        0.0     1275.0  TYPE=      1  TARGET=     1274.999
     13.16     21.46    596.04     0.00      0.00    596.09     0.05      0.02      0.00    584.30
    10400.      843.     3611.    5946.      784.     1259.     6424.     1600.      220.    582.40
      1.51      1.08      2.87     0.93     0.090     0.053     0.106     0.000    574.58    355.05
  0.000224       65.       100      79.         0         0         0      0.00    919.95   1275.00


1490 NH CARD USED
*SECNO 13.191
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST


3470 ENCROACHMENT STATIONS=       0.0     1275.0  TYPE=      1  TARGET=     1274.999
     13.19     21.37    596.05      0.00      0.00    596.10      0.06      0.01      0.00    584.40
   10400.       870.     3751.     5779.      882.     1282.     5944.     1612.      222.     582.40
      1.52      0.99      2.92      0.97     0.090     0.048     0.092     0.000    574.68    383.89
  0.000191       49.       75.       59.         0         0         0      0.00    891.11   1275.00


1490 NH CARD USED
*SECNO 13.220

3470 ENCROACHMENT STATIONS=     360.0     1350.0  TYPE=      1  TARGET=      990.000
     13.22     21.05    596.08      0 00      0.00    596.14      0.06      0.04      0.00    584.80
   10400.      1229.     3792.     5380.     1238.     1339.     4650.     1643.      225.     582.70
      1.55      0.99      2.83      1.16     0.084     0.050     0.072     0.000    575.03    360.00
  0.000191      146.      225.      177.         0         0         0      0.00    990.00   1350.00


1490 NH CARD USED
*SECNO 13.481

3470 ENCROACHMENT STATIONS=       0.0     1750.0  TYPE=      1  TARGET=     1749.999
     13.48     18.99    596.19      0.00      0.00    596.20      0.01      0.05      0.00    587.20
   10400.      8899.     1355.      146.    11382.     1654.      312.     1882.      253.     583.90
      1.93      0.78      0.82      0.47     0.037     0.054     0.060     0.000    577.20    191.70
  0.000021      891.     1380.     1086.         2         0         0      0.00   1457.76   1649.46


CCHV=    0.100 CEHV=    0.500
1490 NH CARD USED
*SECNO 13.799

3470 ENCROACHMENT STATIONS=       0.0     1010.0  TYPE=      1  TARGET=     1009.999
     13.80     20.30    596.20      0.00      0.00    596.29      0.09      0.06      0.04    586.90
   10400.      2580.     5143.     2677.     1606.     1645.     2678.     2101.      277.     587.20
      2.06      1.61      3.13      1.00     0.060     0.050     0.096     0.000    575.90    183.46
  0.000268      800.     1680.     1050.         2         0         0      0.00    765.18    948.64


1490 NH CARD USED
*SECNO 14.061

3470 ENCROACHMENT STATIONS=     200.0     1400.0  TYPE=      1  TARGET=     1200.000
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


     14.06     19.02    596.52      0.00      0.00    596.54      0.02      0.24      0.01    589.60
    10400.     2517.     2916.     4966.     3321.     1618.     5263.     2315.      301.     588.50
      2.36      0.76      1.80      0.94     0.096     0.060     0.086     0.000    577.50    281.55
  0.000153     1100.     1380.     1100.         2         0         0      0.00   1118.45   1400.00


1490 NH CARD USED
*SECNO 14.258

3470 ENCROACHMENT STATIONS=     400.0    1400.0  TYPE=      1  TARGET=    -400.000
     14.26     18.69    596.69      0.00      0.00    596.73      0.05      0.18      0.01    593.40
    10400.     1413.     7372.     1615.      935.     3898.     1335.     2503.      323.     588.30
      2.52      1.51      1.89      1.21     0.042     0.054     0.065     0.000    578.00    515.84
  0.000216     1040.     1040.      950.         2         0         0      0.00    799.76   1315.61


CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 14.523

3470 ENCROACHMENT STATIONS=       0.0    1300.0  TYPE=      1  TARGET=    1299.999
     14.52     18.47    596.87      0.00      0.00    596.90      0.03      0.17      0.00    590.80
    10400.     6636.     2490.     1274.     5062.     1484.     1433.     2727.      354.     589.70
      2.81      1.31      1.68      0.89     0.036     0.046     0.060     0.000    578.40    108.37
  0.000078     1350.     1400.     1400.         2         0         0      0.00   1155.12   1263.49


1490 NH CARD USED
*SECNO 15.057

3470 ENCROACHMENT STATIONS=     250.0    1500.0  TYPE=      1  TARGET=    -250.000
     15.06     18.22    597.22      0.00      0.00    597.32      0.10      0.40      0.02    592.70
    10400.     1993.     4200.     4207.      977.     1152.     4548.     3151.      419.     588.40
      3.13      2.04      3.64      0.93     0.036     0.048     0.120     0.000    579.00    261.26
  0.000430     2600.     2820.     2300.         2         0         0      0.00   1097.66   1358.92


1490 NH CARD USED
*SECNO 15.722

3470 ENCROACHMENT STATIONS=    1000.0    2200.0  TYPE=      1  TARGET=    1200.000
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 SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
 Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
 TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
 SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      600.70 ELREA=      594.10

   15.72     20.34    598.34      0.00      0.00    598.43      0.08      1.10      0 00    600.70
  10400.        0.     5384.     5016.        0.     1724.     6097.     3620.      487.    594.10
    3.54      0.00      3.12      0.82     0.000     0.048     0.116     0.000    578.00   1083.19
 0.000315     2100.     3510.     2700.         2         0         0      0.00   1116.81   2200.00

CCHV=   0.300 CEHV=   0.500
1490 NH CARD USED
*SECNO 15.736

3470 ENCROACHMENT STATIONS=     1000.0     2400.0  TYPE=      1  TARGET=    1400.000
   15.74     21.69    598.39      0.00      0.00    598.46      0.06      0.02      0.01    595.30
  10400.        1.     5432.     4967.        5.     2029.     6061.     3635.      489.    592.20
    3.56      0.24      2.68      0.82     0.120     0.054     0.116     0.000    576.70   1081.56
 0.000303       80.       80.       80.         2         0         0      0.00   1140.96   2222.52


SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
SB  XK        XKOR      COFQ      RDLEN      BWC        BWP       BAREA       SS        ELCHU      ELCHD
     0.00       2.10      3.04      0.00    115.00       0.00   1512.00       0.00     576.70     576.70

1490 NH CARD USED
*SECNO 15.748
     3700.    BRIDGE STENCL=   1000.00    STENCR=   2400.00
3280 CROSS SECTION     15.75 EXTENDED       0.65 FEET

PRESSURE AND WEIR FLOW


 EGPRS      EGLWC        H3        QWEIR       QPR        BAREA   TRAPEZOID      ELLC       ELTRD
                                                                    AREA
   599.94    598.46      0.00      1883.      8424.      1512.      2139.      595.30     596.20


3470 ENCROACHMENT STATIONS=     1000.0     2400.0  TYPE=      1  TARGET=    1400.000
   15.75     22.65    599.35      0.00      0.00    599.41      0.05      0.95      0.00    595.30
  10400.        2.     5275.     5123.        9.     2169.     7050.     3649.      491.    592.20
    3.57      0.24      2.43      0.73     0.108     0.048     0.108     0.000    576.70   1080.50
 0.000180       71.       71.       71.         2         0         2      0.00   1216.00   2296.50
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 SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
 Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
 TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
 SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST

1490 NH CARD USED
*SECNO 16.063

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      601.60 ELREA=      589.40

    16.06    23.35   599.75     0.00     0.00   599.87     0.13     0.43     0.04   601.60
   10400.       0.    6187.    4213.       0.    1838.    2250.    3910.     524.    589.40
     3.74     0.00     3.37     1.87    0.000    0.046    0.060    0.000   576.40   389.52
 0.000367    1694.    1749.    1694.        2        0        0     0.00   469.03   858.55

CCHV=   0.100 CEHV=   0.500
1490 NH CARD USED
*SECNO 16.396

3470 ENCROACHMENT STATIONS=      50.0     800.0  TYPE=      1  TARGET=     750.000
    16.40    18.84   600.24     0.00     0.00   600.29     0.05     0.40     0.01   589.70
   10400.    6710.    3297.     393.    5245.    1354.     769.    4134.     547.    591.30
     4.04     1.28     2.43     0.51    0.073    0.049    0.118    0.000   581.40    50.88
 0.000164    1700.    1760.    1650.        2        0        0     0.00   749.12   800.00

1490 NH CARD USED
*SECNO 16.866

3470 ENCROACHMENT STATIONS=     800.0    1900.0  TYPE=      1  TARGET=    1100.000
    16.87    18.90   600.90     0.00     0.00   600.95     0.05     0.66     0.00   593.40
   10400.    6275.    3657     467.    5473.    1407.     310.    4537.     598.    595.50
     4.44     1.15     2.60     1.51    0.104    0.079    0.048    0.000   582.00   800.00
 0.000532    2400.    2480.    2300.        1        0        0     0.00  1100.00  1900.00

1490 NH CARD USED
*SECNO 17.089
3280 CROSS SECTION     17.09 EXTENDED      0.16 FEET

3470 ENCROACHMENT STATIONS=     950.0    1500.0  TYPE=      1  TARGET=     550.000
    17.09    18.86   601.46     0.00     0.00   601.59     0.13     0.61     0.04   593.40
   10400.    4834.    5126.     441.    3268.    1323.     289.    4691.     619.    595.00
     4.56     1.48     3.87     1.52    0.101    0.052    0.048    0.000   582.60   950.00
 0.000540    1100.    1180.    1100.        2        0        0     0.00   550.00  1500.00
```

THIS RUN EXECUTED 16 MAY 90 13:44:24

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
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T1 CLINTON TOWNSHIP FLOOD INSURANCE RESTUDY
T2 RECREATION OF ORIGINAL MODEL
T3 CLINTON RIVER U/S OF THE FORKS, 100-YEAR DISCHARGE

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	5.	0.	0.	0.000000	0.00	0.0	0.	596.190	0.000

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	15.000	0 000	-1.000	0.000	0 000	1.200	0.000	0.000	0.000	0.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*PROF 2

CCHV= 0.300 CEHV= 0.500
1490 NH CARD USED
*SECNO 11.052

3470 ENCROACHMENT STATIONS= 550.0 2520.0 TYPE= 1 TARGET= -550.000

11.05	25.39	596.19	0.00	596.19	596.36	0.17	0.00	0.00	578.50
28900.	348.	13605.	14948.	287.	2909.	15470.	0.	0.	584.10
0.00	1.21	4.68	0.97	0.120	0.047	0.132	0.000	570.80	550.00
0.000354	750.	750.	330.	0	0	0	0.00	1890.68	2440.68

1490 NH CARD USED
*SECNO 11.292
3280 CROSS SECTION 11.29 EXTENDED 2.34 FEET

11.29	27.14	596.54	0.00	0.00	596.55	0.01	0.15	0.05	593.20
13000.	25.	3013.	9963.	117.	1668.	19595.	274.	26.	581.70
0.27	0.21	1.81	0.51	0.120	0.048	0.119	0.000	569.40	0.00
0.000076	1350.	1268.	500.	2	0	0	0.00	2230.57	2230.57

1490 NH CARD USED
*SECNO 11.393
3280 CROSS SECTION 11.39 EXTENDED 1.75 FEET

11.39	26.60	596.55	0.00	0.00	596.58	0.03	0.02	0.01	591.20
13000.	269.	4167.	8565.	856.	1720.	14428.	314.	30.	582.30
0.31	0.31	2.42	0.59	0.120	0.048	0.123	0.000	569.95	0.00
0.000129	479.	529.	37.	2	0	0	0.00	2120.31	2120.31

CCHV= 0.100 CEHV= 0.300
1490 NH CARD USED
*SECNO 11.695

11.69	25.05	596.64	0.00	0.00	596.71	0.07	0.13	0.01	585.20
13000.	2093.	5393.	5514.	3833.	1874.	3521.	482	57.	584.40
0.42	0.55	2.88	1.57	0.124	0.054	0.048	0.000	571.59	41.05
0.000207	1486.	1586.	110.	0	0	0	0.00	1670.70	1711.76

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

1490 NH CARD USED
*SECNO 11.845

11.84	24.35	596.75	0.00	0.00	596.88	0.12	0 15	0.02	582.30
13000.	4144.	7156.	1700.	5842.	1954.	933.	601.	76.	585.50
0.48	0.71	3.66	1.82	0.136	0.054	0.048	0.000	572.40	229.51
0.000324	735.	785.	54.	2	0	0	0.00	1368.50	1598.02

1490 NH CARD USED
*SECNO 11.860

11.86	24.31	596.79	0.00	0.00	596.90	0.11	0.02	0.00	582.20
13000.	4280.	6856.	1863.	5545.	1963.	1163.	617.	79.	585.60
0.49	0.77	3.49	1.60	0.119	0.054	0.054	0.000	572.48	174.11
0.000292	77.	79.	76.	2	0	0	0.00	1393.24	1567.34

1490 NH CARD USED
*SECNO 11.875

11.88	24.25	596.82	0.00	0.00	596.92	0.10	0.02	0.00	582.20
13000.	4233.	6721.	2046.	5126.	1963.	1396.	632.	81.	585.70
0.50	0.83	3.42	1.47	0.109	0.055	0.060	0.000	572.57	161.05
0.000285	77.	79.	76.	0	0	0	0.00	1373.27	1534.32

1490 NH CARD USED
*SECNO 11.929

11.93	24.00	596.89	0.00	0.00	596.99	0.10	0.07	0.00	582.00
13000.	3097.	6792.	3111.	3826.	1970.	2489.	682.	89.	586.10
0.53	0.81	3.45	1.25	0.097	0.049	0.072	0.000	572.89	33.90
0.000230	239.	287.	275.	0	0	0	0.00	1390.57	1424.47

1490 NH CARD USED
*SECNO 12.023
3280 CROSS SECTION 12.02 EXTENDED 1.02 FEET

12.02	23.63	597.03	0.00	0.00	597.09	0.06	0.09	0.00	581.80
13000.	2133.	5614.	5253.	1956.	1972.	5190.	775.	103.	586.80
0.61	1 09	2.85	1.01	0.058	0.049	0.093	0.000	573.40	0.00
0.000164	437.	495.	474.	1	0	0	0.00	1234.60	1234.60

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  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

1490 NH CARD USED
*SECNO 12.339
3280 CROSS SECTION     12.34 EXTENDED      0.62 FEET

    12.34     24.32    597.32      0.00      0.00    597.34      0.03      0.25      0.00    585.80
   13000.    10250.     2700.       50.     8453.     1714.       96.     1134.      149.     593.90
     0.96      1.21      1.58      0.53     0.065     0.073     0.048     0.000    573.00      0.00
 0.000142     1600.     1670.     1600.         2         0         0      0.00   1255.99   1255.99

1490 NH CARD USED
*SECNO 12.544

3470 ENCROACHMENT STATIONS=      250.0     1000.0  TYPE=       1  TARGET=      750.000
    12.54     22.77    597.47      0.00      0.00    597.58      0.11      0.21      0.03    587.00
   13000.     2716.     6901.     3383.     2625.     1947.     3151.     1348.      172.     584.40
     1.08      1.03      3.54      1.07     0.104     0.054     0.118     0.000    574.70    250.00
 0.000324     1020.     1080.     1050.         0         0         0      0.00    750.00   1000.00

CCHV=   0.100 CEHV=    0.500
1490 NH CARD USED
*SECNO 12.799

3470 ENCROACHMENT STATIONS=        0.0     1600.0  TYPE=       1  TARGET=     1599.999
    12.80     24.33    597.83      0.00      0.00    597.86      0.04      0.27      0.01    583.60
   13000.     8011.     4415.      574.    11110.     1800.      631.     1663.      207.     584.00
     1.36      0.72      2.45      0.91     0.109     0.055     0.096     0.000    573.50      0.00
 0.000146     1300.     1350.     1200.         2         0         0      0.00   1567.17   1567.17

*SECNO 13.144

3470 ENCROACHMENT STATIONS=      250.0     1250.0  TYPE=       1  TARGET=     1000.000
    13.14     23.71    598.11      0.00      0.00    598.16      0.06      0.29      0.01    584.20
   13000.      744.     4161.     8094.      882.     1360.     8575.     2164.      259.     582.40
     1.67      0.84      3.06      0.94     0.108     0.048     0.108     0.000    574.40    253.27
 0.000181     1781.     1820.     1800.         2         0         0      0.00    996.73   1250.00

1490 NH CARD USED
*SECNO 13.163
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 SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
 Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
 TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
 SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


3470 ENCROACHMENT STATIONS=       0.0    1275.0  TYPE=     1  TARGET=    1274.999
    13.16    23.55   598.13     0.00     0.00   598.18     0.05     0.02     0.00   584.30
   13000.    1218.    3935.    7848.    1306.    1396.    7996.    2184.     261.    582.40
     1.68     0.93     2.82     0.98    0.087    0.053    0.105    0.000   574.58     0.00
 0.000190      65.     100.      79.        1        0        0     0.00  1275.00  1275.00

1490 NH CARD USED
*SECNO 13.191

3470 ENCROACHMENT STATIONS=       0.0    1275.0  TYPE=     1  TARGET=    1274.999
    13.19    23.46   598.14     0.00     0.00   598.19     0.05     0.01     0.00   584.40
   13000.    1329.    4053.    7618.    1611.    1421.    7412.    2199.     263.    582.40
     1.69     0.82     2.85     1.03    0.086    0.048    0.091    0.000   574.68     0.00
 0.000159      49.      75.      59.        0        0        0     0.00  1275.00  1275.00

1490 NH CARD USED
*SECNO 13 220

3470 ENCROACHMENT STATIONS=     360.0    1350.0  TYPE=     1  TARGET=     990.000
    13.22    23.14   598.17     0.00     0.00   598.22     0.05     0.03     0.00   584.80
   13000.    1739.    4071.    7190.    1842.    1486.    5969.    2239.     267.    582.70
     1 72     0.94     2.74     1.20    0.084    0.050    0.072    0.000   575.03   360.00
 0.000157     146.     225.     177.        0        0        0     0.00   990.00  1350.00

1490 NH CARD USED
*SECNO 13.481

3470 ENCROACHMENT STATIONS=       0.0    1750.0  TYPE=     1  TARGET=    1749.999
    13.48    21.06   598.26     0.00     0.00   598.27     0.01     0.04     0.00   587.20
   13000.   11344.    1455.     200.   14138.    1848.     498.    2536.     296.    583.90
     2.09     0.80     0.79     0.40    0.037    0.055    0.060    0.000   577.20   161.91
 0.000017     891.    1380.    1086.        2        0        0     0.00  1570.42  1732.33

CCHV=   0.100 CEHV=   0.500
1490 NH CARD USED
*SECNO 13.799

3470 ENCROACHMENT STATIONS=       0.0    1010.0  TYPE=     1  TARGET=    1009.999
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   SECNO      DEPTH     CWSEL     CRIWS     WSELK      EG        HV        HL       OLOSS   BANK ELEV
   Q          QLOB      QCH       QROB      ALOB       ACH       AROB      VOL      TWA    LEFT/RIGHT
   TIME       VLOB      VCH       VROB      XNL        XNCH      XNR       WTN      ELMIN       SSTA
   SLOPE      XLOBL     XLCH      XLOBR     ITRIAL     IDC       ICONT     CORAR    TOPWID     ENDST


     13.80     22.37    598.27      0.00      0.00    598.35      0.08      0.05      0.04    586.90
   13000.      3558.     5676.     3766.     2113.     1845.     3625.     2806.      322.     587.20
      2.23      1.68      3.08      1.04     0.059     0.050     0.095     0.000    575.90    157.00
  0.000226      800.     1680.     1050.         2         0         0      0.00    837.50    994.51


 1490 NH CARD USED
 *SECNO 14.061

 3470 ENCROACHMENT STATIONS=      200.0     1400.0  TYPE=      1  TARGET=    1200.000
     14.06     21.03    598.53      0.00      0.00    598.55      0.02      0.20      0.01    589.60
   13000.      3393.     3262.     6346.     4227.     1835.     6417.     3071.      348.     588.50
      2.53      0.80      1.78      0.99     0.096     0.061     0.086     0.000    577.50    220.36
  0.000129     1100.     1380.     1100.         2         0         0      0.00   1179.64   1400.00


 1490 NH CARD USED
 *SECNO 14.258

 3470 ENCROACHMENT STATIONS=      400.0     1400.0  TYPE=      1  TARGET=    -400.000
     14.26     20.67    598.67      0.00      0.00    598.71      0.05      0.15      0.01    593.40
   13000.      2220.     8549.     2231.     1415.     4649.     1764.     3305.      372.     588.30
      2.69      1.57      1.84      1.26     0.042     0.055     0.064     0.000    578.00    419.24
  0.000168     1040.     1040.      950.         2         0         0      0.00    908.34   1327.57


 CCHV=    0.100 CEHV=    0.300
 1490 NH CARD USED
 *SECNO 14.523

 3470 ENCROACHMENT STATIONS=        0.0     1300.0  TYPE=      1  TARGET=    1299.999
     14.52     20.42    598.82      0.00      0.00    598.84      0.03      0.13      0.00    590.80
   13000.      8852.     2589.     1560.     6837.     1668.     1784.     3592.      406.     589.70
      2.99      1.29      1.55      0.87     0.036     0.046     0.060     0.000    578.40     44.59
  0.000058     1350.     1400.     1400.         2         0         0      0.00   1223.46   1268.05


 1490 NH CARD USED
 *SECNO 15.057

 3470 ENCROACHMENT STATIONS=      250.0     1500.0  TYPE=      1  TARGET=    -250.000
     15.06     20 07    599.07      0.00      0.00    599.15      0.08      0.29      0.02    592.70
   13000.      3448.     4270.     5282.     1623.     1300.     5842.     4142.      475.     588.40
      3.34      2.12      3.28      0.90     0.036     0.048     0.120     0.000    579.00    250.00
  0.000304     2600.     2820.     2300.         2         0         0      0.00   1186.81   1436.81
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  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST


1490 NH CARD USED
*SECNO 15.722
3280 CROSS SECTION     15.72 EXTENDED      1.24 FEET


3470 ENCROACHMENT STATIONS=    1000.0     2200 0  TYPE=     1  TARGET=    1200.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      600.70 ELREA=      594.10

    15.72     21.94    599.94      0.00      0.00    600.02      0.08      0.87      0.00    600 70
   13000.        0.     5952.     7048.        0.     1913.     7696.     4730.      546.    594.10
     3.77      0.00      3.11      0.92     0.000     0.049     0.113     0.000    578.00   1080.35
 0.000289     2100.     3510.     2700.         2         0         0      0.00   1119.65   2200.00


CCHV=   0.300 CEHV=   0.500
1490 NH CARD USED
*SECNO 15.736
3280 CROSS SECTION     15.74 EXTENDED      1.29 FEET


3470 ENCROACHMENT STATIONS=    1000.0     2400.0  TYPE=     1  TARGET=    1400.000
    15.74     23.29    599.99      0.00      0.00    600.05      0.06      0.02      0.01    595.30
   13000.        4.     6052.     6944.       12.     2262.     7751.     4748.      548.    592.20
     3.78      0.30      2.68      0.90     0.120     0.055     0.112     0.000    576.70   1079.79
 0.000273       80.       80.       80.         2         0         0      0.00   1304.06   2383.85



SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
SB  XK        XKOR      COFQ      RDLEN      BWC       BWP       BAREA      SS        ELCHU     ELCHD
     0.00      2.10      3 04      0.00    115.00      0.00   1512.00      0.00    576.70    576.70

1490 NH CARD USED
*SECNO 15.748
     3700.    BRIDGE STENCL=   1000.00    STENCR=   2400.00
3280 CROSS SECTION     15.75 EXTENDED      1.77 FEET

PRESSURE AND WEIR FLOW
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  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


 EGPRS       EGLWC        H3        QWEIR        QPR        BAREA    TRAPEZOID       ELLC       ELTRD
                                                                       AREA
   602.40     600.05       0.00      6849.       6142.       1512.     2139.        595.30     596.20


3470 ENCROACHMENT STATIONS=      1000.0     2400.0  TYPE=      1  TARGET=     1400.000
     15.75     23.77    600.47      0.00    599.35    600.53      0.06      0.48      0.00    595.30
   13000.        4.      6234.     6762.       15.     2332.     8310.     4765.      550.     592.20
      3.79      0.30      2.67      0.81     0.108     0.048     0.108     0.000    576.70   1079.26
  0.000198       71.       71.       71.         2         0         3      0.00   1320.74   2400.00

1490 NH CARD USED
*SECNO 16.063

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      601.60 ELREA=      589.40

     16.06     24.50    600.90      0.00    599.75    601.05      0.15      0.48      0.04    601.60
   13000.        0.      7319.     5681.        0.     2017.     2647.     5065.      586.     589.40
      3.95      0.00      3.63      2.15     0.000     0.041     0.060     0.000    576.40    349.40
  0.000414     1694.     1749.     1694.         2         0         0      0.00    535.54    884.94

CCHV=    0.100 CEHV=    0.500
1490 NH CARD USED
*SECNO 16.396
3280 CROSS SECTION     16.40 EXTENDED       0.56 FEET

3470 ENCROACHMENT STATIONS=        50.0      800.0  TYPE=      1  TARGET=      750.000
     16.40     20.06    601.46      0.00    600.24    601.51      0.06      0.46      0.01    589.70
   13000.     8478.      3931      591.     5865.     1453.      962.     5318.      611.     591.30
      4.22      1.45      2.71      0.61     0.074     0.049     0.117     0.000    581.40     50.00
  0.000186     1700.     1760.     1650.         2         0         0      0.00    750.00    800.00

1490 NH CARD USED
*SECNO 16.866

3470 ENCROACHMENT STATIONS=       800.0     1900.0  TYPE=      1  TARGET=     1100.000
     16.87     20.15    602.15      0.00    600.90    602.20      0.05      0.69      0.00    593.40
    13000      8174.     4012.      814.     6627.     1519.      448.     5784.      662.     595.50
      4.61      1.23      2.64      1.82     0.105     0.079     0.048     0.000    582.00    800.00
  0.000498     2400.     2480.     2300.         1         0         0      0.00   1100.00   1900.00
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SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST


1490 NH CARD USED
*SECNO 17.089
3280 CROSS SECTION     17.09 EXTENDED      1.41 FEET


3470 ENCROACHMENT STATIONS=     950.0     1500.0  TYPE=     1  TARGET=     550.000
    17.09     20.11    602.71      0.00    601.46    602.86      0.15      0.61      0.05    593.40
   13000.     6179.     6012.      809.     3715.     1433.      419.     5966.      683.    595.00
     4.72      1.66      4 19      1.93     0.101     0.053     0.048     0.000    582.60    950.00
 0.000580     1100.     1180.     1100.         2         0         0      0.00    550.00   1500.00
```

THIS RUN EXECUTED 16 MAY 90 13:44:29

****
HEC2 RELEASE DATED NOV 76 UPDATED MAY 1984
ERROR CORR - 01,02,03,04,05,06
MODIFICATION - 50,51,52,53,54,55,56
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

CLINTON RIVER U/S OF THE

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
11.052	0.00	0.00	0.00	570.80	21300.00	593.17	0.00	593.38	4.31	4.73	13066.03	10254.75
11.052	0.00	0.00	0.00	570.80	28900.00	596.19	0.00	596.36	3.54	4.68	18665.06	15349.92
11.292	1268.00	0.00	0.00	569.40	10400.00	593.63	0.00	593.66	1.37	2.19	14992.84	8874.62
11.292	1268.00	0.00	0.00	569.40	13000.00	596.54	0.00	596.55	0.76	1.81	21379.27	14960.91
11.393	528.70	0.00	0.00	569.95	10400.00	593.65	0.00	593.72	2.43	3.00	11043.88	6672.99
11.393	528.70	0.00	0.00	569.95	13000.00	596.55	0.00	596.58	1.29	2.42	17003.90	11455.74
11.695	1586.30	0.00	0.00	571.59	10400.00	593.88	0.00	594.03	4.21	3.75	5242.16	5067.46
11.695	1586.30	0.00	0.00	571.59	13000.00	596.64	0.00	596.71	2.07	2.88	9227.11	9034.45
11.845	785.00	0.00	0.00	572.40	10400.00	594.14	0.00	594.33	5.03	4.21	5568.94	4638.99
11.845	785.00	0.00	0.00	572.40	13000.00	596.75	0.00	596.88	3.24	3.66	8729.38	7222.04
11.860	78.90	0.00	0.00	572.48	10400.00	594.19	0.00	594.37	4.63	4.07	5536.93	4833.65
11.860	78.90	0.00	0.00	572.48	13000.00	596.79	0.00	596.90	2.92	3.49	8670.00	7613.58
11.875	78.90	0.00	0.00	572.57	10400.00	594.24	0.00	594.41	4.53	3.99	5410.46	4833.67
11.875	78.90	0.00	0.00	572.57	13000.00	596.82	0.00	596.92	2.85	3.42	8485.50	7706.99
11.929	286.80	0.00	0.00	572.89	10400.00	594.36	0.00	594.52	3.43	3.89	5371.78	5619.01
11.929	286.80	0.00	0.00	572.89	13000.00	596.89	0.00	596.99	2.30	3.45	8286.20	8571.51
12.023	495.40	0.00	0.00	573.40	10400.00	594.57	0.00	594.66	2.25	3.10	6674.85	6934.14
12.023	495.40	0.00	0.00	573.40	13000.00	597.03	0.00	597.09	1.64	2.85	9118.87	10144.75
12.339	1670.00	0.00	0.00	573.00	10400.00	594.99	0.00	595.02	2.11	1.74	7567.12	7160.49
12.339	1670.00	0.00	0.00	573.00	13000.00	597.32	0.00	597.34	1.42	1.58	10262.61	10909.91
12.544	1080.00	0.00	0.00	574.70	10400.00	595.21	0.00	595.34	3.93	3.64	6029.60	5244.43
12.544	1080.00	0.00	0.00	574.70	13000.00	597.47	0.00	597.58	3.24	3.54	7723.63	7227.72

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
12.799	1350.00	0.00	0.00	573.50	10400.00	595.66	0.00	595.71	1.96	2.65	10279.40	7437.02
12.799	1350.00	0.00	0.00	573.50	13000.00	597.83	0.00	597.86	1.46	2.45	13540.84	10744.43
13.144	1820.00	0.00	0.00	574.40	10400.00	596.01	0.00	596.07	2.04	3.03	8812.72	7287.17
13.144	1820.00	0.00	0.00	574.40	13000.00	598.11	0.00	598.16	1.81	3.06	10817.73	9656.78
13.163	100.10	0.00	0.00	574.58	10400.00	596.04	0.00	596.09	2.24	2.87	8467.40	6948.51
13.163	100.10	0.00	0.00	574.58	13000.00	598.13	0.00	598.18	1.90	2.82	10697.80	9436.96
13.191	75.10	0.00	0.00	574.68	10400.00	596.05	0.00	596.10	1.91	2.92	8108.56	7529.33
13.191	75.10	0.00	0.00	574.68	13000.00	598.14	0.00	598.19	1.59	2.85	10444.40	10303.97
13.220	225.30	0.00	0.00	575.03	10400.00	596.08	0.00	596.14	1.91	2.83	7226.88	7534.33
13.220	225.30	0.00	0.00	575.03	13000.00	598.17	0.00	598.22	1.57	2.74	9296.98	10388.36
13.481	1379.50	0.00	0.00	577.20	10400.00	596.19	0.00	596.20	0.21	0.82	13348.38	22624.28
13.481	1379.50	0.00	0.00	577.20	13000.00	598.26	0.00	598.27	0.17	0.79	16485.30	31549.37
13.799	1680.00	0.00	0.00	575.90	10400.00	596.20	0.00	596.29	2.68	3.13	5928.46	6358.40
13.799	1680.00	0.00	0.00	575.90	13000.00	598.27	0.00	598.35	2.26	3.08	7582.40	8652.83
14.061	1380.00	0.00	0.00	577.50	10400.00	596.52	0.00	596.54	1.53	1.80	10201.88	8412.01
14.061	1380.00	0.00	0.00	577.50	13000.00	598.53	0.00	598.55	1.29	1.78	12479.11	11442.60
14.258	1040.00	0.00	0.00	578.00	10400.00	596.69	0.00	596.73	2.16	1.89	6167.65	7081.61
14.258	1040.00	0.00	0.00	578.00	13000.00	598.67	0.00	598.71	1.68	1.84	7828.06	10038.05
14.523	1400.00	0.00	0.00	578.40	10400.00	596.87	0.00	596.90	0.78	1.68	7978.40	11806.98
14.523	1400.00	0.00	0.00	578.40	13000.00	598.82	0.00	598.84	0.58	1.55	10289.01	17126.04
15.057	2820.00	0.00	0.00	579.00	10400.00	597.22	0.00	597.32	4.30	3.64	6677.12	5016.24
15.057	2820.00	0.00	0.00	579.00	13000.00	599.07	0.00	599.15	3.04	3.28	8765.02	7453.87
15.722	3510.00	0.00	0.00	578.00	10400.00	598.34	0.00	598.43	3.15	3.12	7820.33	5862.48
15.722	3510.00	0.00	0.00	578.00	13000.00	599.94	0.00	600.02	2.89	3.11	9608.55	7653.13
15.736	80.00	0.00	0.00	576.70	10400.00	598.39	0.00	598.46	3.03	2.68	8095.08	5971.20
15.736	80.00	0.00	0.00	576.70	13000.00	599.99	0.00	600.05	2.73	2.68	10024.48	7864.80
15.748	71.00	596.20	595.30	576.70	10400.00	599.35	0.00	599.41	1.80	2.43	9228.38	7753.71
15.748	71.00	596.20	595.30	576.70	13000.00	600.47	0.00	600.53	1.98	2.67	10656.70	9249.71
16.063	1749.00	0.00	0.00	576.40	10400.00	599.75	0.00	599.87	3.67	3.37	4087.70	5425.32
16.063	1749.00	0.00	0.00	576.40	13000.00	600.90	0.00	601.05	4.14	3.63	4663.70	6386.67
16.396	1760.00	0.00	0.00	581.40	10400.00	600.24	0.00	600.29	1.64	2.43	7368.12	8115.61
16.396	1760.00	0.00	0.00	581.40	13000.00	601.46	0.00	601.51	1.86	2.71	8279.66	9537.03
16.866	2480.00	0.00	0.00	582.00	10400.00	600.90	0.00	600.95	5.32	2.60	7190.51	4507.53
16.866	2480.00	0.00	0.00	582.00	13000.00	602.15	0.00	602.20	4.98	2.64	8594.89	5824.34

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
17.089	1180.00	0.00	0.00	582.60	10400.00	601.46	0.00	601.59	5.40	3.87	4881.10	4474.93
17.089	1180.00	0.00	0.00	582.60	13000.00	602.71	0.00	602.86	5.80	4.19	5567.75	5395.77

CLINTON RIVER U/S OF THE

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
11.052	21300.00	593.17	0.00	0.00	0.00	1823.74	0.00
11.052	28900.00	596.19	3.02	0.00	0.00	1890.68	0.00
11.292	10400.00	593.63	0.00	0.46	0.00	2141.27	1268.00
11.292	13000.00	596.54	2.90	0.35	0.00	2230.57	1268.00
11.393	10400.00	593.65	0.00	0.02	0.00	1952.96	528.70
11.393	13000.00	596.55	2.89	0 01	0.00	2120.31	528.70
11.695	10400.00	593.88	0.00	0.23	0.00	1260.48	1586.30
11.695	13000.00	596.64	2.76	0.10	0.00	1670.70	1586.30
11.845	10400.00	594.14	0.00	0.25	0.00	1134.48	785 00
11.845	13000.00	596.75	2.62	0.11	0.00	1368.50	785.00
11.860	10400.00	594.19	0.00	0.06	0.00	1120.62	78.90
11.860	13000.00	596.79	2.60	0.04	0.00	1393.24	78.90
11.875	10400.00	594.24	0.00	0.05	0.00	1104.34	78.90
11.875	13000.00	596.82	2.58	0.03	0.00	1373.27	78.90
11.929	10400.00	594.36	0.00	0.12	0.00	1042.98	286.80
11.929	13000.00	596.89	2.53	0.07	0.00	1390.57	286.80
12.023	10400.00	594.57	0.00	0.21	0.00	790.49	495.40
12.023	13000.00	597.03	2.45	0.14	0.00	1234.60	495.40
12.339	10400.00	594.99	0.00	0.41	0.00	1025.93	1670.00
12.339	13000.00	597.32	2.33	0.29	0.00	1255.99	1670.00
12.544	10400.00	595.21	0.00	0.23	0.00	750.00	1080.00
12.544	13000.00	597.47	2.26	0.16	0.00	750.00	1080.00
12.799	10400.00	595.66	0.00	0.44	0.00	1426.59	1350.00
12.799	13000.00	597.83	2.17	0.36	0.00	1567.17	1350.00
13.144	10400.00	596.01	0.00	0.35	0.00	935.79	1820.00
13.144	13000.00	598.11	2.10	0.28	0.00	996.73	1820.00
13.163	10400.00	596.04	0.00	0.02	0.00	919.95	100.10
13.163	13000.00	598.13	2.10	0.02	0.00	1275.00	100.10
13.191	10400.00	596.05	0.00	0.01	0.00	891.11	75.10
13.191	13000.00	598.14	2.10	0.01	0.00	1275.00	75.10
13.220	10400.00	596.08	0.00	0.04	0.00	990.00	225.30
13.220	13000.00	598.17	2.09	0.03	0.00	990.00	225.30

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
13.481	10400.00	596.19	0.00	0.10	0.00	1457.76	1379.50
13.481	13000.00	598 26	2.07	0.09	0.00	1570.42	1379.50
13.799	10400.00	596 20	0.00	0.02	0.00	765.18	1680.00
13.799	13000.00	598.27	2.06	0.01	0.00	837.50	1680.00
14.061	10400.00	596.52	0.00	0.31	0.00	1118.45	1380.00
14.061	13000.00	598.53	2.02	0.26	0.00	1179.64	1380.00
14.258	10400.00	596.69	0.00	0.17	0.00	799.76	1040.00
14.258	13000.00	598.67	1.98	0.14	0.00	908.34	1040.00
14.523	10400.00	596.87	0.00	0.19	0.00	1155.12	1400.00
14.523	13000.00	598.82	1.94	0.15	0.00	1223.46	1400.00
15.057	10400.00	597.22	0.00	0.35	0.00	1097.66	2820.00
15.057	13000.00	599.07	1.85	0.25	0.00	1186.81	2820.00
15.722	10400.00	598.34	0.00	1.12	0.00	1116.81	3510.00
15.722	13000.00	599.94	1.60	0.87	0.00	1119.65	3510.00
15.736	10400.00	598.39	0.00	0.05	0.00	1140.96	80.00
15.736	13000.00	599.99	1.59	0.05	0.00	1304.06	80.00
15.748	10400.00	599.35	0.00	0.96	0.00	1216.00	71.00
15.748	13000.00	600.47	1.11	0.48	1.11	1320.74	71.00
16.063	10400.00	599.75	0.00	0 39	0.00	469.03	1749.00
16.063	13000.00	600.90	1.15	0.43	1.15	535.54	1749.00
16.396	10400.00	600.24	0.00	0.49	0.00	749.12	1760.00
16.396	13000.00	601.46	1.22	0.56	1.22	750.00	1760.00
16.866	10400.00	600.90	0.00	0.66	0 00	1100.00	2480 00
16.866	13000.00	602.15	1.26	0.70	1.26	1100.00	2480.00
17.089	10400.00	601.46	0.00	0.57	0.00	550.00	1180.00
17.089	13000.00	602.71	1.25	0.56	1.25	550.00	1180.00

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Clinton Twp.

3) WATERCOURSE: Clinton River
Upstream of Forks

4) DOCUMENT TYPE: Encroached
Clinton Twp restudy

00BREAK00

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*****************************************************                        ***************************************
*  WATER SURFACE PROFILES                           *                        *  U.S. ARMY CORPS OF ENGINEERS       *
*  VERSION OF NOVEMBER 1976                         *                        *  THE HYDROLOGIC ENGINEERING CENTER  *
*  UPDATED MAY 1984                                 *                        *  609 SECOND STREET, SUITE D         *
*                                                   *                        *  DAVIS, CALIFORNIA 95616            *
*  RUN DATE  16 MAY 90 TIME    16:32:19             *                        *  (916) 440-2105 (FTS) 448-2105      *
*****************************************************                        ***************************************
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X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X            X     X
X     X  X        X                        X
XXXXXXX  XXXX     X          XXXXX    XXXXX
X     X  X        X                  X
X     X  X        X     X            X
X     X  XXXXXXX   XXXXX             XXXXXXX
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LMMP
CLINTON TOWNSHIP RESTUDY
CLINTON RIVER U/S OF FORKS
ENCROACHED RUN

THIS RUN EXECUTED 16 MAY 90   16:32:19

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
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T1 CLINTON TOWNSHIP FLOOD INSURANCE RESTUDY
T2 ENCROACHED RUN
T3 CLINTON RIVER U/S OF THE FORKS, NEW 100-YEAR DISCHARGE

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	4.	0.	0.	0.000000	0.00	0.0	0.	593.174	0.000

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	1.000	0 000	-1.000	0.000	0.000	1.200	0 000	0.000	0.000	0.000

J3 VARIABLE CODES FOR SUMMARY PRINTOUT

110.000	150 000	200.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

NC	0.090	0.090	0.040	0.300	0.500	0.000	0.000	0.000	0.000	0.000
NH	4.000	0.040	530.000	0.100	571 000	0.040	685.000	0.110	2520.000	0.000
QT	4.000	12600.000	19000.000	21300.000	21300.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	6.100	8.100	550.000	2520.000	550.000	2050.000	0.000
X1	11.052	56.000	569.000	691.000	750.000	330.000	750.000	0.000	0.000	0.000
GR	589.000	0.000	599.900	100.000	595.300	200.000	591.000	300.000	591.600	394.000
GR	591.300	400.000	591.100	500.000	590.400	530.000	582.000	556.000	578.500	569.000
GR	574.300	571.000	572.000	580.000	571.700	590.000	571.400	600.000	571 200	610.000
GR	570.800	620.000	570.800	630.000	570.900	640 000	571.600	650.000	572.800	660.000
GR	573.000	670 000	572.900	680.000	575.300	685.000	584.100	691.000	583.000	700 000
GR	584.500	700.000	587.400	750.000	589.100	785.000	585.400	800 000	584.900	800.000
GR	578.800	820.000	582.900	900.000	585.500	900.000	585 800	1000.000	582.600	1000.100
GR	582.100	1050.000	585.600	1050.000	586.000	1100.000	587.800	1150.000	587.500	1250.000
GR	587.000	1350.000	587.800	1450.000	590.100	1550 000	591.000	1710.000	581.200	1750.000
GR	584.900	1850.000	584.100	1950.000	582.100	2010.000	588.400	2020.000	588.800	2050.000
GR	590.600	2150.000	590.700	2250.000	591.200	2354.000	593.300	2375.000	596.600	2450.000
GR	600.200	2520.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	4.000	8580.000	13300.000	10400.000	10400.000	0.000	0.000	0.000	0.000	0.000
NH	5.000	0.100	41.000	0.040	126.000	0.110	1802.000	0.060	2032.000	0.030
NH	2302.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000	0.000	0.000
X1	11.292	39.000	41.000	126.000	1350.000	500.000	1268.000	0.000	0.000	0.000
GR	594.200	0.000	593.800	16.000	593.200	41.000	575.600	72.000	575.200	82.000
GR	573.500	87.000	571.200	92.000	569.400	102.000	569.900	112.000	574.500	122.000
GR	581.700	126.000	584.500	162.000	584.200	232.000	584.400	332.000	584.400	432.000
GR	585.200	532.000	585.600	632.000	588.700	732.000	585.600	832.000	586.000	882.000
GR	586.000	882.000	587.800	932.000	587.500	1032.000	587.000	1132.000	587.800	1232.000
GR	590.100	1332.000	591.000	1492.000	581.200	1532.000	584.900	1632.000	584.100	1732.000

GR	582.100	1792.000	588.400	1802.000	588.800	1832.000	590.600	1932.000	590.700	2032.000
GR	591.200	2136.000	593.300	2157.000	596.600	2232.000	600.200	2302.000	0.000	0.000
NH	5.000	0.100	272.400	0.040	358.100	0.110	1764.300	0.060	2008.800	0.030
NH	2192.200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	11.393	90.000	272.400	358.100	478.700	36.500	528.700	0.000	0.000	0.000
GR	594.800	0.000	594.700	9.300	594.700	18.700	594.600	28.100	594.500	37.500
GR	594.500	46.900	594.400	56.300	594.300	65.700	594.200	75.100	594.100	84.500
GR	593.600	93.900	593.500	103.300	593.400	112.700	593.300	122.100	593.300	131.500
GR	593.300	140.900	593.300	150.300	593.100	159.700	593.100	169.100	593.100	178.500
GR	593.200	187.800	593.000	197.200	592.900	206.600	592.700	216.000	592.400	225.400
GR	592.400	234.800	592.200	244.200	592.100	253.600	591.800	263.000	591.200	272.400
GR	588.900	275.300	587.300	278.100	585.900	281.000	584.500	283.800	583.200	286.700
GR	581.900	289.500	580.500	292.400	579.100	295.300	577.800	298.100	576.400	301.000
GR	575.100	303.800	575.000	306.700	574.800	309.500	574.700	312.400	574.200	315.300
GR	573.400	318.100	572.400	321.000	571.400	323.800	571.000	326.700	570.600	329.500
GR	570.200	332.400	569.950	335.300	570.100	338.100	570.400	341.000	570.700	343.800
GR	572.000	346.700	573.500	349.600	575.000	352.400	577.700	355.300	582.300	358.100
GR	584.700	419.300	584.800	480.400	585.100	541.500	585.300	602.700	585.800	663.800
GR	586.300	724.900	586.700	786.100	588.600	847.200	588.100	908.400	587.000	969.500
GR	588.500	1030.600	588.600	1091.800	588.400	1152.900	588.200	1214.000	588.700	1275.200
GR	589.900	1336.300	591.000	1397.400	591.500	1458.600	589.400	1519.700	585.300	1580.900
GR	587.000	1642.000	586.700	1703.100	586.300	1764.300	591.100	1825.400	592.100	1886.500
GR	592.200	1947.700	592.500	2008.800	594.400	2069.900	597.000	2131.000	600.100	2192.200
NC	0.000	0.000	0.000	0.100	0.300	0.000	0.000	0.000	0.000	0.000
NH	5.000	0.050	433.400	0.120	966.800	0.045	1045.900	0.060	1054.700	0.040
NH	1863.100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	11.695	90.000	966.800	1054.700	1486.300	109.500	1586.300	0.000	0.000	0.000
GR	596.900	0.000	596.700	33.300	596.500	66.600	596.300	100.000	596.100	133.300
GR	596.000	166.600	595.800	200.000	595.600	233.300	595.300	266.700	594.800	300.000
GR	593.200	333.300	592.700	366.700	592.400	400.000	592.100	433.400	592.200	466.700
GR	592.400	500.000	592.300	533.400	591.900	566.700	591.700	600.100	592.000	633.400
GR	592.300	666.700	591.900	700.100	591.600	733.400	590.600	766.700	589.500	800.100
GR	589.600	833.400	589.200	866.800	588.600	900.100	587.800	933.400	585.200	966.800
GR	581.200	969.700	579.400	972.600	578.700	975.600	578.100	978.500	577.600	981.400
GR	577.000	984.400	576.400	987.300	575.700	990.200	575.100	993.200	574.500	996.100
GR	573.900	999.000	573.600	1001.900	573.400	1004.900	573.300	1007.800	573.100	1010.700
GR	572.700	1013.700	572.400	1016.600	572.200	1019.500	572.100	1022.500	572.000	1025.400
GR	571.800	1028.300	571.700	1031.300	571.590	1034.200	572.400	1037.100	573.500	1040.000
GR	574.800	1043.000	576.900	1045.900	578.900	1048.800	581.400	1051.800	584.400	1054.700
GR	585.900	1081.600	586.600	1108.600	587.400	1135.500	588.100	1162.500	589.000	1189.400
GR	589.500	1216.400	589.900	1243.300	590.800	1270.300	591.000	1297.200	590.900	1324.200
GR	591.800	1351.100	591.900	1378.100	591.700	1405.000	591.700	1431.900	592.000	1458.900
GR	592.600	1485.800	593.400	1512.800	594.100	1539.700	593.900	1566.700	593.000	1593.600
GR	594.100	1620.600	594.500	1647.500	594.800	1674.500	596.500	1701.400	596.900	1728.400
GR	597.000	1755.300	597.200	1782.300	597.900	1809.200	598.800	1836.100	599.900	1863.100
NH	5.000	0.050	500.000	0.120	1311.000	0.045	1388.000	0.060	1400.000	0.040
NH	1700.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	11.845	34.000	1311.000	1400.000	735.000	54.000	785.000	0.000	0.000	0.000
GR	598.000	0.000	597.400	100.000	596.900	200.000	596.400	300.000	595.500	400.000
GR	591.800	477.000	592.400	500.000	591.500	600.000	592.100	700.000	590.900	800.000
GR	591.900	900.000	590.900	1000.000	587.700	1100.000	588.400	1135.000	586.500	1250.000
GR	584.400	1300.000	582.300	1311.000	575.700	1315.000	575.200	1320.000	574.500	1330.000
GR	573.600	1340.000	572.700	1350.000	572.400	1360.000	572.800	1370.000	572.500	1380.000
GR	576.200	1388.000	585.500	1400.000	590.600	1450.000	593.600	1514.000	593.300	1532.000
GR	594.000	1561.000	596.900	1600.000	599.100	1630.000	599.900	1700.000	0.000	0.000
NH	5.000	0.040	518.000	0.110	1251.900	0.045	1329.200	0.060	1341.200	0.045
NH	1666.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	11.860	90.000	1251.900	1341.200	77.200	75.600	78.900	0.000	0.000	0.000
GR	597.800	0.000	597.500	43.100	597.300	86.300	597.100	129.500	596.800	172.600
GR	596.600	215.800	596.400	259.000	596.200	302.100	595.800	345.300	595.200	388.500
GR	593.200	431.600	592.600	474.800	592.300	518.000	591.900	561.100	592.000	604.300
GR	592.200	647.500	592.100	690.700	591.500	733.800	591.300	777.000	591.600	820.200
GR	591.900	863.300	591.500	906.500	590.900	949.700	589.700	992.800	588.200	1036.000
GR	588.400	1079.200	587.800	1122.300	587.000	1165.500	585.600	1208.700	582.200	1251.900
GR	577.500	1254.800	575.600	1257.800	575.200	1260.800	575.000	1263.800	574.700	1266.700
GR	574.500	1269.700	574.200	1272.700	573.900	1275.700	573.700	1278.600	573.500	1281.600
GR	573.200	1284.600	573.000	1287.600	572.800	1290.500	572.700	1293.500	572.600	1296.500
GR	572.500	1299.500	572.480	1302.500	572.600	1305.400	572.700	1308.400	572.800	1311.400
GR	572.800	1314.400	572.700	1317.300	572.600	1320.300	573.600	1323.300	574.900	1326.300
GR	576.200	1329.200	578.500	1332.200	580.800	1335.200	583.200	1338.200	585.600	1341.200
GR	586.500	1352.000	587.400	1362.800	588.300	1373.700	589.200	1384.500	590.100	1395.300
GR	590.600	1406.200	591.000	1417.000	591.500	1427.900	591.800	1438.700	592.100	1449.500
GR	592.600	1460.400	592.600	1471.200	592.400	1482.100	592.500	1492.900	592.700	1503.700
GR	593.000	1514.600	593.800	1525.400	594.600	1536.300	595.300	1547.100	596.100	1557.900
GR	596.900	1568.800	597.700	1579.600	598.500	1590.500	598.700	1601.300	599.000	1612.100
GR	599.100	1623.000	599.300	1633.800	599.500	1644.700	599.600	1655.500	599.800	1666.400
NH	5.000	0.045	534.700	0.100	1192.800	0.045	1270.400	0.070	1282.400	0.050
NH	1632.800	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	11.875	90.000	1192.800	1282.400	77.300	75.600	78.900	0.000	0.000	0.000
GR	597.600	0.000	597.400	41.100	597.200	82.200	597.000	123.400	596.800	164.500
GR	596.600	205.600	596.400	246.800	596.200	287.900	595.800	329.000	595.300	370.200
GR	593.500	411.300	592.900	452.400	592.600	493.600	592.300	534.700	592.400	575.800
GR	592.500	617.000	592.400	658.100	591.900	699.200	591.600	740.400	591.900	781.500
GR	592.100	822.600	591.600	863.800	591.000	904.900	589.800	946.000	588.400	987.200
GR	588.500	1028.300	587.900	1069.400	587.200	1110.600	585.500	1151.700	582.200	1192.800
GR	577.700	1195.800	575.700	1198.800	575.300	1201.800	575.100	1204.800	574.800	1207.800
GR	574.500	1210.700	574.200	1213.700	573.900	1216.700	573.700	1219.700	573.500	1222.700
GR	573.300	1225.700	573.100	1228.600	572.900	1231.600	572.800	1234.600	572.700	1237.600
GR	572.700	1240.600	572.570	1243.600	572.800	1246.500	572.900	1249.500	573.000	1252.500
GR	572.900	1255.500	572.800	1258.500	572.800	1261.500	573.700	1264.400	574.900	1267.400
GR	576.200	1270.400	578.400	1273.400	580.800	1276.400	583.300	1279.400	585.700	1282.400
GR	586.500	1294.000	587.300	1305.700	588.100	1317.400	588.900	1329.100	589.700	1340.800
GR	590.200	1352.400	590.600	1364.100	591.000	1375.800	591.200	1387.500	591.400	1399.200
GR	591.800	1410.800	591.800	1422.500	591.600	1434.200	591.700	1445.900	591.800	1457.600
GR	592.200	1469.200	593.000	1480.900	593.800	1492.600	594.600	1504.300	595.500	1516.000
GR	596.300	1527.600	597.200	1539.300	598.000	1551.000	598.300	1562.700	598.700	1574.400
GR	598.900	1586.000	599.100	1597.700	599.400	1609.400	599.600	1621.100	599.800	1632.800

NH	5.000	0.045	539.800	0.090	978.400	0.040	1056.800	0.070	1068.900	0.060
NH	1510.300	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	11.929	90.000	978.400	1068 900	238.500	274.700	286.800	0 000	0.000	0.000
GR	597.000	0.000	596.900	33.700	596.700	67.400	596.600	101.200	596 500	134.900
GR	596.400	168.700	596.300	202.400	596.100	236.100	595.900	269.900	595.600	303.600
GR	594.400	337.400	594.000	371.100	593.800	404.800	593.600	438.600	593.600	472.300
GR	593.700	506.100	593.500	539.800	593.000	573.500	592.800	607.300	592.900	641.000
GR	592.600	674.800	592.000	708.500	591.300	742.200	590.100	776.000	589.000	809.700
GR	588.800	843.500	588.300	877.200	587.700	910.900	585.100	944.700	582.000	978.400
GR	578.300	981.400	576.200	984.500	575.600	987.500	575.300	990.500	574.900	993.500
GR	574.500	996.500	574.000	999.500	573.800	1002.500	573.600	1005.600	573.400	1008.600
GR	573.300	1011.600	573.300	1014.600	573.300	1017.600	573.300	1020.600	573.200	1023.600
GR	573.200	1026.700	572.890	1029.700	573.200	1032.700	573.300	1035.700	573.400	1038 700
GR	573.300	1041.700	573.300	1044.700	573.300	1047.800	574.000	1050.800	575.000	1053.800
GR	576.100	1056.800	578.200	1059.800	580 800	1062.800	583.500	1065.800	586.100	1068.900
GR	586.500	1083.600	586.900	1098.300	587.300	1113.000	587.800	1127.800	588.200	1142.500
GR	588.600	1157.200	589.100	1172.000	589.200	1186.700	589.000	1201.400	588.800	1216.200
GR	588.900	1230.900	588.800	1245.600	588.600	1260.300	588.500	1275.100	588.500	1289.800
GR	589.200	1304.500	590.100	1319.300	591.000	1334.000	592.000	1348.700	593.000	1363.500
GR	594.000	1378.200	595.000	1392.900	596.100	1407.600	596.800	1422.400	597.500	1437.100
GR	598.000	1451.800	598.400	1466.600	598.900	1481.300	599.300	1496.000	599.800	1510.300

NH	6.000	0.040	576.000	0.080	615.000	0.040	689.000	0.080	700.000	0.100
NH	1059.000	0.030	1300.000	0.000	0 000	0.000	0.000	0.000	0.000	0.000
X1	12 023	28.000	608.000	700.000	437.000	474.300	495.400	0.000	0.000	0.000
GR	596.000	0.000	596.100	100.000	596.100	200.000	595.900	300.000	594.500	400.000
GR	590.000	500.000	588.800	563.000	587.800	576.000	584.500	586.000	581.800	608.000
GR	576.300	615.000	575.900	620.000	573.700	630.000	573.400	640.000	574.100	650.000
GR	574.100	660.000	574.100	670.000	574.400	680.000	576.200	689.000	586.800	700.000
GR	585.600	800.000	586.700	850.000	584.300	900.000	582.800	1000.000	586.200	1059.000
GR	588.700	1100.000	595.600	1200.000	599.700	1300.000	0.000	0.000	0.000	0.000

NH	5.000	0.050	1000.000	0.100	1104.000	0.045	1117.000	0.080	1165.000	0.040
NH	1300.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	12.339	24.000	1104.000	1200.000	1600.000	1600.000	1670.000	0.000	0.000	0.000
GR	596.700	0.000	596.000	100.000	594.900	200.000	592.100	300.000	591.900	400.000
GR	590.800	436.000	591.500	460.000	587.300	500.000	585.500	600.000	586.100	700.000
GR	587.200	800.000	587.700	850.000	586.900	900.000	586.000	1000.000	585.800	1104.000
GR	577.200	1117.000	574.100	1130.000	573.800	1140.000	573 000	1150.000	573.600	1160.000
GR	575.700	1165.000	578.900	1167.000	593.900	1200.000	600.000	1300.000	0.000	0.000

NH	7.000	0.060	400.000	0.100	598.000	0.060	607.000	0.045	680.000	0.060
NH	692.000	0.120	941.000	0.040	1050.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	6.100	0.000	250.000	1000.000	0.000	0.000	0.000
X1	12.544	26.000	598.000	692.000	1020.000	1050.000	1080.000	0.000	0 000	0.000
GR	597.100	0.000	595.500	100.000	594.400	200.000	591.600	300.000	592.200	400.000
GR	591.700	422.000	586 700	500.000	587.000	598.000	577.200	607.000	576 000	610.000
GR	575.700	620.000	574.700	630.000	575.200	640.000	575.300	650.000	575.500	660.000
GR	575.600	670.000	576.400	680.000	584.400	692.000	584.500	700.000	585.000	710.000
GR	588.100	720.000	586.300	800.000	586.800	900.000	586.400	941.000	593.300	1000.000
GR	602.000	1050.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

NC	0.000	0.000	0.000	0.100	0.500	0.000	0.000	0.000	0.000	0.000
NH	6.000	0.040	400.000	0.100	1420.000	0.045	1494.000	0.060	1504.000	0.080
NH	1570.000	0.040	1600.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	6.100	0.000	0.100	1600.000	0.000	0.000	0.000
X1	12.799	30.000	1420.000	1504.000	1300.000	1200.000	1350.000	0.000	0.000	0.000
GR	597.200	0.000	596.500	100.000	594.200	200.000	594.000	300.000	592.800	320.000
GR	590.900	400.000	590.900	500.000	590.400	600.000	588.900	700.000	587.800	800.000
GR	587.600	900.000	587.400	1000.000	588.600	1100.000	587.900	1200.000	585.800	1300.000
GR	584.100	1400.000	583.600	1420.000	578.200	1427.000	577.700	1430.000	576.400	1440.000
GR	575.000	1450.000	574.400	1460.000	573.500	1470.000	573.700	1480.000	576.000	1490.000
GR	578.100	1494.000	584.000	1504.000	587.700	1549.000	599.400	1570.000	601.000	1600.000
NC	0.090	0.090	0.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	6.100	0.000	250.000	1250.000	0.000	0.000	0.000
X1	13.144	37.000	400.000	463.000	1781.000	1800.000	1820.000	0.000	0.000	0.000
GR	597.800	0.000	598.100	100.000	597.500	200.000	598.200	250.000	597.700	268.000
GR	597.200	300.000	596.900	310.000	585.700	363.000	584.200	400.000	578.500	406.000
GR	576.100	410.000	574.400	420.000	574.800	430.000	575.600	440.000	576.000	450.000
GR	579.200	461.000	582.400	463.000	584.000	480.000	586.300	600.000	585.800	659.000
GR	587.700	700.000	586.200	800.000	585.200	900.000	585.900	1000.000	587.200	1100.000
GR	592.100	1123.000	593.800	1200.000	592.700	1300.000	595.400	1400.000	596.300	1500.000
GR	597.800	1600.000	597.100	1700.000	597.900	1800.000	598.600	1900.000	599.100	2000.000
GR	599.800	2100.000	601.200	2200.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	7.000	0.040	255.000	0.075	462.200	0.050	468.700	0.045	522.600	0.050
NH	527.000	0.090	1190.300	0.040	2185.400	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	6.100	8.100	0.100	1275.000	410.000	1275.000	0.000
X1	13.163	90.000	462.200	527.000	64.700	78.700	100.100	0.000	0.000	0.000
GR	597.800	0.000	597.900	15.900	597.900	31.800	597.900	47.800	597.700	63.700
GR	597.400	79.600	597.300	95.600	597.300	111.500	597.300	127.500	597.200	143.400
GR	597.200	159.300	597.100	175.300	597.100	191.200	597.000	207.200	596.900	223.100
GR	597.000	239.000	597.200	255.000	597.400	270.900	597.600	286.900	597.300	302.800
GR	597.000	318.700	596.800	334.700	596.500	350.600	594.800	366.600	592.000	382.500
GR	589.300	398.400	586.500	414.400	585.300	430.300	584.800	446.300	584.300	462.200
GR	582.200	464.400	580.100	466.500	578.200	468.700	577.000	470.800	576.000	473.000
GR	575.700	475.100	575.400	477.300	575.000	479.500	574.700	481.600	574.580	483.800
GR	574.600	485.900	574.700	488.100	574.800	490.300	574.900	492.400	575.000	494.600
GR	575.100	496.700	575.300	498.900	575.500	501.000	575.700	503.200	575.800	505.400
GR	575.800	507.500	575.900	509.700	576.000	511.800	576.200	514.000	576.800	516.200
GR	577.400	518.300	578.000	520.500	578.600	522.600	579.300	524.800	582.400	527.000
GR	584.800	582.200	586.000	637.500	586.300	692.800	587.900	748.100	587.400	803.400
GR	586.600	858.600	586.100	913.900	586.000	969.200	586.400	1024.500	587.000	1079.800
GR	587.700	1135.100	593.100	1190.300	593.800	1245.600	593.200	1300.900	593.800	1356.200
GR	595.200	1411.500	595.900	1466.800	596.400	1522.000	597.300	1577.300	597.600	1632.600
GR	597.300	1687.900	597.400	1743.200	597.800	1798.400	598.300	1853.700	598.600	1909.000
GR	598.900	1964.300	599.200	2019.600	599.600	2074.900	600.300	2130.100	601.000	2185.400
NH	7.000	0.040	245.600	0.075	508.900	0.060	513.300	0.040	570.500	0.060
NH	575.000	0.080	1161.400	0.040	2174.500	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	6.100	8.100	0.100	1275.000	445.000	1275.000	0.000

X1	13.191	90.000	508.900	575.000	48.500	59.100	75 100	0.000	0.000	0.000
GR	597.800	0.000	597.900	17.500	597.900	35.000	597 900	52 600	597.500	70.100
GR	596.900	87.700	596.800	105.200	596.800	122.800	596.700	140.300	596 700	157.900
GR	596.700	175.400	596.600	193.000	596.600	210.500	596.500	228.100	596.500	245.600
GR	596.600	263.200	596.800	280.700	597.000	298 300	597.100	315.800	596.900	333.400
GR	596.600	350.900	596.400	368.500	596.000	386.000	594.400	403.600	591.700	421.100
GR	589.100	438.700	586.500	456.200	585.300	473.800	584.900	491.300	584.400	508.900
GR	582.200	511.100	580.000	513.300	578.200	515.500	577.000	517.800	576.000	519.900
GR	575.700	522.100	575.400	524.300	575.100	526.500	574.700	528.700	574.680	530.900
GR	574.700	533.100	574.800	535.300	574.800	537.500	575.000	539.700	575.000	541.900
GR	575.200	544.100	575.400	546.300	575.600	548.500	575.800	550.700	575.800	552.900
GR	575.900	555.100	576.000	557.300	576.100	559.500	576.300	561.700	576.900	563.900
GR	577.400	566.100	578.000	568.300	578.700	570.500	579.400	572.700	582.400	575.000
GR	584 800	628.300	586.100	681.600	586.600	734.900	588.200	788.200	587.700	841.500
GR	587.000	894.900	586.500	948.200	586.500	1001.500	586.900	1054.800	587.500	1108.100
GR	588.100	1161.400	593.300	1214.800	594.000	1268.100	593.400	1321.400	594.000	1374.700
GR	595.300	1428.000	596.000	1481.300	596.500	1534.700	597.300	1588.000	597.600	1641.300
GR	597.300	1694.600	597.400	1747.900	597.800	1801.200	598.300	1854.600	598.600	1907.900
GR	598.900	1961.200	599.200	2014.500	599.500	2067.800	600.200	2121.200	600.900	2174.500
NH	6.000	0.040	246.200	0.070	649.000	0.060	656.000	0.040	709.700	0.060
NH	719.000	0 060	2141.900	0.000	0.000	0.000	0.000	0.000	0 000	0.000
ET	0.000	0.000	0.000	6.100	8.100	360.000	1350.000	500.000	1270.000	0.000
X1	13.220	90.000	649.000	719.000	145.600	177.200	225.300	0.000	0.000	0.000
GR	597 900	0.000	598.100	22.300	598.100	44.700	598.000	67.100	597.100	89.500
GR	595.700	111.900	595.400	134.200	595.300	156.600	595.300	179.000	595.300	201.400
GR	595.300	223.800	595.300	246.200	595.300	268.500	595.300	290.900	595.300	313.300
GR	595.500	335.700	595.700	358.100	595.800	380.400	595.900	402.800	595.800	425.200
GR	595.600	447.600	595.200	470.000	594.800	492.400	593.400	514.700	591.000	537.100
GR	588.800	559.500	586.500	581.900	585.500	604.300	585.200	626.600	584.800	649.000
GR	582.400	651.400	580.000	653.700	578.200	656.000	577.100	658.400	576.200	660.700
GR	576.000	663.000	575.700	665.400	575.400	667.700	575.100	670.000	575.030	672.300
GR	575.100	674.700	575.100	677.000	575.200	679.300	575.300	681.700	575.400	684.000
GR	575.500	686.300	575.700	688.700	575.900	691.000	576.100	693.300	576.200	695 700
GR	576.300	698.000	576.400	700.300	576.500	702.700	576.700	705.000	577.200	707.300
GR	577.700	709.700	578.300	712.000	579.100	714.300	579.900	716.700	582.700	719.000
GR	584.900	766.400	586.500	813.900	587.500	861.300	589.400	908.700	589.000	956 100
GR	588.400	1003.600	588.000	1051.000	588.000	1098.400	588.400	1145 900	589.000	1193.300
GR	589.600	1240.700	594.100	1288.200	594.700	1335.600	594.200	1383.000	594.600	1430.400
GR	595.800	1477.900	596.400	1525.300	596.800	1572.700	597.500	1620.200	597.800	1667.600
GR	597.500	1715.000	597.700	1762.500	598.000	1809.900	598.400	1857.300	598.700	1904.700
GR	599.000	1952.200	599.300	1999.600	599.600	2047.000	600.200	2094.500	600.800	2141.900
NH	8.000	0.040	157.000	0.050	235.000	0.030	1242.000	0.035	1507.000	0.070
NH	1514.000	0.040	1571.000	0.070	1601.000	0.050	1942.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	6.100	1.400	0.100	1750.000	0.000	0.000	0.000
X1	13.481	33.000	1507.000	1601.000	891.200	1085.600	1379.500	0.000	0.000	0.000
GR	598.300	0.000	599.400	42.000	598.600	157.000	595.400	203.000	588.600	235.000
GR	585.700	342.000	586.400	442.000	587.200	542.000	587.200	642.000	588.100	742 000
GR	588.900	842.000	588.400	942.000	589.200	1042.000	587.000	1142.000	586.400	1242.000
GR	586.200	1342.000	586.800	1442.000	587.200	1507.000	578.700	1514.000	577.200	1521.000
GR	577.300	1531.000	577.200	1541.000	577.200	1551.000	577.400	1561 000	578.300	1571.000
GR	578.600	1581.000	579.600	1591.000	583.900	1601.000	585.900	1617.000	596.000	1642.000
GR	598.500	1742.000	598.700	1842.000	599.800	1942.000	0.000	0.000	0.000	0.000

NC	0.000	0.000	0.000	0.100	0.500	0.000	0.000	0.000	0.000	0.000
NH	7.000	0.035	213.000	0.050	416.000	0.060	428.000	0.040	495.000	0.060
NH	513.000	0.080	913.000	0.040	1873 000	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	6.100	8.100	0.100	1010 000	190.000	930.000	0.000
X1	13.799	33.000	416.000	513.000	800.000	1050.000	1680.000	0.000	0.000	0.000
GR	600.500	0.000	600.500	13.000	601.700	113.000	593.900	213.000	587.300	292.000
GR	586.900	313.000	587.300	363.000	586.900	416.000	579.800	428.000	578.000	433.000
GR	577.500	443.000	576.300	453.000	575.900	463.000	576.800	473.000	578.200	483.000
GR	579.500	495.000	587.200	513.000	587.000	613.000	586.500	713.000	586.500	735.000
GR	593.200	758.000	592.700	813.000	594.600	913.000	599.100	1013.000	596.900	1113.000
GR	599.200	1213.000	598.000	1313.000	598.500	1413.000	599 700	1513.000	598.300	1613.000
GR	598.600	1713.000	598.100	1813.000	601.500	1873.000	0.000	0.000	0.000	0.000

NH	9.000	0.040	200.000	0.080	720.000	0.060	733.000	0.045	780.000	0.060
NH	800.000	0.080	1140.000	0.060	1427.000	0.050	1700.000	0.035	1900.000	0.000
ET	0.000	0.000	0.000	6.100	8.100	200.000	1400.000	345.000	1245.000	0.000
X1	14.061	36.000	720.000	828.000	1100.000	1100.000	1380.000	0.000	0.000	0.000
GR	601.100	0.000	599 600	100.000	598.200	155.000	598.700	200 000	598.100	273.000
GR	593.100	300.000	587.000	360.000	585.800	400.000	589.300	500.000	589.200	609.000
GR	589.200	700.000	589.600	720.000	579.700	733.000	578.000	740.000	577.500	750.000
GR	578.200	760.000	578.700	770.000	579.500	780.000	580.500	790.000	581.000	796.000
GR	585.100	800.000	584.900	813.000	588.500	828.000	585.300	900.000	586.600	1000.000
GR	584.900	1100.000	586.900	1140.000	588.800	1200.000	588.200	1300.000	591.000	1400 000
GR	595.900	1427.000	595.300	1500.000	594.100	1600.000	596.200	1700.000	597.200	1800.000
GR	599.500	1900.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

NH	7.000	0.035	777.000	0.050	1006.000	0.060	1015.000	0.045	1080.000	0.060
NH	1084.000	0.070	1200.000	0.040	1400.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	6.100	8.100	400.000	1400.000	520.000	1310.000	0.000
X1	14.258	34.000	726.000	1105.000	1040.000	950.000	1040.000	0.000	0.000	0.000
GR	599.300	0.000	597.200	100.000	596.700	200.000	598.400	270.000	597.800	300.000
GR	598.900	400.000	597.700	500.000	591.300	600.000	589.100	645.000	592.600	700.000
GR	593.400	726.000	592.200	777.000	586.900	802.000	586.500	890.000	584.800	897.000
GR	584.500	901.000	587.100	909.000	588.000	960.000	587.700	1006.000	581.200	1015.000
GR	579.400	1020.000	578.700	1030 000	578.500	1040.000	578.000	1050.000	579.100	1060.000
GR	580.400	1070.000	580.800	1080.000	581.300	1084.000	588.300	1105.000	589.200	1200.000
GR	591.000	1260.000	594.100	1300.000	599.900	1335.000	601.500	1400.000	0.000	0.000

NC	0.000	0.000	0.000	0.100	0.300	0.000	0.000	0.000	0.000	0 000
NH	3.000	0.030	995.000	0.040	1065.000	0.050	1276.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	6.100	1.400	0.100	1300.000	0.000	0.000	0.000
X1	14.523	28.000	990.000	1085.000	1350.000	1400.000	1400.000	0.000	0.000	0.000
GR	600.200	0.000	597.500	87.000	597.100	100.000	594.400	200.000	594.100	300.000
GR	593.200	400.000	591.300	500.000	588.200	600.000	588.100	700.000	588.400	800.000
GR	588.700	900.000	591.100	984.000	590.800	990.000	580.200	995.000	579.100	1000.000
GR	578.400	1010.000	578.900	1020.000	579.100	1030.000	579.400	1040.000	579.700	1050.000
GR	581.300	1060.000	581.600	1065.000	588.500	1078.000	589.700	1085.000	588.800	1100.000
GR	587.700	1200.000	589.000	1245.000	602.200	1276.000	0.000	0.000	0.000	0 000

NH	6.000	0.040	300.000	0.030	600.000	0.070	610.000	0.040	665.000	0.050
NH	680.000	0.100	1500.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	6.100	0.000	250.000	1500.000	0.000	0.000	0.000
X1	15.057	33.000	600.000	680.000	2600.000	2300.000	2820.000	0.000	0.000	0.000
GR	599.800	0.000	600.800	100.000	598.200	200.000	596.600	300.000	596.900	335.000
GR	593.700	400.000	593.000	500.000	592.700	600.000	583.400	610.000	581.900	615.000
GR	581.300	620.000	579.000	630.000	579.000	640.000	580.000	650.000	581.300	655.000
GR	583.000	660.000	583.900	665.000	586.600	668.000	588.400	680.000	590.000	700.000
GR	589.100	800.000	591.500	865.000	585.800	875.000	586.100	884.000	591.500	904.000
GR	590.700	1000.000	590.500	1100.000	590.300	1200.000	591.500	1300.000	591.500	1329.000
GR	598.000	1363.000	598.700	1400.000	599.700	1500.000	0.000	0.000	0.000	0.000

NH	5.000	0.040	1079.000	0.100	1111.000	0.040	1180.000	0.100	2030.000	0.040
NH	2565.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	6.100	8.100	1000.000	2200.000	1100.000	2050.000	0.000
X1	15.722	41.000	1079.000	1200.000	2100.000	2700.000	3510.000	0.000	0.000	0.000
GR	601.500	0.000	600.100	100.000	600.300	200.000	597.900	300.000	596.500	368.000
GR	589.200	383.000	589.200	385.000	596.200	400.000	597.800	500.000	598.900	600.000
GR	599.600	700.000	599.500	776.000	599.300	800.000	600.200	900.000	601.400	1000.000
GR	600.700	1079.000	582.700	1111.000	579.300	1120.000	579.600	1130.000	578.700	1140.000
GR	578.200	1150.000	578.000	1160.000	580.000	1170.000	582.300	1180.000	594.100	1200.000
GR	592.600	1300.000	591.200	1400.000	591.600	1500.000	589.200	1600.000	590.200	1700.000
GR	590.200	1800.000	591.300	1900.000	593.400	2000.000	593.400	2030.000	596.600	2075.000
GR	596.800	2100.000	598.100	2200.000	599.400	2300.000	600.100	2400.000	598.100	2500.000
GR	598.700	2565.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

NC	0.000	0.000	0.000	0.300	0.500	0.000	0.000	0.000	0.000	0.000
NH	5.000	0.040	1079.000	0.100	1115.000	0.040	1195.000	0.100	2030.000	0.040
NH	2565.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	6.100	8.100	1000.000	2400.000	1100.000	2050.000	0.000
X1	15.736	52.000	1085.000	1231.000	80.000	80.000	80.000	0.000	0.000	0.000
GR	601.500	0.000	600.100	100.000	600.300	200.000	597.900	300.000	596.500	368.000
GR	589.200	383.000	589.200	385.000	596.200	400.000	597.800	500.000	598.900	600.000
GR	599.600	700.000	599.500	776.000	599.300	800.000	600.200	900.000	601.000	1000.000
GR	600.700	1079.000	595.300	1085.000	592.500	1086.000	592.000	1095.000	590.800	1105.000
GR	587.700	1115.000	584.900	1125.000	582.300	1132.000	582.300	1132.100	582.300	1134.900
GR	582.300	1135.000	582.400	1145.000	581.500	1155.000	581.300	1165.000	579.900	1175.000
GR	576.700	1182.000	576.700	1182.100	577.200	1184.900	577.200	1185.000	578.200	1195.000
GR	591.200	1225.000	592.200	1230.000	592.200	1231.000	592.600	1300.000	591.200	1400.000
GR	591.600	1500.000	589.200	1600.000	590.200	1700.000	590.200	1800.000	591.300	1900.000
GR	593.400	2000.000	593.400	2030.000	596.600	2075.000	596.800	2100.000	598.100	2200.000
GR	599.400	2300.000	600.100	2400.000	0.000	0.000	0.000	0.000	0.000	0.000

SB	0.000	2.100	3.040	0.000	115.000	0.000	1512.000	0.000	0.000	0.000
NH	3.000	0.090	1085.000	0.040	1231.000	0.090	2565.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	6.110	6.110	1000.000	2400.000	0.000	0.000	0.000
X1	15.748	0.000	0.000	0.000	71.000	71.000	71.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	595.300	596.200	0.000	0.000	0.000	0.000	0.000
BT	-29.000	0.000	601.500	0.000	100.000	600.100	0.000	200.000	600.300	0.000
BT	0.000	300.000	597.900	0.000	400.000	596.200	0.000	500.000	597.800	0.000
BT	0.000	600.000	598.900	0.000	700.000	599.600	0.000	776.000	599.500	0.000
BT	0.000	800.000	599.300	0.000	900.000	600.200	0.000	1000.000	601.000	0.000
BT	0.000	1085.000	601.700	595.300	1086.000	601.700	597.000	1132.000	601.700	597.000

BT	0.000	1132.100	601.700	582.300	1134.900	601.700	582.300	1135.000	601.700	597.000
BT	0.000	1182.000	601.700	597.000	1182.100	601.700	576.700	1184.900	601.700	577.200
BT	0.000	1185.000	601.700	597.000	1230.000	601.800	597.000	1231.000	601.800	592.200
BT	0.000	1300.000	601.000	0.000	1400.000	599.300	0.000	1500.000	599.000	0.000
BT	0.000	2200.000	598.100	0.000	2300.000	599.400	0.000	2400.000	600.100	0.000

NH	6.000	0.050	412.000	0.055	445.000	0.045	520.000	0.060	525.000	0.050
NH	825.000	0.035	925.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	6.100	410.000	780.000	0.000	0.000	0.000
X1	16.063	25.000	325.000	525.000	1694.000	1694.000	1749.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	601.300	0.000	600.400	29.000	599.700	125.000	601.000	225.000	601.600	325.000
GR	599.100	412.000	591.900	429.000	586.100	435.000	584.200	445.000	583.200	455.000
GR	581.600	465.000	580.100	475.000	578.200	485.000	576.400	495.000	577.000	505.000
GR	580.400	515.000	583.900	520.000	589.400	525.000	591.300	534.000	589.200	625.000
GR	593.300	714.000	592.900	725.000	597.800	825.000	600.700	875.000	601.700	925.000

NC	0.000	0.000	0.000	0.100	0.500	0.000	0.000	0.000	0.000	0.000
NH	5.000	1.000	107.000	0.060	566.000	0.040	634.000	0.100	760.000	0.070
NH	1038.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	6.100	1.400	50.000	800.000	0.000	0.000	0.000
X1	16.396	24.000	560.000	641.000	1700.000	1650.000	1760.000	0.000	0.000	0.000
GR	601.200	0.000	600.200	53.000	600.200	66.000	591.400	107.000	589.400	160.000
GR	589.100	260.000	588.700	360.000	588.200	460.000	589.700	560.000	584.300	566.000
GR	584.200	580.000	583.300	590.000	582.300	600.000	581.800	610.000	582.100	620.000
GR	581.400	630.000	583.300	634.000	591.300	641.000	593.700	664.000	594.600	733.000
GR	598.300	760.000	599.500	860.000	598.900	960.000	600.900	1038.000	0.000	0.000

NH	7.000	1.000	700.000	0.100	1300.000	0.080	1704.000	0.100	1711.000	0.040
NH	1730.000	0.100	1781.000	0.040	2120.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	6.100	0.000	800.000	1900.000	0.000	0.000	0.000
X1	16.866	35.000	1704.000	1792.000	2400.000	2300.000	2480.000	0.000	0.000	0.000
GR	603.900	0.000	602.800	100.000	602.000	200.000	600.900	300.000	599.800	400.000
GR	599.800	500.000	598.800	600.000	598.700	700.000	597.900	800.000	597.800	900.000
GR	597.300	1000.000	595.900	1100.000	593.000	1200.000	593.400	1300.000	593.900	1400.000
GR	593.600	1500.000	593.000	1600.000	593.400	1704.000	584.800	1711.000	582.100	1720.000
GR	582.300	1730.000	582.400	1740.000	582.200	1750.000	582.000	1760.000	582.200	1765.000
GR	584.700	1773.000	591.000	1781.000	595.500	1792.000	596.000	1800.000	600.100	1893.000
GR	600.600	1947.000	600.200	2000.000	600.600	2055.000	604.100	2100.000	605.100	2120.000

NH	6.000	0.040	1000.000	0.100	1308.000	0.075	1319.000	0.040	1371.000	0.075
NH	1396.000	0.040	1625.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	6.100	8.100	950.000	1500.000	950.000	1400.000	0.000
X1	17.089	29.000	1308.000	1396.000	1100.000	1100.000	1180.000	0.000	0.000	0.000
GR	601.800	0.000	601.300	100.000	599.300	200.000	598.900	300.000	598.900	400.000
GR	598.500	500.000	598.400	600.000	598.000	700.000	598.100	800.000	597.800	822.000
GR	593.400	900.000	591.900	1000.000	592.000	1100.000	592.400	1200.000	593.200	1300.000
GR	593.400	1308.000	586.800	1319.000	585.700	1325.000	584.900	1330.000	582.600	1340.000
GR	583.200	1350.000	583.200	1360.000	584.800	1371.000	589.400	1378.000	589.800	1387.000
GR	595.000	1396.000	598.900	1425.000	599.800	1500.000	601.300	1625.000	0.000	0.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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 SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
 Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
 TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
 SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


*PROF 1

CCHV=   0.300 CEHV=    0.500
1490 NH CARD USED
*SECNO 11 052

3470 ENCROACHMENT STATIONS=      550.0     2520.0  TYPE=      1  TARGET=     1970.000
    11.05     22.37    593.17      0.00      0.00    593.38      0.20      0.00      0.00    578.50
   21300.      272.    12024.     9004.      229.     2541.    10296.        0.        0.    584.10
     0.00      1.19      4.73      0.87     0.120     0.047     0.132     0.000    570.80    550.00
 0.000431      750.      750.      330.         0         0         0      0.00   1823.74   2373.74


1490 NH CARD USED
*SECNO 11.292
    11.29     24.23    593.63      0.00      0.00    593.66      0.03      0.23      0 05    593.20
   10400.        0.     3110.     7290.        4.      1421    13568.      198.       25.    581.70
     0.23      0.05      2.19      0.54     0.120     0.048     0.124     0.000    569.40     23.18
 0.000137     1350.     1268.      500.         1         0         0      0.00   2141.27   2164.45


1490 NH CARD USED
*SECNO 11.393
    11.39     23.70    593.65      0.00      0.00    593.72      0.06      0.04      0.02    591.20
   10400.       29.     4415.     5956.      140.     1472.     9432.      226.       29.    582.30
     0.26      0.21      3.00      0.63     0.120     0.048     0.128     0.000    569.95     92.91
 0.000243      479.      529       37.          2         0         0      0.00   1952.96   2045.87


CCHV=   0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 11.695

3265 DIVIDED FLOW

    11.69     22.29    593.88      0.00      0.00    594.03      0.15      0.29      0.02    585.20
   10400.      957.     6117.     3326.     1799.     1630.     1813.      330.       49.    584.40
     0.35      0.53      3.75      1.83     0.137     0.054     0.048     0.000    571.59    319.06
 0.000421     1486.     1586.      110.         2         0         0      0.00   1260.48   1615.30


1490 NH CARD USED
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
*SECNO 11.845									
11.84	21.74	594.14	0.00	0.00	594.33	0.20	0.29	0.02	582 30
10400.	2294.	7246.	860.	3386.	1721.	461.	405.	64.	585.50
0.41	0.68	4.21	1.86	0.141	0 054	0.048	0.000	572.40	428.36
0.000503	735.	785.	54.	2	0	0	0.00	1134.48	1562.85
1490 NH CARD USED									
*SECNO 11.860									
11.86	21.71	594.19	0.00	0.00	594.37	0.18	0.04	0.00	582.20
10400.	2358.	7035.	1007.	3184.	1731.	622.	415.	66.	585.60
0.41	0.74	4.07	1.62	0.128	0.054	0.054	0.000	572.48	410.16
0.000463	77.	79.	76.	2	0	0	0.00	1120.62	1530.78
1490 NH CARD USED									
*SECNO 11.875									
11.88	21.67	594.24	0.00	0.00	594.41	0.17	0.04	0.00	582.20
10400.	2329.	6917.	1154.	2888.	1732.	791.	425.	68.	585.70
0.42	0.81	3.99	1.46	0.116	0.054	0.060	0.000	572.57	394.58
0.000453	77.	79.	76.	0	0	0	0.00	1104.34	1498.92
1490 NH CARD USED									
*SECNO 11.929									
11.93	21.47	594.36	0.00	0.00	594.52	0.16	0.11	0.00	582.00
10400.	1595.	6777.	2027.	1987.	1741.	1644.	457.	74.	586.10
0.45	0.80	3.89	1.23	0.106	0.048	0.072	0.000	572.89	340.55
0.000343	239.	287.	275.	0	0	0	0.00	1042.98	1383.53
1490 NH CARD USED									
*SECNO 12.023									
12.02	21.17	594.57	0 00	0.00	594.66	0.09	0.13	0.01	581.80
10400.	1144.	5410.	3847.	976.	1747.	3952	523.	83.	586.80
0.51	1.17	3.10	0.97	0.064	0.049	0.098	0.000	573.40	394.65
0.000225	437.	495.	474.	2	0	0	0.00	790.49	1185.14
1490 NH CARD USED									
*SECNO 12.339									
12.34	21.99	594.99	0.00	0.00	595.02	0.03	0.35	0.01	585.80
10400.	7801.	2596.	3.	6067.	1490.	10	787.	117.	593.90
0.83	1.29	1.74	0.30	0.066	0.073	0.048	0.000	573.00	191.92
0.000211	1600.	1670.	1600.	2	0	0	0.00	1025.93	1217.85

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    SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
    Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
    TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN     SSTA
    SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID    ENDST

 1490 NH CARD USED
 *SECNO 12.544

 3470 ENCROACHMENT STATIONS=     250.0    1000.0  TYPE=      1  TARGET=     750.000
     12.54    20.51   595.21     0.00     0.00   595.34     0.13     0.29     0.03   587.00
    10400.    1670.    6310.    2420.    1839.    1735.    2456.     949.     138.    584.40
      0.95     0.91     3.64     0.99    0.108    0.054    0.121    0.000   574.70   250.00
  0.000393    1020.    1080.    1050.        0        0        0     0.00   750.00  1000.00

 CCHV=   0.100 CEHV=   0.500
 1490 NH CARD USED
 *SECNO 12.799

 3470 ENCROACHMENT STATIONS=       0.1    1600.0  TYPE=      1  TARGET=    1599.900
     12.80    22.16   595.66     0.00     0.00   595.71     0.05     0.35     0.01   583.60
    10400.    5655.    4280.     465.    8164.    1618.     498.    1191.     170.    584.00
      1.19     0.69     2.65     0.93    0.114    0.055    0.096    0.000   573.50   136.69
  0.000196    1300.    1350.    1200.        2        0        0     0.00  1426.59  1563.28

 *SECNO 13.144

 3470 ENCROACHMENT STATIONS=     250.0    1250.0  TYPE=      1  TARGET=    1000.000
     13.14    21.61   596.01     0.00     0.00   596.07     0.06     0.36     0.00   584.20
    10400.     544.    3720.    6136.     661.    1228.    6924.    1584.     219.    582.40
      1.49     0.82     3.03     0.89    0.108    0.048    0.108    0.000   574 40   314.21
  0.000204    1781.    1820.    1800.        2        0        0     0.00   935.79  1250.00

 1490 NH CARD USED
 *SECNO 13.163

 3470 ENCROACHMENT STATIONS=       0.1    1275.0  TYPE=      1  TARGET=    1274.900
     13.16    21.46   596.04     0.00     0 00   596.09     0.05     0.02     0.00   584.30
    10400.     843.    3611.    5946.     784.    1259.    6424.    1600.     220.    582.40
      1.51     1.08     2.87     0.93    0.090    0.053    0.106    0.000   574.58   355.05
  0.000224      65.     100.      79.        0        0        0     0.00   919.95  1275.00

 1490 NH CARD USED
 *SECNO 13.191
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 SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
 Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
 TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
 SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST


3470 ENCROACHMENT STATIONS=       0.1      1275.0  TYPE=       1  TARGET=     1274.900
    13.19     21.37    596.05      0.00      0.00    596.10      0.06      0.01      0.00    584.40
   10400.      870.     3751.     5779.      882.     1282.     5944.     1612.      222.     582.40
     1.52      0.99      2.92      0.97     0.090     0.048     0.092     0.000    574.68    383.89
 0.000191       49.       75.       59.         0         0         0      0.00    891.11   1275.00

1490 NH CARD USED
*SECNO 13.220

3470 ENCROACHMENT STATIONS=     360.0      1350.0  TYPE=       1  TARGET=      990.000
    13.22     21.05    596.08      0.00      0.00    596.14      0.06      0.04      0.00    584.80
   10400.     1229.     3792.     5380.     1238.     1339.     4650.     1643.      225.     582.70
     1.55      0.99      2.83      1.16     0.084     0.050     0.072     0.000    575.03    360.00
 0.000191       146      225.      177.         0         0         0      0.00    990.00   1350.00

1490 NH CARD USED
*SECNO 13.481

3470 ENCROACHMENT STATIONS=       0.1      1750.0  TYPE=       1  TARGET=     1749.900
    13.48     18.99    596.19      0.00      0.00    596.20      0.01      0.05      0.00    587.20
   10400.     8899.     1355.      146.    11382.     1654.      312.     1882.      253.     583.90
     1.93      0.78      0.82      0.47     0.037     0.054     0.060     0 000    577.20    191.70
 0.000021      891.     1380.     1086.         2         0         0      0.00   1457.76   1649.46

CCHV=   0.100 CEHV=    0 500
1490 NH CARD USED
*SECNO 13.799

3470 ENCROACHMENT STATIONS=       0.1      1010.0  TYPE=       1  TARGET=     1009.900
    13.80     20.30    596.20      0.00      0.00    596.29      0.09      0.06      0.04    586.90
   10400.     2580.     5143.     2677.     1606.     1645.     2678.     2101.      277.     587.20
     2.06      1.61      3.13      1.00     0.060     0.050     0.096     0.000    575.90    183.46
 0.000268      800.     1680.     1050.         2         0         0      0.00    765.18    948.64

1490 NH CARD USED
*SECNO 14.061

3470 ENCROACHMENT STATIONS=     200.0      1400 0  TYPE=       1  TARGET=     1200.000
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  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST


    14 06    19.02    596.52     0.00      0.00    596.54      0.02      0.24      0.01    589.60
  10400.     2517.     2916.     4966.     3321.     1618.     5263.     2315.      301.     588.50
     2.36     0.76      1.80      0.94     0.096     0.060     0.086     0.000    577.50    281.55
 0.000153    1100.     1380.     1100.         2         0         0      0.00   1118.45   1400.00

1490 NH CARD USED
*SECNO 14.258

3470 ENCROACHMENT STATIONS=      400.0     1400.0  TYPE=      1  TARGET=    1000.000
    14.26    18.69    596.69      0 00      0.00    596.73      0.05      0.18      0.01    593.40
  10400.     1413.     7372.     1615.      935.     3898.     1335.     2503.      323.     588.30
     2.52     1.51      1.89      1.21     0.042     0.054     0.065     0.000    578.00    515.84
 0.000216     1040     1040.      950.         2         0         0      0.00    799.76   1315.61

CCHV=   0.100 CEHV=   0.300
1490 NH CARD USED
*SECNO 14.523

3470 ENCROACHMENT STATIONS=        0.1     1300.0  TYPE=      1  TARGET=    1299.900
    14.52    18.47    596.87      0.00      0.00    596.90      0.03      0.17      0.00    590.80
  10400.     6636.     2490.     1274.     5062.     1484.     1433.      2727      354.     589.70
     2.81     1.31      1.68      0.89     0.036     0.046     0.060     0.000    578.40    108.37
 0.000078    1350.      1400     1400.         2         0         0      0.00   1155.12   1263.49

1490 NH CARD USED
*SECNO 15.057

3470 ENCROACHMENT STATIONS=      250.0     1500.0  TYPE=      1  TARGET=    1250.000
    15.06    18.22    597.22      0.00      0.00    597.32      0.10      0.40      0.02    592.70
  10400.     1993.     4200.     4207.      977.     1152.     4548.     3151.      419.     588.40
     3.13     2.04      3.64      0.93     0.036     0.048     0.120     0.000    579.00    261.26
 0.000430    2600.     2820.     2300.         2         0         0      0.00   1097.66   1358.92

1490 NH CARD USED
*SECNO 15.722

3470 ENCROACHMENT STATIONS=     1000.0     2200.0  TYPE=      1  TARGET=    1200.000
    15 72    20.34    598.34      0.00      0.00    598.43      0.08      1.10      0.00    600.70
  10400.        0.     5384.     5016.        0.     1724.     6097.     3620.      487.     594.10
     3.54     0.00      3.12      0.82     0.000     0.048     0.116     0.000    578.00   1083 19
 0.000315    2100.      3510     2700.         2         0         0      0.00   1116.81   2200.00
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SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


CCHV=   0.300 CEHV=    0.500
1490 NH CARD USED
*SECNO 15.736

3470 ENCROACHMENT STATIONS=     1000.0     2400.0  TYPE=       1  TARGET=     1400.000
    15.74     21.69    598.39      0.00      0.00    598.46      0.06      0.02      0.01    595.30
   10400.        1.     5432.     4967.        5.     2029.     6061.     3635      489.     592.20
     3.56      0.24      2.68      0.82     0.120     0.054     0.116     0.000    576.70   1081.56
 0.000303       80.       80.        80         2         0         0      0.00   1140.96   2222.52


SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
SB  XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         EI CHU     ELCHD
      0.00       2.10       3 04       0.00     115.00       0.00    1512.00       0.00     576.70     576.70

1490 NH CARD USED
*SECNO 15.748
     3700.   BRIDGE STENCL=    1000.00    STENCR=    2400.00
PRESSURE AND WEIR FLOW


 EGPRS      EGLWC        H3        QWEIR        QPR        BAREA    TRAPEZOID      ELLC      ELTRD
                                                                      AREA
    599.94     598.46      0.00      1892.      8435.      1512.      2139.      595.30     596.20



3470 ENCROACHMENT STATIONS=     1000.0     2400.0  TYPE=       1  TARGET=     1400.000
    15.75     22.66    599.36      0.00      0.00    599.41      0.05      0.95      0.00    595.30
   10400.        2.     5274.     5123.        9.     2170.     7053.     3649.      491.     592.20
     3.57      0.24      2.43      0.73     0.108     0.048     0.108     0.000    576.70   1080.49
 0.000180       71.       71.       71.         2         0         2      0.00   1216.20   2296.69


1490 NH CARD USED
*SECNO 16.063

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      601.60 ELREA=       589.40

    16.06     23.35    599.75      0.00      0.00    599.87      0.13      0.43      0.04    601.60
   10400.        0.     6186.     4214.        0.     1838.     2251.     3910.      524.     589.40
     3.74      0.00      3.37      1.87     0.000     0.046     0.060     0.000    576.40    389.45
 0.000367     1694.     1749.     1694.         2         0         0      0.00    469.14    858.59
```

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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST

CCHV=   0.100 CEHV=   0.500
1490 NH CARD USED
*SECNO 16.396

3470 ENCROACHMENT STATIONS=       50.0      800.0  TYPE=      1  TARGET=      750.000
    16.40     18.84    600.24     0 00      0.00    600 29      0.05      0.40      0.01    589.70
   10400.     6710.     3297.      393.     5246.     1355.      769.     4134.      547.    591.30
     4.04      1.28      2.43      0.51     0.073     0.049     0.118     0.000    581.40     50.78
 0.000164      1700     1760.     1650.         2         0         0      0 00    749.22    800.00

1490 NH CARD USED
*SECNO 16.866

3470 ENCROACHMENT STATIONS=      800.0     1900.0  TYPE=      1  TARGET=     1100.000
    16.87     18.90    600.90      0.00      0.00    600.95      0.05      0.66      0.00    593.40
   10400.     6276.     3656.      468.     5475.     1407.      310.     4537.      598.    595.50
     4.44      1.15      2 60      1.51     0.104     0.079     0.048     0.000    582.00    800.00
 0.000532     2400.     2480.     2300.         1         0         0      0.00   1100.00   1900.00

1490 NH CARD USED
*SECNO 17.089
3280 CROSS SECTION      17.09 EXTENDED       0.16 FEET

3470 ENCROACHMENT STATIONS=      950.0     1500.0  TYPE=      1  TARGET=      550.000
    17.09     18.86    601.46      0.00      0 00    601.60      0.13      0.61      0.04    593.40
   10400.     4834.     5125.      441.     3269.     1324.      289.     4692.      619.    595.00
     4.56      1.48      3.87      1.52     0.101     0.052     0.048     0.000    582.60    950.00
 0.000540     1100.     1180.     1100.         2         0         0      0.00    550.00   1500.00
```

THIS RUN EXECUTED 16 MAY 90 16 32:30

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**************************************************
 HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
 ERROR CORR -  01,02,03,04,05,06
 MODIFICATION -  50,51,52,53,54,55,56
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T1 CLINTON TOWNSHIP FLOOD INSURANCE RESTUDY
T2 RECREATION OF ORIGINAL MODEL
T3 CLINTON RIVER U/S OF THE FORKS, 100-YEAR DISCHARGE

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	5.	0.	0.	0.000000	0.00	0.0	0.	593.274	0.000

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	15.000	0.000	-1.000	0.000	0.000	1.200	0.000	0.000	0.000	0.000

```
   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST

*PROF 2

CCHV=   0.300 CEHV=   0.500
1490 NH CARD USED
*SECNO 11.052

3470 ENCROACHMENT STATIONS=      550.0     2050.0  TYPE=      1  TARGET=     1500.000
    11.05    22.47   593.27     0 00   593.17   593.48     0.21     0.00     0.00   578.50
   21300.     277.   12184.    8840.     231.    2553.    9581.        0       0.    584.10
     0.00     1.20     4.77     0.92    0.120    0.047    0.132    0.000   570.80   550.00
 0.000436     750.      750     330.        0        0        0     0.00  1500.00  2050.00


1490 NH CARD USED
*SECNO 11.292
 2800 NAT Q1=   8874.62  WSEL=     593.63  ENC Q1=    8874.62  WSEL=     593.73  RATIO=  0.0000
 NAT Q1=    9064.  RATIOS LOB,CH,ROB=  0.0000  0.2958  0.7041  WSEL=     593.73

3470 ENCROACHMENT STATIONS=       41.0     2058.5  TYPE=      4  TARGET=        0.021
    11.29    24.34   593.74     0.00   593.63   593.77     0.03     0.23     0.05   593.20
   10400.       0.     3132    7268.       0.    1430.   13559.     194.      22.    581.70
     0.23     0.00     2.19     0.54    0.000    0.048    0.127    0.000   569.40    41.00
 0.000137    1350.    1268.     500.        2        0        0     0.00  2017.46  2058.46


1490 NH CARD USED
*SECNO 11.393
 2800 NAT Q1=   6672.99  WSEL=     593.65  ENC Q1=    6672.99  WSEL=     593.75  RATIO=  0.0000
 NAT Q1=    6809.  RATIOS LOB,CH,ROB=  0.0032  0 4200  0.5768  WSEL=     593.75

3470 ENCROACHMENT STATIONS=      272.4     1820.0  TYPE=      4  TARGET=        0.020
    11.39    23.81   593.76     0.00   593.65   593.83     0.06     0.04     0.02   591.20
   10400.       0.    4408.    5992.       0.    1481.    9261.      222      25.    582.30
     0.26     0.00     2.98     0.65    0.000    0.048    0.129    0.000   569.95   272.40
 0.000246     479.     529.      37.        2        0        0     0.00  1547.63  1820.03


CCHV=   0.100 CEHV=   0.300
1490 NH CARD USED
*SECNO 11.695
 2800 NAT Q1=   5067.46  WSEL=     593.88  ENC Q1=    5067.46  WSEL=     593.98  RATIO=  0.0000
 NAT Q1=    5177.  RATIOS LOB,CH,ROB=  0.0948  0.5808  0.3244  WSEL=     593.98
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


 3470 ENCROACHMENT STATIONS=      465.9     1440.3  TYPE=      4  TARGET=        0.021
     11.69     22.40    593.99      0.00    593.88    594.14      0.15      0.29      0.03    585.20
   10400.       897.     6166.     3337.     1662.     1640.     1726.      321.       39.    584.40
      0.35      0 54      3.76      1.93     0.144     0.054     0.048     0.000    571.59    465.94
  0.000420     1486.     1586.      110.         2         0         0      0.00    974.33   1440.27

 1490 NH CARD USED
 *SECNO 11.845
  2800 NAT Q1=    4638.99  WSEL=     594.14  ENC Q1=    4638.99  WSEL=     594.24  RATIO=  0.0000
  NAT Q1=    4720.   RATIOS LOB,CH,ROB=  0.2249  0.6905  0.0846  WSEL=     594.24

 3470 ENCROACHMENT STATIONS=      508.3     1468.5  TYPE=      4  TARGET=        0 017
     11.84     21.85    594.25      0.00    594.14    594.45      0.20      0.29      0.02    582.30
   10400.      2289.     7308.      803.     3348.     1730.      369.      395.       52.    585.50
      0.40      0.68      4.22      2.18     0.144     0.054     0.048     0.000    572.40    508.31
  0.000503       735      785.       54.         1         0         0      0 00    960.16   1468.47

 1490 NH CARD USED
 *SECNO 11.860
  2800 NAT Q1=    4833.65  WSEL=     594.19  ENC Q1=    4833.65  WSEL=     594.29  RATIO=  0.0000
  NAT Q1=    4921.   RATIOS LOB,CH,ROB=  0.2311  0.6701  0.0989  WSEL=     594.29

 3470 ENCROACHMENT STATIONS=      495.6     1455.0  TYPE=      4  TARGET=        0.018
     11.86     21.82    594.30      0.00    594.19    594.49      0.18      0.04      0.00    582.20
   10400.      2357.     7089.       954     3166.     1741.      529.      404.       53.    585.60
      0.41      0.74      4.07      1 80     0.130     0.054     0.054     0.000    572.48    495.60
  0.000461       77.       79.       76.         2         0         0      0.00    959.40   1455.00

 1490 NH CARD USED
 *SECNO 11.875
  2800 NAT Q1=    4883.67  WSEL=     594.24  ENC Q1=    4883.67  WSEL=     594.34  RATIO=  0.0000
  NAT Q1=    4981.   RATIOS LOB,CH,ROB=  0.2286  0.6581  0.1133  WSEL=     594.34

 3470 ENCROACHMENT STATIONS=      504.0     1437.1  TYPE=      4  TARGET=        0.019
     11.88     21.78    594.35      0.00    594.24    594.52      0.17      0.04      0.00    582.20
   10400.      2324.     6978.     1098.     2838.     1742.      700.      414.       55.    585.70
      0.42      0.82      4.01      1.57     0.119     0.054     0.060     0.000    572.57    504.04
  0.000453       77.       79.       76.         1         0         0      0.00    933.03   1437.07
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   SECNO      DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
   Q          QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME       VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
   SLOPE      XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST

 1490 NH CARD USED
 *SECNO 11.929
  2800 NAT Q1=    5619.01  WSEL=     594.36  ENC Q1=    5619.01  WSEL=     594.46  RATIO=  0.0000
  NAT Q1=    5713.  RATIOS LOB,CH,ROB=  0.1564  0.6463  0.1973  WSEL=     594.46

 3470 ENCROACHMENT STATIONS=      604.5     1327.4  TYPE=     4  TARGET=        0.016
     11.93     21.58    594 47      0.00    594.36    594.63      0.16      0.11      0.00    582.00
    10400.     1567.     6833.     2000.     1823.     1750.     1563.      445.       60.    586.10
      0.44      0.86      3.90      1.28     0.108     0.048     0.072     0.000    572.89    604.49
  0.000342      239.      287.      275.         1         0         0      0.00    722.92   1327.41

 1490 NH CARD USED
 *SECNO 12.023
  2800 NAT Q1=    6934.14  WSEL=     594.57  ENC Q1=    6934.14  WSEL=     594.67  RATIO=  0.0000
  NAT Q1=    7043.  RATIOS LOB,CH,ROB=  0.1118  0.5164  0.3717  WSEL=     594.67

 3470 ENCROACHMENT STATIONS=      473.0     1130.5  TYPE=     4  TARGET=        0.016
     12.02     21.29    594.69      0.00    594.57    594.77      0.09      0.13      0.01    581.80
    10400.     1100.     5454.     3846.      865.     1758.     3896.      508.       67.    586 80
      0.51      1.27      3.10      0.99     0.065     0.049     0.100     0.000    573.40    472.98
  0.000224      437.      495.      474.         2         0         0      0.00    657 48   1130.46

 1490 NH CARD USED
 *SECNO 12.339
  2800 NAT Q1=    7160.49  WSEL=     594.99  ENC Q1=    7160.49  WSEL=     595.09  RATIO=  0.0000
  NAT Q1=    7301.  RATIOS LOB,CH,ROB=  0.7522  0.2475  0.0003  WSEL=     595.09

 3470 ENCROACHMENT STATIONS=      351.5     1200.0  TYPE=     4  TARGET=        0.019
     12.34     22 10    595.10      0.00    594.99    595.13      0.03      0.35      0.01    585.80
    10400.     7786.     2614.        0.     5849.     1501.        0.      766.       95.    593.90
      0.82      1 33      1.74      0.00     0.066     0.073     0.000     0.000    573.00    351.53
  0.000211     1600.     1670.     1600.         2         0         0      0.00    848.47   1200.00

 1490 NH CARD USED
 *SECNO 12.544
  2800 NAT Q1=    5244.43  WSEL=     595.21  ENC Q1=    5244.43  WSEL=     595.31  RATIO=  0.0000
  NAT Q1=    5358.  RATIOS LOB,CH,ROB=  0.1666  0.5989  0.2345  WSEL=     595.31

 3470 ENCROACHMENT STATIONS=      279.2      978.9  TYPE=     4  TARGET=        0 021
     12.54     20.62    595.32      0.00    595.21    595.46      0.13      0.29      0.03    587.00
    10400.     1657.     6357.     2386.     1796.     1745.     2420.      925.      113.    584.40
      0.93      0.92      3.64      0.99     0.109     0.054     0.123     0.000    574.70    279.19
  0.000392     1020.     1080.     1050.         2         0         0      0.00    699.72    978.90
```

```
   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN       SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID      ENDST


CCHV=   0.100 CEHV=    0.500
1490 NH CARD USED
*SECNO 12.799
 2800 NAT Q1=    7437.02  WSEL=     595.66  ENC Q1=    7437.02  WSEL=     595.76  RATIO=  0.0000
 NAT Q1=    7571.   RATIOS LOB,CH,ROB=  0.5475  0.4078  0.0447  WSEL=     595.76

3470 ENCROACHMENT STATIONS=      275.1     1546.9  TYPE=      4  TARGET=        0.018
    12.80    22.27   595.77     0.00   595.66   595.82     0.05     0.35     0.01   583.60
   10400.    5705.    4313.     382.    8128.    1627.     429     1164.     142.    584.00
     1.17     0.70     2.65     0.89    0.115    0.055    0.096    0.000   573.50   275.13
 0.000195    1300.    1350.    1200.        2        0        0     0.00  1271.74  1546.87


*SECNO 13.144
 2800 NAT Q1=    7287.17  WSEL=     596.01  ENC Q1=    7287.17  WSEL=     596.11  RATIO=  0.0000
 NAT Q1=    7487.   RATIOS LOB,CH,ROB=  0.0518  0.3511  0.5970  WSEL=     596.11

3470 ENCROACHMENT STATIONS=      362.1     1243.2  TYPE=      4  TARGET=        0.027
    13.14    21.72   596.12     0.00   596.01   596.18     0.06     0.36     0.00   584.20
   10400.     407.    3753.    6240.     422.    1234.    6987.    1552.     187.    582.40
     1.47     0.96     3.04     0.89    0.108    0.048    0.108    0.000   574.40   362.14
 0.000204    1781.    1820.    1800.        0        0        0     0.00   881.10  1243.25


1490 NH CARD USED
*SECNO 13.163

3470 ENCROACHMENT STATIONS=      410.0     1275.0  TYPE=      1  TARGET=      865.000
    13.16    21.56   596.14     0.00   596.04   596.20     0.05     0.02     0.00   584.30
   10400.     663.    3653.    6084.     565.    1266.    6506.    1568.     188    582.40
     1.49     1.17     2.88     0.94    0.090    0.053    0.106    0.000   574.58   410.00
 0.000225      65.     100.      79.        0        0        0     0.00   865.00  1275.00


1490 NH CARD USED
*SECNO 13.191

3470 ENCROACHMENT STATIONS=      445.0     1275.0  TYPE=      1  TARGET=      830.000
    13.19    21.48   596.16     0.00   596.05   596.21     0.06     0.01     0.00   584.40
   10400.     715.    3784.    5900.     675.    1290.    6020.    1579.     189.    582.40
     1.50     1.06     2.93     0.98    0.090    0.048    0.092    0.000   574.68   445.00
 0.000191      49.      75.      59.        0        0        0     0.00   830.00  1275.00
```

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   SECNO     DEPTH     CWSEL     CRIWS     WSELK      EG        HV        HL       OLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB       ACH       AROB      VOL      TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL        XNCH      XNR       WTN      ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL     IDC       ICONT     CORAR    TOPWID     ENDST


 1490 NH CARD USED
 *SECNO 13.220

 3470 ENCROACHMENT STATIONS=      500.0     1270.0  TYPE=      1  TARGET=      770.000
      13.22     21.16    596.19      0.00    596.08    596.25      0.06      0.04      0.00    584.80
     10400.     1227.     3795.     5377.     1177.     1347.     4557.     1611.      193.    582.70
       1.53      1.04      2.82      1.18     0.084     0.050     0.072     0.000    575.03    500.00
  0.000187      146.      225.      177.         0         0         0      0.00    770.00   1270.00


 1490 NH CARD USED
 *SECNO 13.481
  2800 NAT Q1=  22624.28  WSEL=     596.19  ENC Q1=  22624.28  WSEL=     596.29  RATIO=  0.0000
  NAT Q1=  23025.   RATIOS LOB,CH,ROB=  0.8567  0.1292  0.0140  WSEL=     596.29

 3470 ENCROACHMENT STATIONS=      237.3     1613.9  TYPE=      4  TARGET=        0.017
      13.48     19.09    596.29      0.00    596.19    596.30      0.01      0.05      0.00    587.20
     10400.     8976.     1366.       58.    11372.     1665.      150.     1845.      217.    583.90
       1.90      0.79      0.82      0.39     0.037     0.054     0.060     0.000    577.20    237.31
  0.000021      891.     1380.     1086.         1         0         0      0.00   1376.59   1613.90


 CCHV=   0.100 CEHV=    0.500
 1490 NH CARD USED
 *SECNO 13.799

 3470 ENCROACHMENT STATIONS=      190.0      930.0  TYPE=      1  TARGET=      740.000
      13.80     20.41    596.31      0.00    596.20    596.40      0.09      0.06      0 04    586.90
     10400.     2598.     5107.     2695.     1629.     1655.     2716.     2063.      239.    587.20
       2.04      1.60      3.09      0.99     0.060     0.050     0.096     0.000    575.90    190.00
  0.000258      800.     1680.     1050.         2         0         0      0.00    740.00    930.00


 1490 NH CARD USED
 *SECNO 14.061

 3470 ENCROACHMENT STATIONS=      345.0     1245 0  TYPE=      1  TARGET=      900.000
      14.06     19.14    596.64      0.00    596.52    596.67      0.03      0.27      0.01    589.60
     10400.     2682.     3312.     4406.     3080.     1631.     4176.     2262.      261.    588.50
       2.30      0.87      2.03      1.05     0.096     0.060     0.090     0.000    577.50    345.00
  0.000192     1100.     1380.     1100.         2         0         0      0.00    900.00   1245.00
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST

1490 NH CARD USED
*SECNO 14.258

3470 ENCROACHMENT STATIONS=      520.0     1310.0  TYPE=      1  TARGET=      790.000
     14.26     18.84    596.84     0 00    596.69    596.88      0.05      0.20      0.01    593.40
    10400.     1450.     7321.     1629.     966.     3954.     1363.     2437.      280.     588.30
      2.47      1.50      1.85      1.20     0.042     0.054     0.065     0.000    578.00    520.00
  0.000204     1040.     1040.      950.         2         0         0      0.00    790.00   1310.00

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 14.523
  2800 NAT Q1=  11806.98  WSEL=    596 87  ENC Q1=  11806.98  WSEL=     596.97  RATIO=  0.0000
  NAT Q1=  12054.   RATIOS LOB,CH,ROB=  0.6407  0.2369  0.1224  WSEL=     596.97

3470 ENCROACHMENT STATIONS=      228.8     1240.7  TYPE=      4  TARGET=        0.020
     14.52     18.62    597.02      0.00    596.87    597.05      0.03      0.16      0.00    590.80
    10400.     6704.     2503.     1193.     4988.     1498.     1349.     2661.      309.    589.70
      2.75      1.34      1.67      0.88     0.036     0.046     0.060     0.000    578.40    228.78
  0.000076     1350.     1400.     1400.         1         0         0      0.00   1011.90   1240.68

1490 NH CARD USED
*SECNO 15.057
  2800 NAT Q1=    5016.24  WSEL=    597.22  ENC Q1=    5016.24  WSEL=     597.32  RATIO=  0.0000
  NAT Q1=    5133.   RATIOS LOB,CH,ROB=  0.1960  0.3989  0.4050  WSEL=     597.32

3470 ENCROACHMENT STATIONS=      386.8     1316.6  TYPE=      4  TARGET=        0.023
     15.06     18.35    597.35      0.00    597.22    597.46      0.10      0.39      0.02    592.70
    10400.     1974.     4232.     4194.      895.     1163.     4476.     3076.      364.    588.40
      3.06      2.21      3.64      0.94     0.036     0.048     0.120     0.000    579.00    386.83
  0.000424     2600.     2820.     2300.         2         0         0      0.00    929.79   1316.63

1490 NH CARD USED
*SECNO 15.722

3470 ENCROACHMENT STATIONS=     1100.0     2050.0  TYPE=      1  TARGET=      950.000
     15.72     20.47    598.47      0.00    598.34    598.56      0.09      1.10      0.00100000.00
    10400.        0.     5384.     5016.         0     1657.     6006.     3536.      423.    594.10
      3.46      0.00      3.25      0.84     0.000     0.048     0.118     0.000    578.00   1100.00
  0.000316     2100.     3510.     2700.         2         0         0      0.00    950 00   2050.00
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   SECNO      DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
   Q          QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME       VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
   SLOPE      XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST


CCHV=   0.300 CEHV=    0.500
1490 NH CARD USED
*SECNO 15.736

3470 ENCROACHMENT STATIONS=     1100.0     2050.0  TYPE=      1  TARGET=      950.000
     15.74     21.82    598.52      0.00    598.39    598.59      0.07      0.02      0.01100000.00
    10400.        0.     5435.     4965.        0.     1952.     5958.     3550.      425.    592.20
      3.48      0.00      2.78      0.83     0.000     0.053     0.118     0.000    576.70   1100.00
  0.000305       80.       80.       80.         2         0         0      0.00    950.00   2050.00



SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
SB  XK          XKOR        COFQ        RDLEN       BWC         BWP         BAREA       SS          ELCHU       ELCHD
      0.00        2.10        3.04        0.00      115.00        0.00     1512.00        0.00      576.70      576.70

1490 NH CARD USED
*SECNO 15.748
     3700.    BRIDGE STENCL=    1000.00     STENCR=    2400.00
PRESSURE AND WEIR FLOW


  EGPRS       EGLWC        H3        QWEIR        QPR        BAREA     TRAPEZOID     ELLC       ELTRD
                                                                         AREA
     600.06      598.59       0.00       2155.       8204.       1512.      2139.      595.30      596.20



3470 ENCROACHMENT STATIONS=     1000.0     2400.0  TYPE=      1  TARGET=     1400.000
     15.75     22.73    599.43      0.00    599.36    599.48      0.05      0.89      0.00    595.30
    10400.        2.     5254.     5143.        9.     2180.     7131.     3564.      426.    592.20
      3.49      0.24      2.41      0.72     0.108     0.048     0.108     0.000    576.70   1080.41
  0.000176       71.       71.       71.         2         0         2      0.00   1223.87   2304.28


1490 NH CARD USED
*SECNO 16.063

3470 ENCROACHMENT STATIONS=      410.0      780.0  TYPE=      1  TARGET=      370.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=    100000.00 ELREA=      589.40

     16.06     23.41    599.81      0.00    599.75    599.95      0.13      0.43      0.04100000.00
    10400.        0.     6263.     4137.        0.     1839.     2098.     3825.      457.    589.40
      3.66      0.00      3.40      1.97     0.000     0.051     0.060     0.000    576.40    410.00
  0.000372     1694.     1749.     1694.         2         0         0      0.00    370.00    780.00
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        SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
        Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
        TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
        SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

 CCHV=    0.100 CEHV=    0.500
 1490 NH CARD USED
 *SECNO 16.396
  2800 NAT Q1=    8117.77  WSEL=     600.24  ENC Q1=    8117.77  WSEL=     600.34  RATIO=  0.0000
  NAT Q1=    8273.   RATIOS LOB,CH,ROB=  0.6426  0.3141  0.0434  WSEL=     600.34

 3470 ENCROACHMENT STATIONS=       109.4       742.8  TYPE=      4  TARGET=         0.019
      16.40     18.92    600.32      0.00    600.24    600.36      0.05      0.41      0.01    589.70
     10400.     6710.     3331.      358.     5075.     1361.      655.     4041.      477.    591.30
       3.95      1.32      2.45      0.55     0.072     0.049     0.120     0.000    581.40    109.41
  0.000165     1700.     1760.     1650.         2         0         0      0.00    633.43    742.84

 1490 NH CARD USED
 *SECNO 16.866
  2800 NAT Q1=    4509.01  WSEL=     600 90  ENC Q1=    4509.01  WSEL=     601.00  RATIO=  0.0000
  NAT Q1=    4712.   RATIOS LOB,CH,ROB=  0.6098  0.3402  0.0500  WSEL=     601.00

 3470 ENCROACHMENT STATIONS=       830.2      1828.0  TYPE=      4  TARGET=         0.043
      16.87     18.98    600.98      0.00    600.90    601.03      0.05      0.66      0.00    593.40
     10400.     6389.     3706.      305.     5461.     1415.      164.     4431.      522.    595.50
       4.34      1.17      2.62      1.86     0.104     0.079     0.048     0.000    582.00    830.25
  0.000537     2400.     2480.     2300.         2         0         0      0.00    997.79   1828.03

 1490 NH CARD USED
 *SECNO 17.089
 3280 CROSS SECTION      17.09 EXTENDED       0.26 FEET

 3470 ENCROACHMENT STATIONS=       950.0      1400.0  TYPE=      1  TARGET=       450.000
      17.09     18.96    601.56      0.00    601.46    601.70      0.14      0.63      0.05    593.40
     10400.     5050.     5316.       34.     3302.     1332.       25.     4582.       540    595.00
       4.45      1.53      3.99      1.36     0.101     0.052     0.048     0.000    582.60    950.00
  0.000570     1100.     1180.     1100.         2         0         0      0.00    450.00   1400.00
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THIS RUN EXECUTED 16 MAY 90 16:32:36

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**********************************************
HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
ERROR CORR -  01,02,03,04,05,06
MODIFICATION -  50,51,52,53,54,55,56
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

CLINTON RIVER U/S OF THE

SUMMARY PRINTOUT TABLE 110

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
11.052	593.17	0.00	593.38	1823 74	271.81	12023.80	9004.39	1970.00	550.00	569.00	691.00	2520.00
11.052	593.27	0.10	593.48	1500.00	276.77	12183.55	8839.68	1500.00	550 00	569.00	691.00	2050.00
11.292	593.63	0.00	593.66	2141.27	0.20	3109.67	7290.14	0.00	0 00	41.00	126.00	0 00
11.292	593.74	0.11	593.77	2017.46	0.00	3131.71	7268.28	0.02	41.00	41.00	126.00	2058.46
11.393	593.65	0.00	593 72	1952.96	29.11	4414.77	5956.12	0.00	0.00	272.40	358.10	0.00
11.393	593.76	0.11	593.83	1547.63	0.00	4407.65	5992.35	0.02	272.40	272.40	358.10	1820 03
11.695	593.88	0.00	594.03	1260.48	956.99	6116.90	3326.11	0.00	0.00	966.80	1054.70	0.00
11.695	593.99	0.11	594.14	974.33	896.77	6165.99	3337.24	0.02	465.94	966.80	1054.70	1440 27
11.845	594.14	0.00	594.33	1134.48	2294.21	7245.85	859.94	0.00	0.00	1311.00	1400.00	0.00
11.845	594.25	0.11	594.45	960.16	2289.44	7307.89	802.68	0.02	508.31	1311.00	1400.00	1468.47
11.860	594.19	0.00	594.37	1120.62	2357.68	7035.31	1007.01	0.00	0.00	1251.90	1341.20	0.00
11.860	594.30	0.11	594.49	959.40	2356.67	7089.07	954.26	0.02	495.60	1251.90	1341.20	1455.00
11.875	594.24	0.00	594.41	1104.34	2329.28	6916.92	1153.80	0.00	0.00	1192.80	1282.40	0.00
11.875	594.35	0.11	594.52	933.03	2323.86	6977.86	1098.29	0.02	504.04	1192.80	1282.40	1437 07
11.929	594.36	0.00	594.52	1042.98	1595.08	6777.44	2027.48	0.00	0.00	978.40	1068.90	0 00
11.929	594.47	0.11	594.63	722.92	1566.91	6833.02	2000.07	0.02	604.49	978.40	1068.90	1327.41
12.023	594.57	0.00	594.66	790.49	1143.62	5409.86	3846.52	0.00	0.00	608.00	700.00	0 00
12.023	594.69	0.11	594.77	657.48	1099.98	5453.83	3846.19	0.02	472.98	608.00	700.00	1130 46
12.339	594.99	0.00	595.02	1025.93	7801.09	2596.00	2.91	0.00	0.00	1104.00	1200.00	0.00
12.339	595.10	0.11	595.13	848.47	7786.18	2613.82	0.00	0.02	351.53	1104.00	1200.00	1200.00
12.544	595.21	0.00	595.34	750.00	1670.23	6309 67	2420.10	750.00	250.00	598.00	692.00	1000.00
12.544	595.32	0.11	595.46	699.72	1656.83	6357.15	2386.02	0.02	279.19	598.00	692.00	978.90

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
12.799	595.66	0.00	595.71	1426.59	5654.74	4280.38	464.88	1599.90	0.10	1420.00	1504.00	1600.00
12.799	595.77	0.11	595.82	1271.74	5705.26	4312.82	381.93	0.02	275.13	1420.00	1504.00	1546.87
13.144	596.01	0.00	596.07	935.79	544.07	3720.22	6135.71	1000.00	250.00	400.00	463.00	1250.00
13.144	596.12	0.11	596.18	881.10	406.50	3753.09	6240.41	0.03	362.14	400.00	463.00	1243.75
13.163	596.04	0.00	596.09	919.95	843.24	3611.10	5945.66	1274.90	0.10	462.20	527.00	1275.00
13.163	596.14	0.11	596.20	865.00	662.99	3653.37	6083.64	865.00	410.00	462.20	527.00	1275.00
13.191	596.05	0.00	596.10	891.11	870.29	3750.68	5779.03	1274.90	0.10	508.90	575.00	1275.00
13.191	596.16	0.11	596.21	830.00	715.24	3784.50	5900.26	830.00	445.00	508.90	575.00	1275.00
13.220	596.08	0.00	596.14	990.00	1228.64	3791.65	5379.71	990.00	360.00	649.00	719.00	1350.00
13.220	596.19	0.11	596.25	770.00	1227.35	3795.46	5377.19	770.00	500.00	649.00	719.00	1270.00
13.481	596.19	0.00	596.20	1457.76	8899.06	1355.27	145.67	1749.90	0.10	1507.00	1601.00	1750.00
13.481	596.29	0.11	596.30	1376.59	8976.32	1365.81	57.88	0.02	237.31	1507.00	1601.00	1613.91
13.799	596.20	0.00	596.29	765.18	2579.96	5142.60	2677.44	1009.90	0.10	416.00	513.00	1010.00
13.799	596.31	0.11	596.40	740.00	2597.95	5107.03	2695.03	740.00	190.00	416.00	513.00	930.00
14.061	596.52	0.00	596.54	1118.45	2517.38	2916.42	4966.19	1200.00	200.00	720.00	828.00	1400.00
14.061	596.64	0.13	596.67	900.00	2681.94	3312.07	4405.99	900.00	345.00	720.00	828.00	1245.00
14.258	596.69	0.00	596.73	799.76	1413.43	7371.90	1614.66	1000.00	400.00	726.00	1105.00	1400.00
14.258	596.84	0.15	596.88	790.00	1449.74	7321.38	1628.88	790.00	520.00	726.00	1105.00	1310.00
14.523	596.87	0.00	596.90	1155.12	6636.07	2489.61	1274.32	1299.90	0.10	990.00	1085.00	1300.00
14.523	597.02	0.14	597.05	1011.90	6704.09	2502.94	1192.97	0.02	228.78	990.00	1085.00	1240.68
15.057	597.22	0.00	597.32	1097.66	1992.82	4199.73	4207.46	1250.00	250.00	600.00	680.00	1500.00
15.057	597.35	0.13	597.46	929.79	1974.23	4231.64	4194.13	0.02	386.83	600.00	680.00	1316.63
15.722	598.34	0.00	598.43	1116.81	0.00	5384.15	5015.85	1200.00	1000.00	1079.00	1200.00	2200.00
15.722	598.47	0.12	598.56	950.00	0.00	5384.39	5015.61	950.00	1100.00	1079.00	1200.00	2050.00
15.736	598.39	0.00	598.46	1140.96	1.26	5431.98	4966.76	1400.00	1000.00	1085.00	1231.00	2400.00
15.736	598.52	0.13	598.59	950.00	0.00	5434.98	4965.02	950.00	1100.00	1085.00	1231.00	2050.00
15.748	599.36	0.00	599.41	1216.20	2.22	5274.38	5123.40	1400.00	1000.00	1085.00	1231.00	2400.00
15.748	599.43	0.07	599.48	1223.87	2.30	5254.45	5143.25	1400.00	1000.00	1085.00	1231.00	2400.00
16.063	599.75	0.00	599.87	469.14	0.00	6185.93	4214.07	0.00	0.00	325.00	525.00	0.00
16.063	599.81	0.07	599.95	370.00	0.00	6262.52	4137.48	370.00	410.00	325.00	525.00	780.00
16.396	600.24	0.00	600.29	749.22	6710.02	3296.65	393.33	750.00	50.00	560.00	641.00	800.00
16.396	600.32	0.07	600.36	633.43	6710.40	3331.48	358.12	0.02	109.41	560.00	641.00	742.84
16.866	600.90	0.00	600.95	1100.00	6275.87	3656.44	467.69	1100.00	800.00	1704.00	1792.00	1900.00
16.866	600.98	0.08	601.03	997.79	6388.91	3705.94	305.15	0.04	830.25	1704.00	1792.00	1828.04

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
17.089	601.46	0.00	601.60	550.00	4833.96	5125.30	440.74	550.00	950.00	1308.00	1396.00	1500.00
17.089	601.56	0.09	601.70	450.00	5049.74	5316.02	34.24	450.00	950.00	1308.00	1396.00	1400.00

CLINTON RIVER U/S OF THE

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
11.052	0.00	0.00	0.00	570.80	21300.00	593.17	0.00	593.38	4.31	4.73	13066.03	10254.75
11.052	0.00	0.00	0.00	570.80	21300.00	593.27	0.00	593.48	4.36	4.77	12365.44	10200 00
11.292	1268.00	0.00	0.00	569.40	10400.00	593.63	0.00	593.66	1 37	2.19	14992.84	8874.62
11.292	1268.00	0.00	0.00	569.40	10400.00	593.74	0.00	593.77	1.37	2.19	14989.41	8880.44
11.393	528.70	0.00	0.00	569.95	10400.00	593.65	0.00	593.72	2.43	3.00	11043.88	6672.99
11.393	528.70	0.00	0.00	569.95	10400.00	593.76	0.00	593.83	2.46	2.98	10742.47	6637.03
11.695	1586.30	0.00	0.00	571.59	10400.00	593.88	0.00	594.03	4.21	3.75	5242.16	5067.46
11.695	1586.30	0.00	0.00	571.59	10400.00	593.99	0.00	594.14	4.20	3.76	5026.96	5075.55
11.845	785.00	0.00	0.00	572.40	10400.00	594 14	0.00	594.33	5.03	4.21	5568.94	4638 99
11.845	785.00	0.00	0.00	572.40	10400.00	594.25	0.00	594.45	5.03	4.22	5447.46	4638 68
11.860	78.90	0.00	0.00	572.48	10400.00	594.19	0.00	594.37	4.63	4.07	5536.93	4833.65
11.860	78.90	0.00	0 00	572.48	10400.00	594.30	0.00	594.49	4.61	4.07	5435.69	4841.41
11.875	78.90	0.00	0.00	572.57	10400.00	594.24	0.00	594.41	4.53	3.99	5410.46	4883.67
11.875	78.90	0.00	0.00	572.57	10400.00	594.35	0.00	594.52	4.53	4.01	5280.43	4886.85
11.929	286.80	0.00	0.00	572.89	10400.00	594.36	0.00	594.52	3.43	3.89	5371.78	5619.01
11.929	286.80	0.00	0.00	572.89	10400.00	594.47	0.00	594.63	3.42	3 90	5135.65	5620.35
12.023	495.40	0.00	0.00	573.40	10400.00	594.57	0.00	594.66	2.25	3.10	6674.85	6934.14
12.023	495.40	0.00	0.00	573.40	10400.00	594.69	0.00	594.77	2.24	3 10	6519.17	6942.77
12.339	1670.00	0.00	0.00	573.00	10400.00	594.99	0.00	595.02	2.11	1.74	7567.12	7160.49
12.339	1670.00	0.00	0.00	573.00	10400.00	595.10	0.00	595.13	2.11	1 74	7350.30	7166.15
12.544	1080.00	0.00	0.00	574.70	10400.00	595.21	0.00	595.34	3.93	3.64	6029.60	5244 43
12.544	1080.00	0.00	0.00	574.70	10400.00	595.32	0.00	595.46	3.92	3.64	5960.97	5253 94
12.799	1350.00	0.00	0.00	573.50	10400.00	595.66	0.00	595.71	1.96	2.65	10279.40	7437.02
12.799	1350.00	0.00	0.00	573.50	10400.00	595.77	0.00	595.82	1.95	2.65	10183.72	7450.33
13.144	1820.00	0.00	0.00	574.40	10400.00	596.01	0.00	596.07	2.04	3.03	8812.72	7287.17
13.144	1820.00	0.00	0.00	574.40	10400.00	596.12	0.00	596.18	2.04	3.04	8642.98	7287 58
13 163	100.10	0.00	0.00	574.58	10400.00	596.04	0.00	596.09	2.24	2.87	8467.40	6949 51
13.163	100.10	0.00	0.00	574.58	10400.00	596.14	0.00	596.20	2.25	2.88	8337.22	6931.31
13.191	75.10	0.00	0.00	574.68	10400.00	596.05	0.00	596.10	1.91	2.92	8108.56	7529.33
13.191	75.10	0.00	0.00	574.68	10400.00	596.16	0.00	596.21	1.91	2.93	7985.09	7530.52
13.220	225.30	0.00	0.00	575.03	10400.00	596.08	0.00	596.14	1.91	2.83	7226.88	7534.33
13.220	225.30	0.00	0.00	575.03	10400.00	596.19	0 00	596.25	1.87	2.82	7081.01	7596 63

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
13.481	1379.50	0.00	0 00	577.20	10400.00	596.19	0.00	596 20	0.21	0.82	13348.38	22624 28
13.481	1379.50	0.00	0.00	577.20	10400.00	596.29	0.00	596.30	0 21	0.82	13186.56	22687.92
13.799	1680.00	0.00	0.00	575.90	10400.00	596.20	0.00	596.29	2 68	3.13	5928.46	6358.40
13.799	1680 00	0.00	0.00	575.90	10400.00	596.31	0.00	596.40	2.58	3.09	5999 78	6468.54
14.061	1380.00	0.00	0.00	577.50	10400.00	596.52	0.00	596.54	1.53	1.80	10201.88	8412.01
14.061	1380.00	0.00	0.00	577.50	10400.00	596.64	0.00	596.67	1.92	2.03	8888.04	7504.44
14.258	1040.00	0.00	0.00	578.00	10400.00	596.69	0.00	596.73	2.16	1.89	6167.65	7081.61
14.258	1040.00	0.00	0.00	578.00	10400.00	596.84	0.00	596.88	2.04	1.85	6282.92	7290.23
14.523	1400.00	0.00	0.00	578.40	10400.00	596.87	0.00	596.90	0.78	1.68	7978 40	11806.98
14.523	1400.00	0.00	0.00	578.40	10400.00	597.02	0.00	597.05	0.76	1.67	7834.82	11921.83
15.057	2820.00	0.00	0.00	579.00	10400.00	597.22	0.00	597.32	4.30	3.64	6677.12	5016.24
15.057	2820.00	0.00	0.00	579.00	10400.00	597.35	0.00	597.46	4.24	3.64	6533.86	5050.79
15.722	3510.00	0.00	0.00	578.00	10400 00	598.34	0 00	598.43	3.15	3.12	7820.33	5862.48
15.722	3510.00	0.00	0 00	578.00	10400.00	598.47	0.00	598.56	3.16	3.25	7662.97	5852.95
15.736	80.00	0.00	0 00	576.70	10400.00	598.39	0.00	598.46	3 03	2.68	8095.08	5971 20
15.736	80.00	0.00	0.00	576.70	10400.00	598.52	0.00	598.59	3.05	2.78	7910.03	5953.02
15.748	71.00	596.20	595.30	576.70	10400.00	599.36	0.00	599.41	1.80	2.43	9231.43	7756.90
15.748	71.00	596.20	595.30	576.70	10400.00	599.43	0.00	599.48	1.76	2.41	9320.46	7850.18
16.063	1749.00	0.00	0.00	576.40	10400.00	599.75	0.00	599.87	3.67	3.37	4088.74	5427.06
16.063	1749.00	0.00	0.00	576.40	10400.00	599.81	0.00	599.95	3.72	3.40	3937.04	5392 69
16.396	1760.00	0.00	0.00	581.40	10400.00	600.24	0.00	600 29	1.64	2.43	7369.55	8117 77
16.396	1760.00	0.00	0.00	581.40	10400.00	600.32	0.00	600.36	1.65	2.45	7090.73	8090.77
16.866	2480.00	0.00	0.00	582.00	10400.00	600.90	0 00	600.95	5.32	2.60	7192.19	4509.01
16.866	2480.00	0.00	0.00	582.00	10400.00	600.98	0.00	601.03	5.37	2.62	7040.01	4489.01
17.089	1180.00	0.00	0.00	582.60	10400.00	601.46	0.00	601.60	5.40	3.87	4881.78	4475 79
17.089	1180.00	0.00	0.00	582.60	10400.00	601 56	0.00	601 70	5.70	3.99	4659.38	4356 83

CLINTON RIVER U/S OF THE

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
11.052	21300.00	593.17	0.00	0.00	0.00	1823.74	0.00
11.052	21300.00	593.27	0.10	0.00	0.10	1500.00	0.00
11.292	10400.00	593.63	0.00	0.46	0.00	2141.27	1268.00
11.292	10400.00	593.74	0.11	0.47	0.11	2017.46	1268.00
11.393	10400.00	593.65	0.00	0.02	0.00	1952.96	528.70
11.393	10400.00	593.76	0.11	0.02	0.11	1547.63	528.70
11.695	10400.00	593.88	0.00	0.23	0.00	1260.48	1586.30
11.695	10400.00	593.99	0.11	0 23	0.11	974.33	1586.30
11.845	10400.00	594.14	0.00	0.25	0.00	1134.48	785.00
11.845	10400.00	594 25	0.11	0.25	0.11	960.16	785.00
11.860	10400.00	594.19	0 00	0.06	0.00	1120.62	78.90
11.860	10400.00	594.30	0.11	0.06	0.11	959.40	78.90
11.875	10400.00	594.24	0.00	0.05	0.00	1104.34	78.90
11.875	10400.00	594.35	0.11	0.05	0.11	933.03	78.90
11.929	10400.00	594.36	0.00	0.12	0.00	1042.98	286.80
11.929	10400.00	594.47	0.11	0.12	0.11	722.92	286.80
12.023	10400.00	594.57	0 00	0.21	0.00	790.49	495.40
12.023	10400.00	594.69	0.11	0.22	0.11	657.48	495.40
12.339	10400.00	594.99	0.00	0.41	0.00	1025.93	1670 00
12.339	10400.00	595.10	0.11	0.41	0.11	848.47	1670 00
12.544	10400.00	595.21	0.00	0.23	0.00	750.00	1080.00
12.544	10400.00	595.32	0.11	0.22	0.11	699.72	1080.00
12.799	10400.00	595.66	0.00	0.44	0.00	1426.59	1350.00
12.799	10400.00	595.77	0.11	0.44	0.11	1271.74	1350.00
13.144	10400.00	596.01	0.00	0.35	0.00	935.79	1820.00
13.144	10400.00	596.12	0.11	0.35	0.11	881.10	1820.00
13.163	10400.00	596.04	0.00	0.02	0.00	919.95	100.10
13.163	10400.00	596.14	0.11	0.02	0.11	865.00	100.10
13.191	10400.00	596.05	0.00	0.01	0.00	891.11	75.10
13.191	10400.00	596.16	0.11	0 01	0.11	830 00	75.10
13.220	10400.00	596.08	0.00	0.04	0.00	990.00	225.30
13.220	10400.00	596.19	0.11	0.04	0.11	770.00	225.30

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
13.481	10400.00	596.19	0.00	0.10	0.00	1457.76	1379.50
13 481	10400.00	596.29	0.11	0.10	0.11	1376.59	1379.50
13.799	10400.00	596.20	0.00	0.02	0.00	765.18	1680.00
13.799	10400.00	596.31	0.11	0.02	0.11	740.00	1680.00
14.061	10400.00	596.52	0.00	0.31	0.00	1118.45	1380.00
14.061	10400.00	596.64	0.13	0.33	0.13	900.00	1380.00
14.258	10400.00	596.69	0.00	0.17	0.00	799.76	1040.00
14.258	10400.00	596.84	0.15	0.19	0.15	790.00	1040.00
14.523	10400.00	596.87	0.00	0.19	0.00	1155.12	1400.00
14.523	10400.00	597.02	0.14	0.18	0.14	1011.90	1400.00
15.057	10400.00	597.22	0.00	0.35	0.00	1097.66	2820.00
15.057	10400.00	597.35	0 13	0.34	0.13	929.79	2820.00
15.722	10400.00	598.34	0.00	1.12	0.00	1116.81	3510.00
15.722	10400.00	598.47	0.12	1.11	0.12	950.00	3510.00
15.736	10400.00	598.39	0.00	0 05	0.00	1140.96	80.00
15.736	10400.00	598.52	0.13	0.05	0.13	950.00	80.00
15.748	10400.00	599.36	0.00	0.96	0.00	1216.20	71.00
15.748	10400.00	599.43	0.07	0.91	0.07	1223.87	71.00
16.063	10400.00	599.75	0.00	0.39	0.00	469.14	1749.00
16.063	10400.00	599.81	0.07	0.38	0.07	370.00	1749.00
16.396	10400.00	600.24	0.00	0.49	0.00	749.22	1760.00
16.396	10400.00	600.32	0 07	0.50	0.07	633.43	1760.00
16.866	10400.00	600.90	0.00	0.65	0.00	1100.00	2480.00
16.866	10400.00	600.98	0.08	0.66	0.08	997.79	2480 00
17.089	10400.00	601.46	0.00	0.57	0.00	550.00	1180.00
17.089	10400.00	601.56	0.09	0.58	0.09	450.00	1180.00

FLOODWAY DATA, CLINTON RIVER U/S OF THE
PROFILE NO. 2

	------- FLOODWAY -------			WATER SURFACE ELEVATION		
STATION	WIDTH	SECTION AREA	MEAN VELOCITY	WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
11.052	1500.	12365.	1.7	593.3	593.2	0.1
11.292	2017.	14989.	0.7	593.7	593.6	0 1
11.393	1548.	10742.	1.0	593.8	593.7	0.1
11.695	974.	5027.	2.1	594.0	593.9	0.1
11.845	960.	5447.	1.9	594.2	594.1	0.1
11.860	959.	5436.	1.9	594.3	594.2	0.1
11.875	933.	5280.	2.0	594.3	594.2	0.1
11.929	723.	5136.	2.0	594.5	594.4	0.1
12.023	657.	6519.	1.6	594.7	594.6	0.1
12.339	848.	7350.	1.4	595.1	595.0	0.1
12.544	700.	5961.	1.7	595.3	595.2	0 1
12.799	1272.	10184.	1.0	595.8	595.7	0.1
13.144	881.	8643.	1.2	596.1	596.0	0.1
13.163	865.	8337.	1.2	596.1	596.0	0.1
13.191	830.	7985.	1.3	596.1	596.0	0.1
13.220	770.	7081.	1.5	596.2	596.1	0.1
13.481	1377.	13187.	0.8	596 3	596.2	0.1
13.799	740.	6000.	1.7	596.3	596.2	0.1
14.061	900.	8888.	1.2	596.6	596.5	0.1
14.258	790.	6283.	1.7	596.8	596.7	0.1
14.523	1012.	7835.	1.3	597.0	596.9	0.1
15.057	930.	6534.	1.6	597.3	597.2	0.1
15.722	950.	7663.	1.4	598.4	598.3	0.1
15.736	950.	7910.	1.3	598.5	598.4	0.1
15.748	1224.	9320.	1.1	599.5	599.4	0.1
16.063	370.	3937.	2.6	599.8	599 7	0.1
16.396	633.	7091.	1.5	600.3	600.2	0.1
16.866	998.	7040.	1.5	601.0	600.9	0.1
17.089	450.	4659.	2.2	601.6	601.5	0.1

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Clinton Twp.

3) WATERCOURSE: Harrington Drain

4) DOCUMENT TYPE: Analysis Documentation

00BREAK00

JOHNSON & ANDERSON, INC.
Consulting Engineers
P.O. Box 1066 • 2300 Dixie Highway
Pontiac, Michigan 48056

Phone (313) 334-9901

Rec'd 3-9-77

LETTER OF TRANSMITTAL

DATE	JOB NO.
March 7, 1977	5670-02-1

RE:
Clinton Township Flood Insurance
Harrington Drain
Hydraulic Computations

If enclosures are not as noted, kindly notify us at once.

TO: Mr. Dan Morgan, Acting Chief
Flood Insurance Unit
Water Management Division
Michigan Dept. of Natural Resources
P. O. Box 30028
Lansing, Michigan 48909

GENTLEMEN:

WE ARE SENDING YOU ☒ Attached ☐ Under separate cover via ____________ the following items:

☐ Shop drawings ☒ Prints ☐ Plans ☐ Samples ☐ Specifications

☐ Copy of letter ☐ Change order ☐

COPIES	DATE	NO.	DESCRIPTION
1	2-18-77		Plan & Profile
1	3-3-77		HEC-2 Input, Output, and J&A I-PLOT
1	3-7-77		Bridge Calculation Book
1	3-7-77		Field Section, SECNO & Description List

THESE ARE TRANSMITTED as checked below:

☒ For approval ☐ Approved as submitted ☐ Resubmit ______ copies for approval

☐ For your use ☐ Approved as noted ☐ Submit ______ copies for distribution

☐ As requested ☐ Returned for corrections ☐ Return ______ corrected prints

☐ For review and comment ☐ ____________

REMARKS:

SIGNED:
William C. Rossow
William C. Rossow, P.E.
Project Manager

Copy to: File

(Yellow copy to File)
FORM GU-030 (11-72) WCR/dp

3-7-77

CLINTON TOWNSHIP
FLOOD INSURANCE STUDY
HARRINGTON DRAIN
HYDRAULIC ANALYSIS

J&A FILE NO. 5670-02-1

Johnson & Anderson, Inc.
Consulting Engineers
2300 Dixie Highway, P. O. Box 1166
Pontiac, Michigan 48056

HYDRAULIC ANALYSIS

Introduction

The stream being studied is the Harrington Drain in Clinton Township, Macomb County, Michigan. The study limits are from its mouth at the Clinton River to Fifteen Mile Road. The date of field survey was September, 1976.

The summer discharges were computed by the unit hydrograph-infiltration capacity method developed by Dr. Ernest F. Brater. The 10-, 50-, 100- and 500-year flood frequency flows used in this study have been tentatively accepted by the Michigan Department of Natural Resources (letter dated October 28, 1976).

The project Manager for this analysis is William C. Rossow, P.E.

Method of Analysis

Water-surface profiles were computed by the HEC-2 standard step-backwater computer program developed by the U.S. Army Corps of Engineers.[1]

The hydraulic model was developed for the 100-year flow. The "normal bridge" routine was used for constrictions under low flow conditions for the 100-year discharge. The "special bridge" routine was used for constrictions that experienced pressure flow for the 100-year discharge. A hand calculation was used for the 500-year under pressure flow if the constriction was coded for low flow. All constrictions were inspected for inlet control.

Valley sections upstream and downstream of culverts were located where full cross-section flow would be developed out of the influence of the bridge constriction. The criteria for placement of these sections were those outlined on pages 18-21 of the HEC Training Document No. 6, Application of the HEC-2 Bridge Routines. Accordingly, the downstream section was placed at a distance of about four times the average length of the side constriction caused by the bridge abutment. The upstream section was placed at a distance about equal to the bridge constriction. If the actual field-surveyed cross section fell within this distance, this section was encroached as appropriate.

Starting Point

Profile computations for the Harrington Drain were begun at its confluence with the Clinton River. The water-surface elevations in the Clinton River at the Harrington Drain were determined by a backwater curve starting at
not submitted
Lake St. Clair with the mean annual flood elevation. The flows used in the Clinton River were those when the Harrington Drain was at peak discharge.

Since critical depth for the Harrington Drain is at a higher elevation than the water surface in the Clinton River, a free outfall exists. Therefore the profile computations for the Harrington Drain were started at * critical depth.

Variables and Coefficients

The roughness factors (Manning's "n") were established by comparing the photographs and descriptions found on pages 101 to 123 in Open-Channel

* see DNR check on J&A computer output (100-yr profile)

Hydraulics by Ven Te Chow, with photographs and field inspection trips taken at every cross section. Each cross section was analyzed using average values in the lateral direction of the longitudinal roughness variation.

The contraction and expansion coefficients used between cross sections were 0.1 and 0.3, respectively, which reflect gradual transitions.

The contraction and expansion coefficients used at constrictions not experiencing weir flow were 0.5 and 1.0, respectively, which reflect the sudden transitions found between the bridge section and valley section. Depending upon the amount of weir flow, these coefficients were reduced as the contraction and expansion losses became less.

The total loss coefficient (XKOR) used in the HEC-2 "special bridge" routine was determined as outlined in Exhibit 2 of the HEC-2 Users Manual.[1] The individual coefficients were taken from tables published by the Bureau of Public Roads.[2]

For inlet control, nomographs from the Bureau of Public Roads[2] were used. If nomographs did not exist for a particular bridge, then the equation $\left|\frac{V^2}{2g} + \frac{1}{C^2}\right| + \frac{D}{2} = HW^{3.4}$ was used if the entrance was submerged. If the entrance was unsubmerged, then either the weir principle was applied or the culvert was made equivalent to a round pipe[5] to be solved. The weir discharge and submergence coefficients were taken from charts supplied by the Michigan Department of Natural Resources.

Synthetic Cross Sections

Synthetic cross sections utilized in the hydraulic analysis were developed in three ways. The three methods used were blending of the two cross sections, repetition of a field-surveyed cross section with appropriate invert and area adjustment, or interpolating between two field-surveyed cross sections using the Johnson & Anderson, Inc., AVSEC computer program. The AVSEC program develops an average cross section by averaging the overbanks and channel of the two known cross sections.

Since inverts are known only at field sections, a straight line is assumed between these known points.

Sensitivity of the Roughness Coefficients

Two backwater runs were made for the 100-year flood varying only the roughness coefficients. An increase of the Manning "n" by 30 percent resulted in an increase in water-surface elevation by approximately 0.95 feet. A decrease of the Manning "n" by 30 percent resulted in a drop in water surface by approximately 1.23 feet. (comparision runs not submitted)

References

[1]U.S. Army Corps of Engineers, Hydrologic Engineering Center, HEC-2 Water Surface Profile, Users Manual, 1973.

[2]Hydraulic Charts for the Selection of Highway Culverts, Bureau of Public Roads, Hydraulic Engineering Circular No. 5 (1965).

[3]Design of Small Channel Structures, Bureau of Reclamation, Department of the Interior, p. 209.

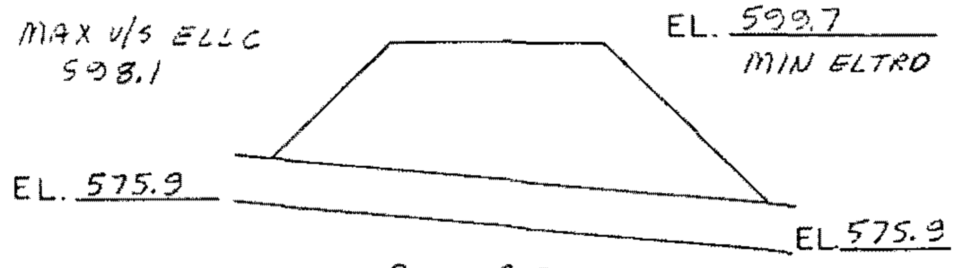
[4]Morris and Wiggert, Applied Hydraulics in Engineering, p. 288.

[5]Handbook of Concrete Pipe Hydraulics, Portland Cement Association, (1964), pp. 115-116.

JOB NAME: Clinton Twp, FIS	JOB NO. 5670	02	1	128

WATERCOURSE: Harrington Drain — CULVERT LOCATION: Harrington Road Bridge

CULVERT DESCRIPTION: See field notes — BY WCR — DATE 12-14-76



WEIR DESCRIPTION: Concrete road with 31 ft breadth

A = ______ D = 22.2

WP = 86 ft * Ke = ______

$\frac{29.1}{R^{4/3}}$ = ______ n = .024

So = 0.0000

L = 31

Sta. 15+86 Sta. 15+55

CALCULATIONS AND COMMENTS:

— Manning "n" —

Preliminary HEC-2 Run indicates a water depth of about 10 ft. ∴ Normal Bridge Routine

$$n = \left(\frac{4 \times 4.3 \times .015^2 + 15 \times .03^2 + 53.8 \times .025^2}{86}\right)^{1/2}$$

n = .0244

Final HEC-2 Run – Depth ≈ 8 ft

$$n = \left(\frac{4 \times 2.3 \times .015^2 + 15 \times .03^2 + 49.8 \times .025^2}{74}\right)^{1/2}$$

n = .0251 ≈ .0244

* See attached sheets

```
X1  1554.        33    800.00    899.60     84.00     84.00     84.00     1.000

BT      17.00      0.00    605.90      0.00    100.00    604.80      0.00    200.00    603.50      0.00

BT     300.00    602.30      0.00    400.00    600.90      0.00    500.00    600.70      0.00    600.00
BT     600.30      0.00    700.00    599.90      0.00    772.00    600.60      0.00    800.00    601.10
BT     597.70    831.40    601.20    597.80    833.00    601.20    597.80    866.60    601.40    598.00
BT     868.20    601.40    598.00    899.60    601.50    598.10    930.00    600.80      0.00    995.00
BT     599.70      0.00

GR     605.90      0.00    604.80    100.00    603.50    200.00    602.30    300.00    600.90    400.00
GR     600.70    500.00    600.30    600.00    599.90    700.00    600.60    772.00    601.10    800.00
GR     592.50    800.00    592.50    805.00    581.00    829.00    580.60    831.40    597.80    831.40
GR     597.80    833.00    580.20    833.00    579.90    837.00    576.30    840.00    575.90    845.00
GR     576.40    850.00    576.30    855.00    579.30    861.00    579.80    866.60    598.00    866.60
GR     598.00    868.20    580.50    868.20    581.60    871.00    592.30    895.00    592.80    899.60
GR     601.50    899.60    600.80    930.00    599.70    995.00
*****************LISTING OF TOP AND BOTTOM SECTIONS OF ORIFICE*****************

  800.00  597.70  831.40  597.80  833.00  597.80  866.60  598.00  868.20  598.00
  899.60  598.10

  800.00  601.10  800.00  592.50  805.00  592.50  829.00  581.00  831.40  580.60
  831.40  597.80  833.00  597.80  833.00  580.20  837.00  579.90  840.00  576.30
  845.00  575.90  850.00  576.40  855.00  576.30  861.00  579.30  866.60  579.80
  866.60  598.00  868.20  598.00  868.20  580.50  871.00  581.60  895.00  592.30
  899.60  592.80  899.60  601.50
************** LISTING OF COORDINATES OF ORIFICE*********************

  800.00  597.70  831.40  597.80  833.00  597.80  866.60  598.00  868.20  598.00
  899.60  598.10  899.60  592.80  895.00  592.30  871.00  581.60  868.20  580.50
  868.20  598.00  866.60  598.00  866.60  579.80  861.00  579.30  855.00  576.30
  850.00  576.40  845.00  575.90  840.00  576.30  837.00  579.90  833.00  580.20
  833.00  597.80  831.40  597.80  831.40  580.60  829.00  581.00  805.00  592.50
  800.00  592.50  800.00  597.70
```

ORIFICE AREA 1349.8 WETTED PERIMETER 281.4 29.1/R**1.333 3.6059

Johnson & Anderson, Inc.
Consulting Engineers
P.O. Box 1166 2300 Dixie Highway Pontiac, Michigan 48056

HYDRAULIC STRUCTURAL DATA

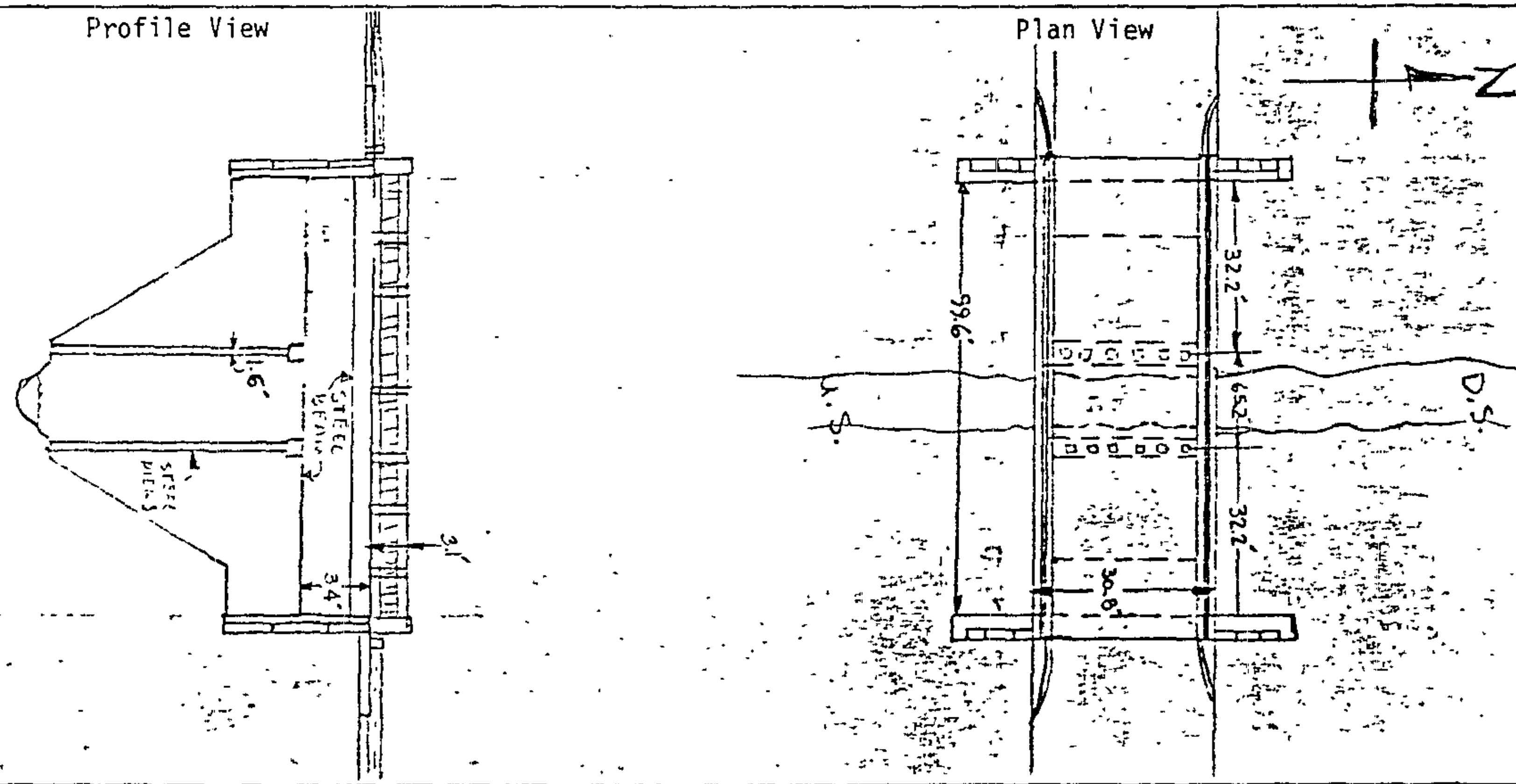
Code No. 02-128

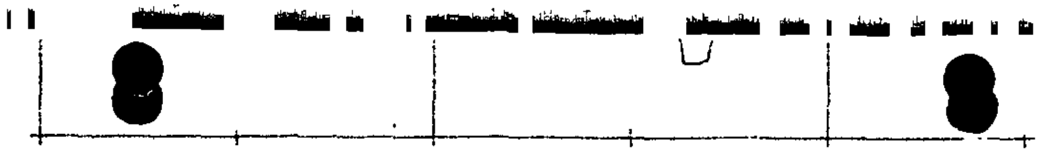
Job Name: CLINTON TOWNSHIP F.I.S.			By: T.R. PRUYT
Date: 9-20-76	Feature: HARRINGTON Rd. BRIDGE		Water Course: HARINGTON DRAIN
Remarks: A. BRIDGE DEDICATION PLATE: MSHD P1 of 50-4-1 "1949"			B. BOTTOM: CLAY w/ BROKEN CONCRETE
C. PHOTOS: H-9 u/s face right	H-11 u/s	H-13 left	H-15 down/s face right
H-10 u/s face left	H-12 right	H-14 down/s	H-16 down/s face left
Width of Piers: 1.6'	Pier Shape: SQUARE	No. of Piers: 12	Area:
Water Elevation: 576.4	Length: 99.6	Width of Deck: 30.8	Skew: 90°

FIELD SKETCH

Profile View

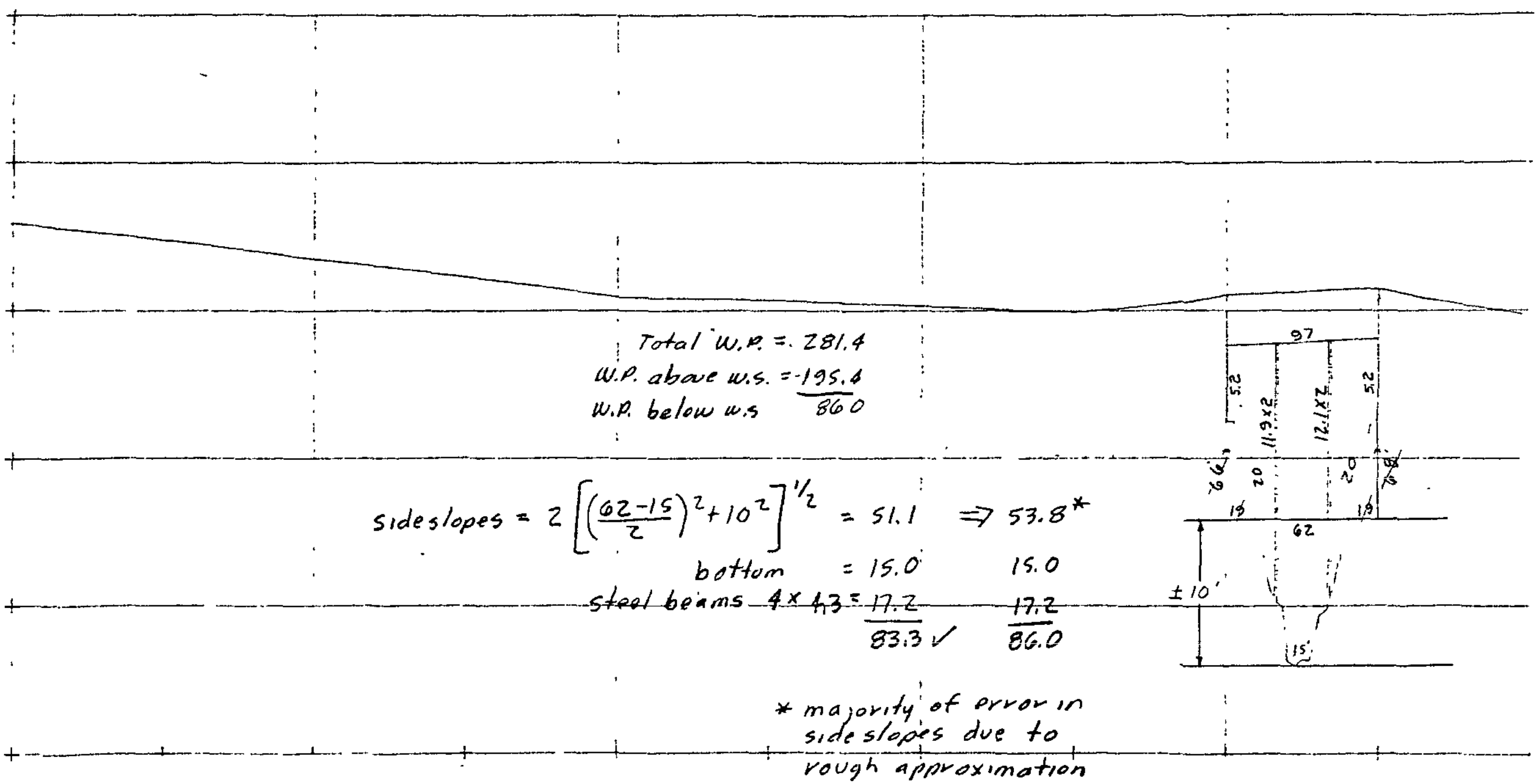
Plan View





0 200 400

SECTION 147



Total W.P. = 281.4
W.P. above w.s. = -195.4
W.P. below w.s. 86.0

$$\text{sideslopes} = 2\left[\left(\frac{62-15}{2}\right)^2 + 10^2\right]^{1/2} = 51.1 \Rightarrow 53.8^*$$

bottom	= 15.0		15.0
steel beams	4 × 4.3 = 17.2		17.2
	83.3 ✓		86.0

97 5.2 11.9x2 12.1x2 5.2 6.6 20 20 6.6 15 62 15 ±10' 15'

* majority of error in sideslopes due to rough approximation

0 200 SECNO 400 600 800

SECTION ~~123~~ 1555 & 1586

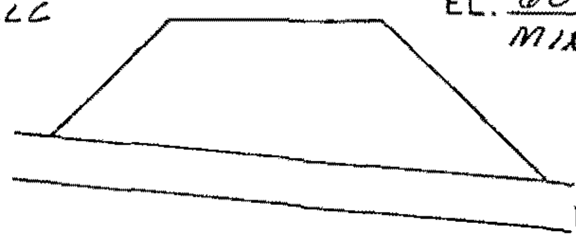
JOB NAME: *Clinton Twp, FIS*	JOB NO.	*5670*	*02*	*1*	*138 / 139*

WATERCOURSE: *Harrington Drain* CULVERT LOCATION: *16 Mile Road Bridges*

CULVERT DESCRIPTION: *Identical Dual Concrete Bridges with headwalls parallel to embankment*

BY *WCR* DATE *12-14-76*

WEIR DESCRIPTION: *Concrete Roads with 24' breadths each*



A = ______ D = *11.8*

WP = *48.1 **

$\frac{29.1}{R^{4/3}}$ = ______

Ke = ______

n = *n=.030*

So = *0.0000*

L = *59*

Sta. *133+59 / 134+66*

Sta. *133+00 / 134+07*

CALCULATIONS AND COMMENTS:

— *Manning "n"* —

Preliminary HEC-2 Run indicates a water depth of about 11 ft ∴ Normal Bridge Routine

Total W.P. = 79.2

w.p. above 11' = 31.1 = (830.4 - 800) x .97 + 2 x .8

w.p. below 11' = 48.1 ft

$$n = \left[\frac{(8.3+8.6)(.015^2) + 31.2 \times .035^2}{48.1}\right]^{1/2}$$

$n = 0.0296$

**See attached sheets*

Final HEC-2 Run Depth ≈ 9 ft

$$n = \left[\frac{(8.3-2.0+8.6-2.0)(.015)^2 + 31.2 \times .035^2}{44.1}\right]^{1/2}$$

$n = .0305 \approx .0296$

```
X1   13349.00        28     800.00     830.40     180.00      79.00      79.00      0.970

BT      19.00      0.00     606.60       0.00     100.00     605.60       0.00     200.00     604.60       0.00

BT     300.00    603.80       0.00     400.00     603.10       0.00     500.00     602.70       0.00     600.00
BT     602.40      0.00     700.00     602.30       0.00     782.00     602.30       0.00     800.00     603.10
BT     599.80    830.40     603.20     599.90     875.00     602.60       0.00     900.00     602.70       0.00
BT    1000.00    603.10       0.00    1100.00     603.90       0.00    1132.00     604.10       0.00    1200.00
BT     604.80      0.00    1300.00     605.80       0.00    1400.00     607.00       0.00

GR     606.60      0.00     605.60     100.00     604.60     200.00     603.80     300.00     603.10     400.00
GR     602.70    500.00     602.40     600.00     602.30     700.00     602.30     782.00     603.10     800.00
GR     590.80    800.00     590.20     804.00     588.30     805.00     588.10     810.00     588.30     815.00
GR     588.30    820.00     588.40     822.00     589.60     823.00     590.50     830.40     603.20     830.40
GR     602.60    875.00     602.70     900.00     603.10    1000.00     603.90    1100.00     604.10    1132.00
GR     604.80   1200.00     605.80    1300.00     607.00    1400.00
*******************LISTING OF TOP AND BOTTOM SECTIONS OF ORIFICE*******************

  800.00  599.80  830.40  599.90

  800.00  603.10  800.00  590.80  804.00  590.20  805.00  588.30  810.00  588.10
  815.00  588.30  820.00  588.30  822.00  588.40  823.00  589.60  830.40  590.50
  830.40  603.20
************** LISTING OF COORDINATES OF ORIFICE*********************

  800.00  599.80  830.40  599.90  830.40  590.50  823.00  589.60  822.00  588.40
  820.00  588.30  815.00  588.30  810.00  588.10  805.00  588.30  804.00  590.20
  800.00  590.80  800.00  599.80

  ORIFICE AREA       318.7 WETTED PERIMETER      79.2  29.1/R**1.333       4.5581
```

Johnson & Anderson, Inc.
Consulting Engineers
P.O Box 1166 2300 Dixie Highway Pontiac, Michigan 48056

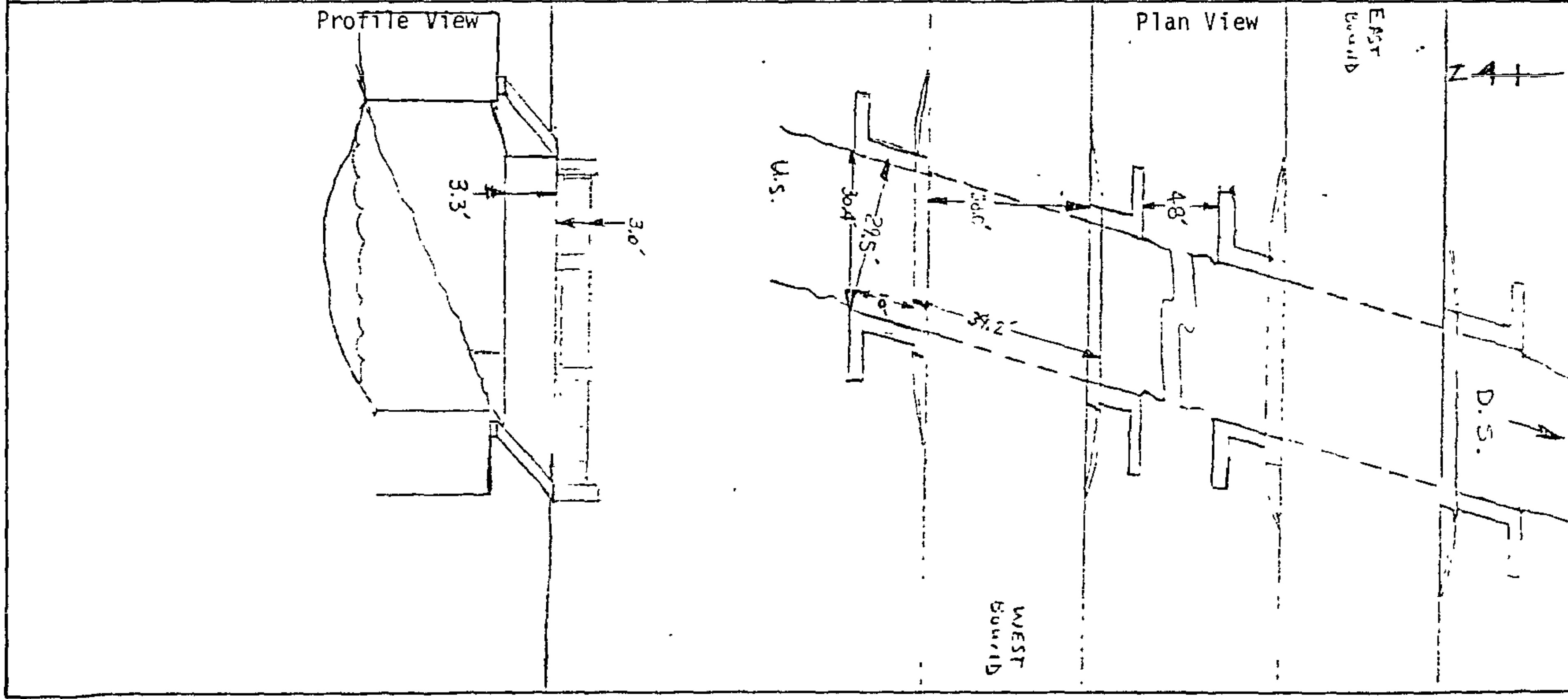
HYDRAULIC STRUCTURAL DATA

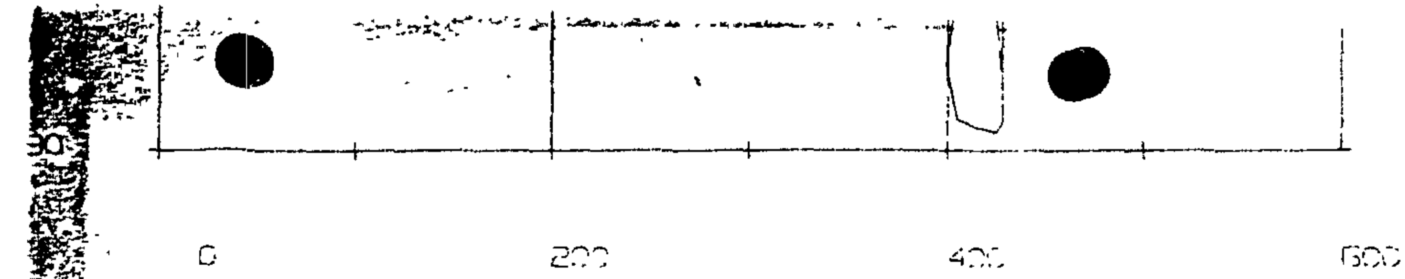
CODED 9/ 76 BEH

Code No. 02-139 & 129

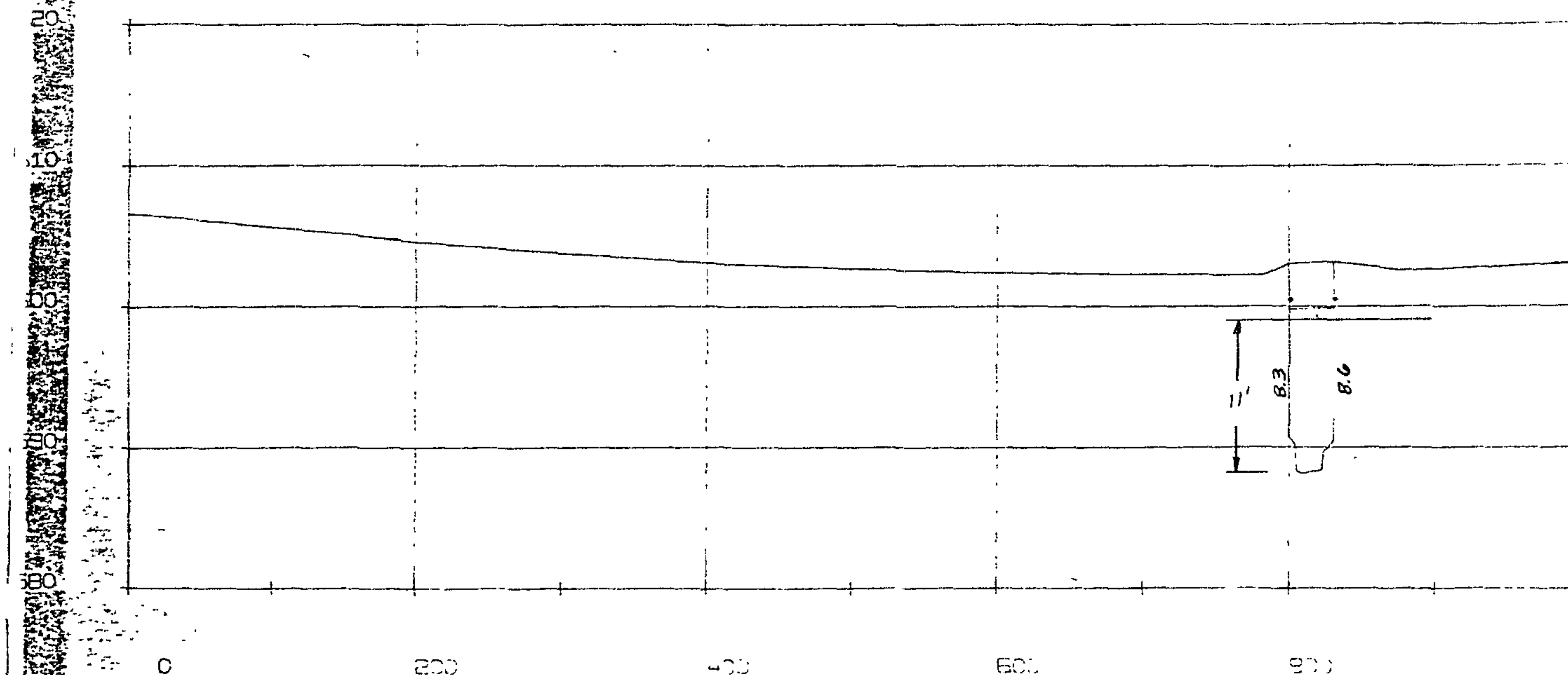
Job Name: Clinton Twp. F.I.C.			By: T.P. Ryust
Date: 9-20-76	Feature: 16 Mile Rd. Bridges		Water Course: Harrington Drain
Remarks: Bridge Dedication Plate: Macomb Co Rd Comm. FAS# S344(2) 1952			
East Bound & West Bound Bridges Identical			
Bottom: Clay w/ scattered debris			
Width of Piers: —	Pier Shape: —	No. of Piers: —	Area:
Water Elevation: 588.6	Length: 39.2	Width of Deck: 29.5	Skew: SEE SKETCH

FIELD SKETCH





SECTION 142

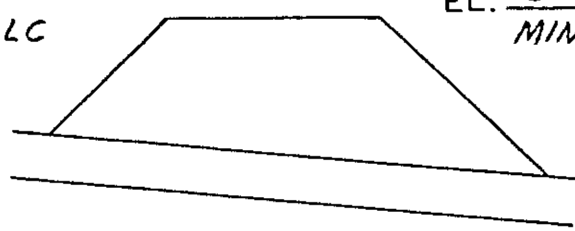


SECTION ~~135~~ SECNO 13300, 13359, 13407, 13466

JOB NAME: *Clinton Twp, FIS*	JOB NO. 5670 | 02 | 1 | 142
WATERCOURSE: *Harrington Drain*	CULVERT LOCATION: *Kelly Road*
CULVERT DESCRIPTION: *Concrete Arch Bridge with Wingwalls approximately 45° to barrel and square edge crown.*	BY *WCR* DATE *11-29-76*
WEIR DESCRIPTION: *Gravel road with 19 ft. breadth*	

EL. 601.8
MIN ELTRD

MAX u/s ELLC
600.8.



EL. 590.9

EL 590.9

So = 0.0000

L = 19'

Sta. 161+64

Sta. 161+45

A = 201.7 ft^2 D = 9.9 ft

WP = 63.5 ft Ke = 0.4

$\frac{29.1}{R^{4/3}}$ = 6.2543 n = 0.0258

CALCULATIONS AND COMMENTS:

— Manning "n" —

$$n = \left(\frac{28 \times .035^2 + 35.5 \times .015^2}{63.5}\right)^{1/2}$$

$$n = 0.0258$$

— XKOR —

$$XKOR = 1 + Ke + \frac{29.1\, n^2 L}{R^{4/3}}$$

$$= 1 + .4 + 6.2543 \times .0258^2 \times 19$$

$$XKOR = 1.479$$

— COFQ —

Assume h = 1.0 ft for initial run

$$\frac{h}{L} = \frac{1}{19} = .05$$

COFQ = 2.83 for H = 1.0 ft

```
X1   16145.00        21    400.00    428.00     81.00    141.00    125.00     1.000

BT      18.00      0.00    605.60      0.00     92.00    605.30      0.00    192.00    604.10      0.00

BT     292.00    603.50      0.00    365.00    601.80      0.00    400.00    602.00    594.20    400.00
BT     605.00    594.50    405.00    605.00    598.50    410.00    605.00    600.50    415.00    605.00
BT     600.80    420.00    605.00    599.90    425.00    605.00    597.10    428.00    605.00    594.20
BT     428.00    602.00    591.40    475.00    602.30      0.00    492.00    603.70      0.00    522.00
BT     605.90      0.00    600.00    604.50      0.00

GR     605.60      0.00    605.30     92.00    604.10    192.00    603.50    292.00    601.80    365.00
GR     601.30    377.00    599.70    392.00    594.20    400.00    594.20    400.00    591.60    405.00
GR     591.40    410.00    591.20    415.00    591.10    420.00    590.90    425.00    591.40    428.00
GR     591.40    428.00    599.70    436.00    602.30    475.00    603.70    492.00    605.90    522.00
GR     604.50    600.00
*******************LISTING OF TOP AND BOTTOM SECTIONS OF ORIFICE******************

  400.00  594.20  400.00  594.50  405.00  598.50  410.00  600.50  415.00  600.80
  420.00  599.90  425.00  597.10  428.00  594.20  428.00  591.40

  400.00  594.20  400.00  594.20  405.00  591.60  410.00  591.40  415.00  591.20
  420.00  591.10  425.00  590.90  428.00  591.40  428.00  591.40
************** LISTING OF COORDINATES OF ORIFICE*********************

  400.00  594.20  400.00  594.50  405.00  598.50  410.00  600.50  415.00  600.80
  420.00  599.90  425.00  597.10  428.00  594.20  428.00  591.40  428.00  591.40
  425.00  590.90  420.00  591.10  415.00  591.20  410.00  591.40  405.00  591.60
  400.00  594.20  400.00  594.20

  ORIFICE AREA      201.7 WETTED PERIMETER      63.5  29.1/R**1.333      6.2543
```

B.S.F 142

[redacted] Johnson & Anderson, Inc.
Consulting Engineers
P O Box 1166 2300 Dixie Highway Pontiac, Michigan 48056

HYDRA[redacted]C STRUCTURAL DATA

CODED 9/27/76 BEN
SHT [redacted] OF 2

Code No. 5670-02 #142

Job Name: CLINTON TWP F.I.S HERRINGTON DRAIN		By: D NETT
Date: 9-21-76	Feature: CONC. ARCH BRIDGE	Water Course: HARRINGTON DR

Remarks: PHOTO LOG # 26/U.S 27/D.S 28/R 29/L 30/U.S.F 31/D.S.F

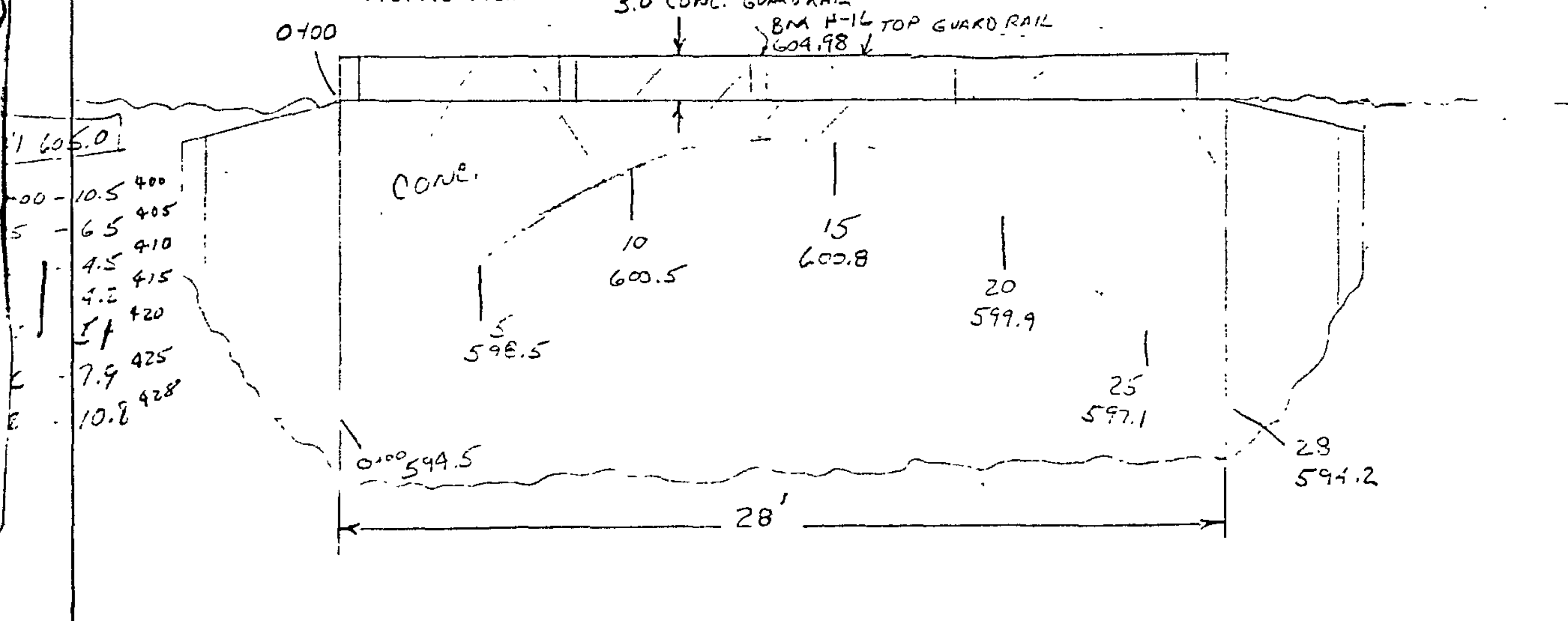
HEAVY BRUSH PLANT BANKS SCATTERED RESIDENTIAL AREA BEYOND

Width of Piers:	Pier Shape:	No. of Piers:	Area:
Water Elevation:	Length: 28'	Width of Deck: 18.5	Skew: 0

FIELD SKETCH

Profile View

Plan View



R.S.# 142

[illegible]ohnson & Anderson, Inc.
Consulting Engineers
P.O. Box 1166 2300 Dixie Highway Pontiac, Michigan 48056

HYDRAU[illegible] STRUCTURAL DATA SHT [illegible] 2

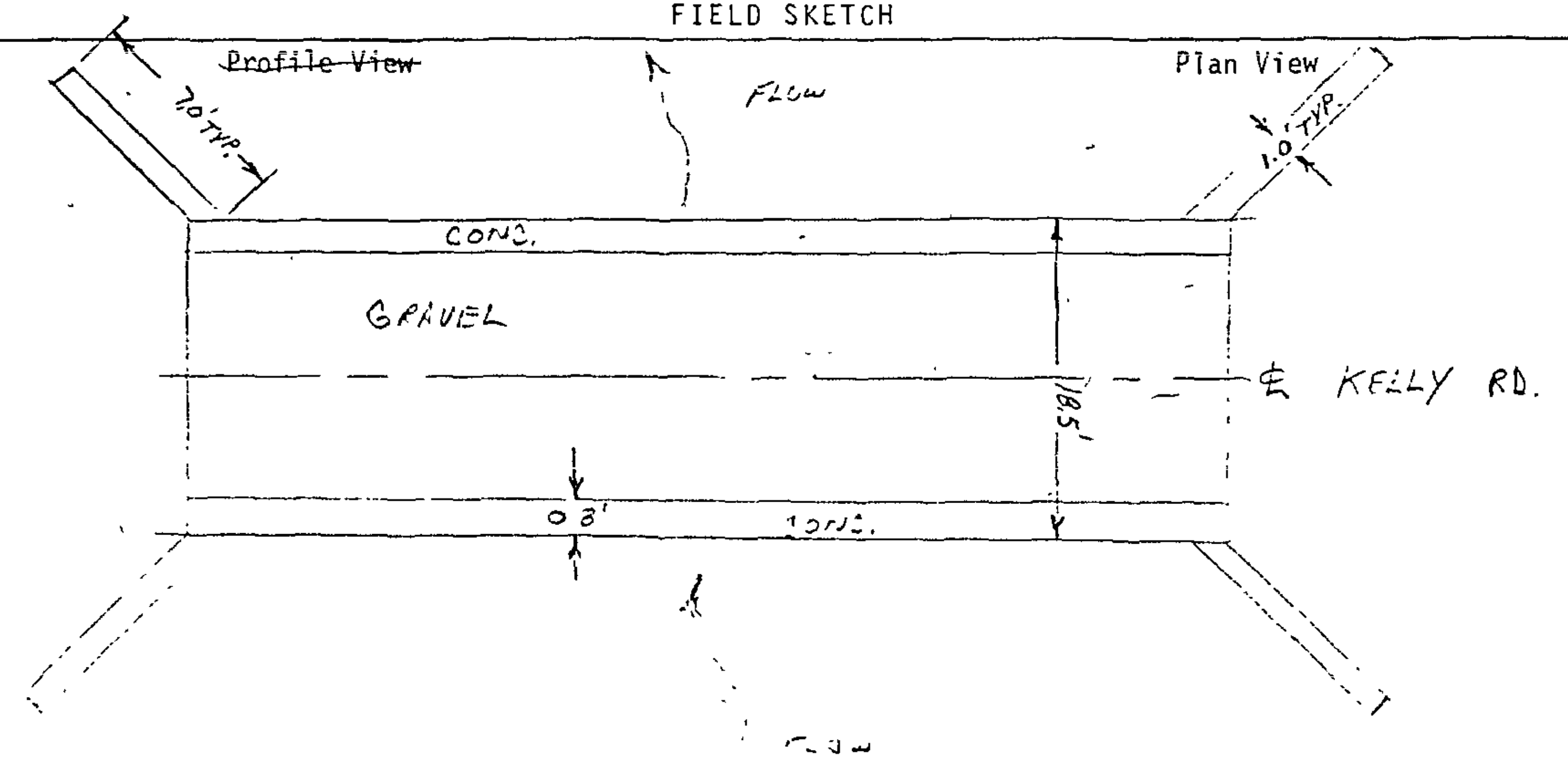
Code No. 5670-02 # 142

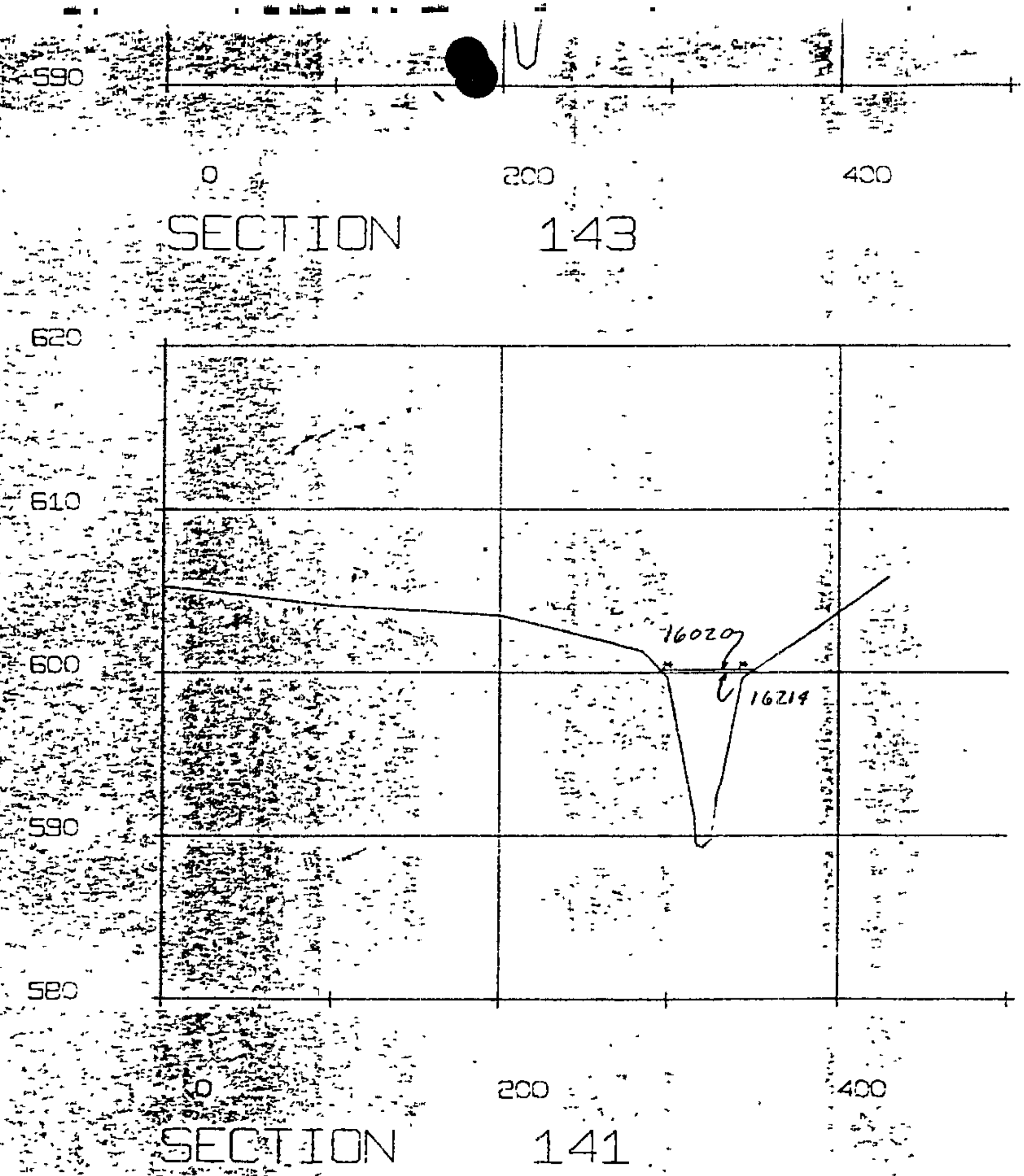
Job Name: CLINTON TWP. F.I.S HARRINGTON DRAIN		By: D. NETT
Date: 9-21-76	Feature: CONC ARCH	Water Course:
Remarks:		

Width of Piers:	Pier Shape:	No. of Piers:	Area:
Water Elevation:	Length:	Width of Deck:	Skew: 0

FIELD SKETCH

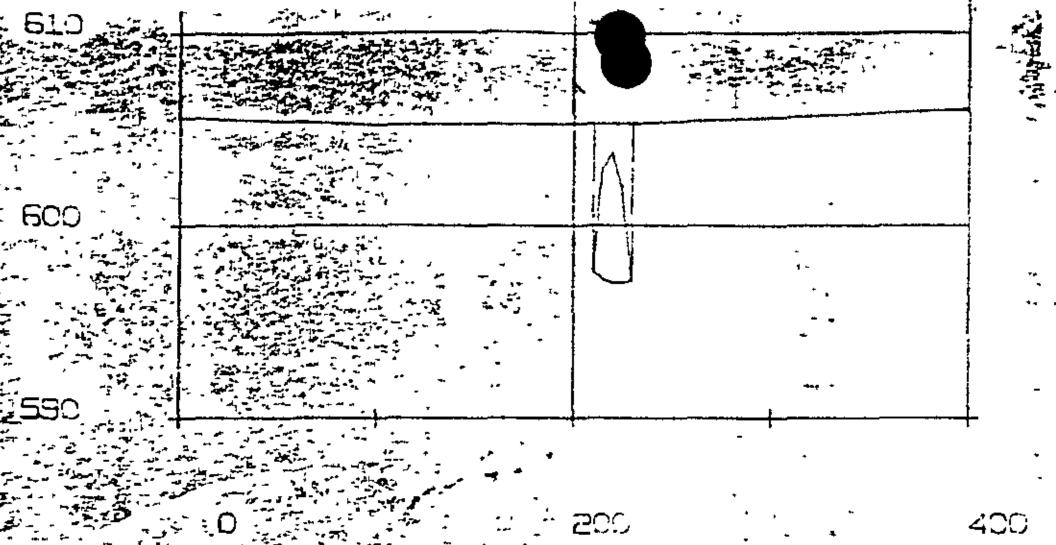
~~Profile View~~ Plan View



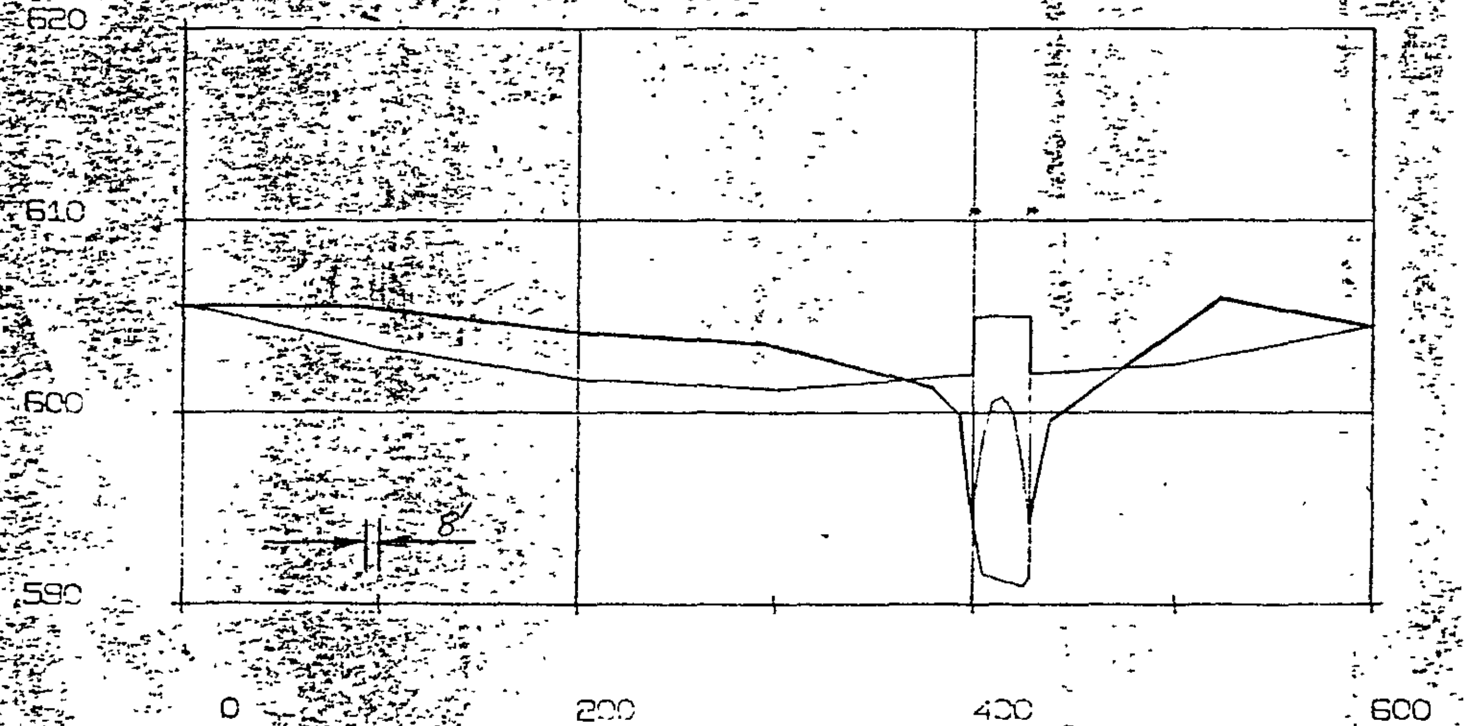


SECNO - 16020
Also 16214

5670-02-192
Harrington Drain
Kelly Road Bridge
11-2-76 WCR

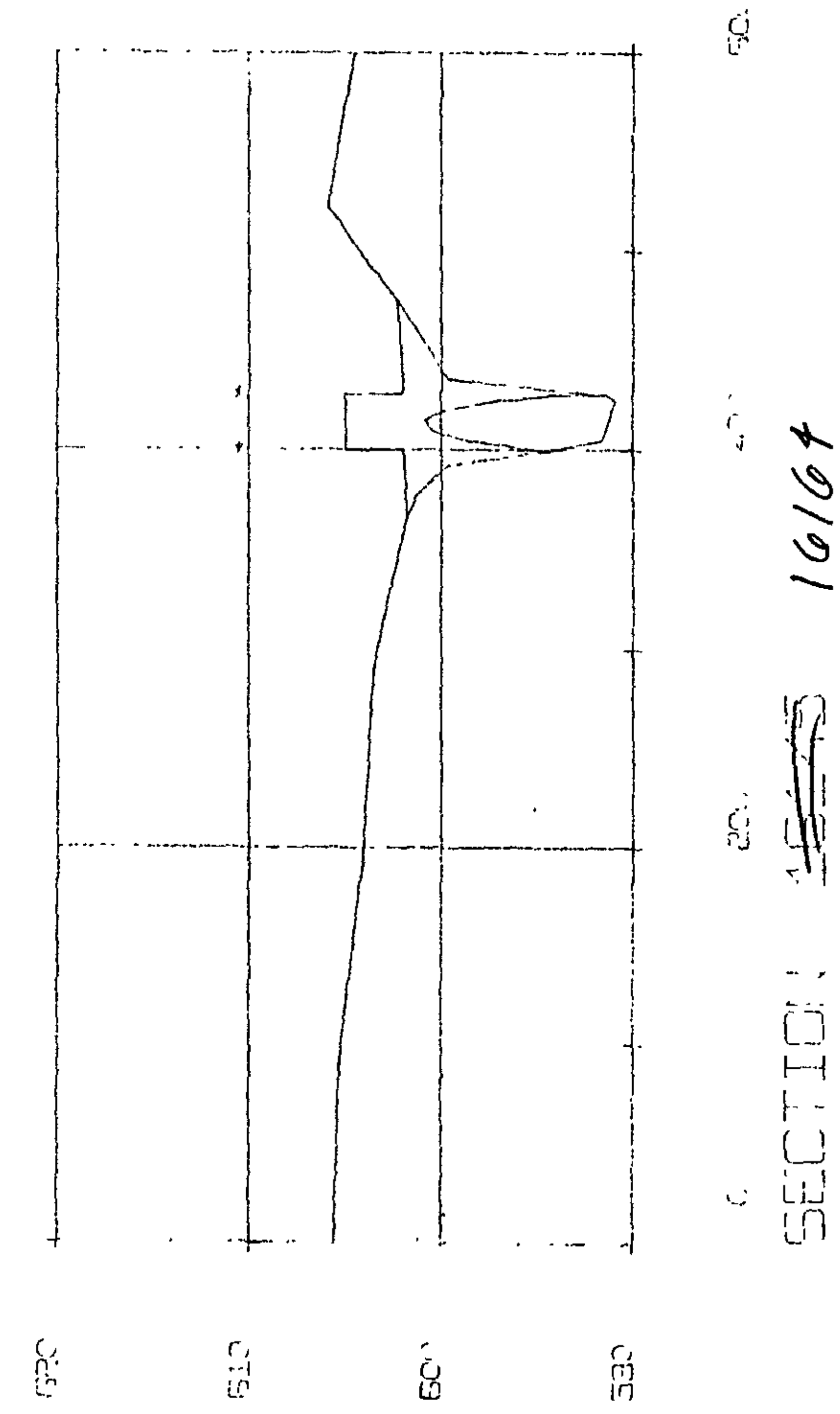


SECTION 155

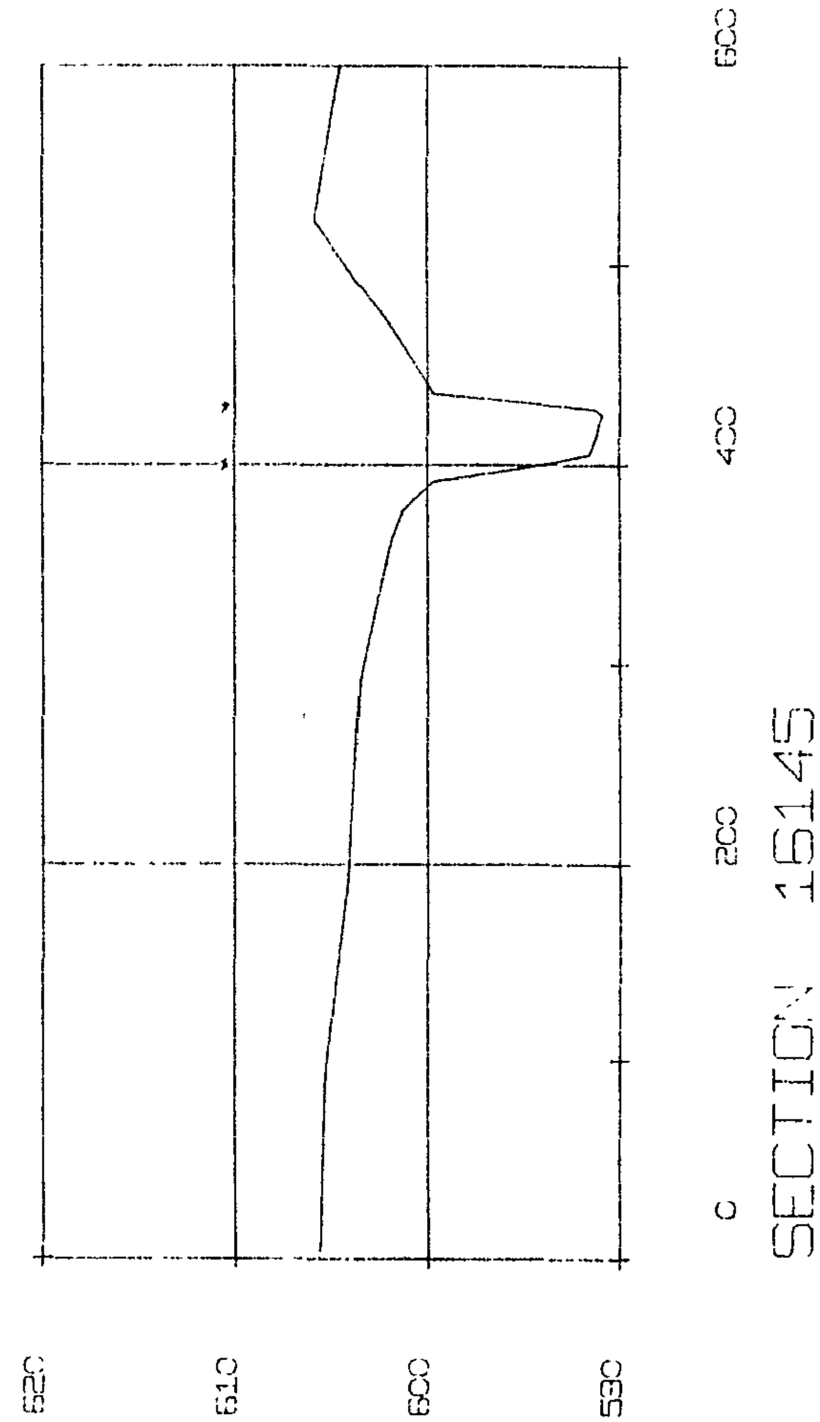


SECTION 142

5670-02-142
Harrington Drain
Kelly Road Bridge
11-2-76 WCR



5670-02-142
Harrington Drain
Kelly Road Bridge
11-2-76 WCR



5670-02-192
Harrington Drain
Kelly Road Bridge
11-2-76 WCR

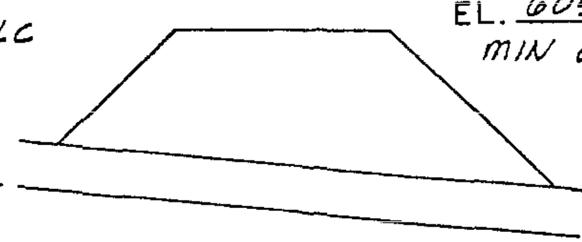
JOB NAME: *Clinton Twp, FIS*	JOB NO.	*5670*	*02*	*1* / *147*

WATERCOURSE: *Harrington Drain* CULVERT LOCATION: *Salk School Footbridge*

CULVERT DESCRIPTION: *Concrete "T"* BY *WCR* DATE *11-29-76*

Footbridge with no headwalls or wingwalls

WEIR DESCRIPTION: *Concrete walkway with 8 ft breadth*



So = *0.0000*

L = *8'*

Sta. *208+89* Sta. *208+81*

A = *344.3 ft²* D = *8.9*

WP = *142.7 ft* Ke = *0.3*

$\frac{29.1}{R^{4/3}}$ = *9.0174* n = *.0419*

CALCULATIONS AND COMMENTS: $R = A/WP = \frac{344.3}{142.7} = 2.41$; $R^{4/3} = 3.235$

— *Manning "n"* —

$$n = \left(\frac{29 \times .03^2 + 15 \times .04^2 + 29 \times .08^2 + 70 \times .015^2}{143}\right)^{1/2}$$

$n = .0419$

$K = 1.45 + .127 = 1.627$ (Possible)

— *XKOR* —

$$XKOR = 1 + Ke + \frac{29.1\, n^2 L}{R^{4/3}}$$

$$= 1 + 0.3 + (9.0174 \times \overset{.1266}{.0419^2} \times 8)$$

$1 + 0.3 + .127 = 1.427$

— *no wingwalls & rounded edges @ 0.2*
no wingwalls & sq. edges @ 0.5

— *COFQ* — $\frac{29.1}{R^{4/3}} = 8.992$

$8.992 < 9.0174$

Assume h = .5 ft for initial run

$\frac{h}{L} = \frac{.5}{8} = .06$

COFQ = 3.02 for H = .5

Final HEC-2 ✓
No Weir Flow on 100 yr.

```
X1  20881.00        18   300.00   370.00    36.00    36.00    36.00    1.000

BT      8.00    270.00   606.80     0.00   292.00   607.00     0.00   300.00   605.70   602.70

BT    335.00    605.80   602.80   370.00   605.70   602.70   400.00   607.10     0.00   450.00
BT    608.50      0.00   523.00   610.00     0.00

GR    606.80      0.00   605.80   100.00   605.30   145.00   606.10   200.00   606.80   270.00
GR    606.00    292.00   605.70   300.00   602.70   300.00   595.40   325.00   593.90   327.00
GR    593.90    335.00   594.10   339.00   594.70   340.00   602.70   370.00   605.70   370.00
GR    606.40    385.00   607.20   423.00   610.00   523.00
******************LISTING OF TOP AND BOTTOM SECTIONS OF ORIFICE******************

 300.00  602.70  335.00  602.80  370.00  602.70

 300.00  605.70  300.00  602.70  325.00  595.40  327.00  593.90  335.00  593.90
 339.00  594.10  340.00  594.70  370.00  602.70  370.00  605.70
*************LISTING OF COORDINATES OF ORIFICE********************

 300.00  602.70  335.00  602.80  370.00  602.70  370.00  602.70  340.00  594.70
 339.00  594.10  335.00  593.90  327.00  593.90  325.00  595.40  300.00  602.70
 300.00  602.70

 ORIFICE AREA      344.3 WETTED PERIMETER    142.7  29.1/R**1.333      9.0174
```

B.S. # ~~16~~ 147 CODED 9-22-76 WCR SHT 1 OF 2

Johnson & Anderson, Inc.
Consulting Engineers
P.O Box 1166 2300 Dixie Highway Pontiac, Michigan 48056

HYDRAULIC STRUCTURAL DATA

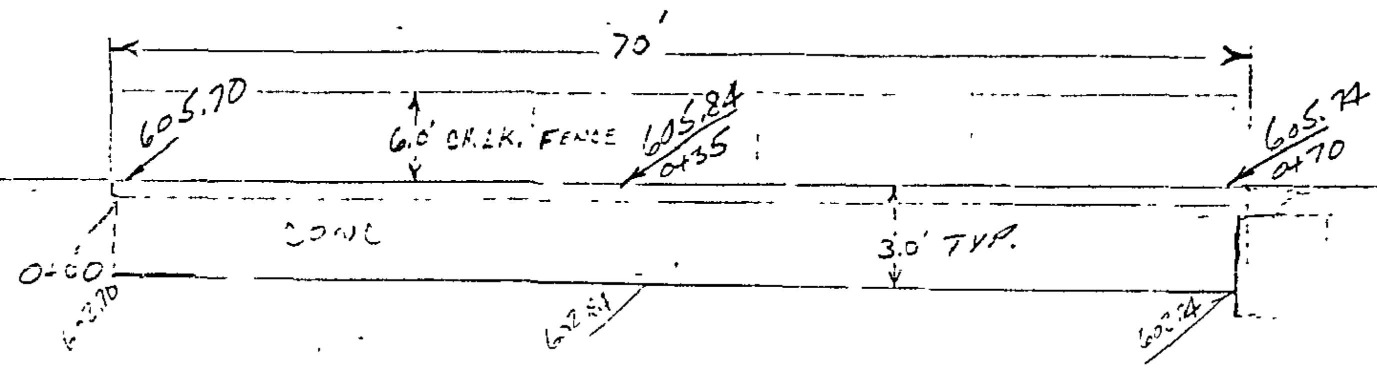
Code No. 5670-02 # 147

Job Name: CLINTON TWP F.I.S. HARRINGTON DRAIN			By: D NETT
Date: 9-21-76	Feature: CONC. "T" FOOT BRIDGE		Water Course: HARRINGTON DRAIN
Remarks: PHOTO No. # 20/US 21/DS 22/L 23/R 24/DS 25/DS			
HEAVY BRUSH ALONG DRAIN BOTT.			
RESIDENTIAL PROP BEYOND			
Width of Piers:	Pier Shape:	No. of Piers:	Area:
Water Elevation: 593.8	Length: 70'	Width of Deck: 8'	Skew: 0

FIELD SKETCH

Profile View

Plan View



B.S.F- 147

HYDRAULIC S UCTURAL DATA

SHT OF 2

Johnson & Anderson, Inc.
Consulting Engineers
P.O Box 1166 2300 Dixie Highway Pontiac, Michigan 48056

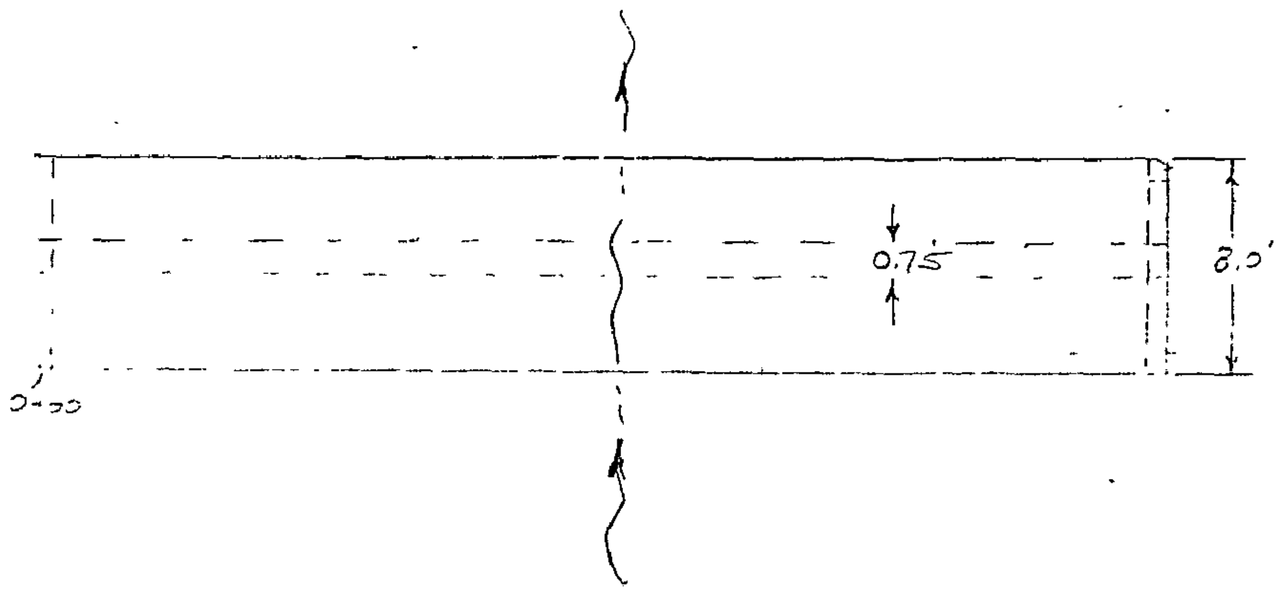
Code No. 5670-02 #146

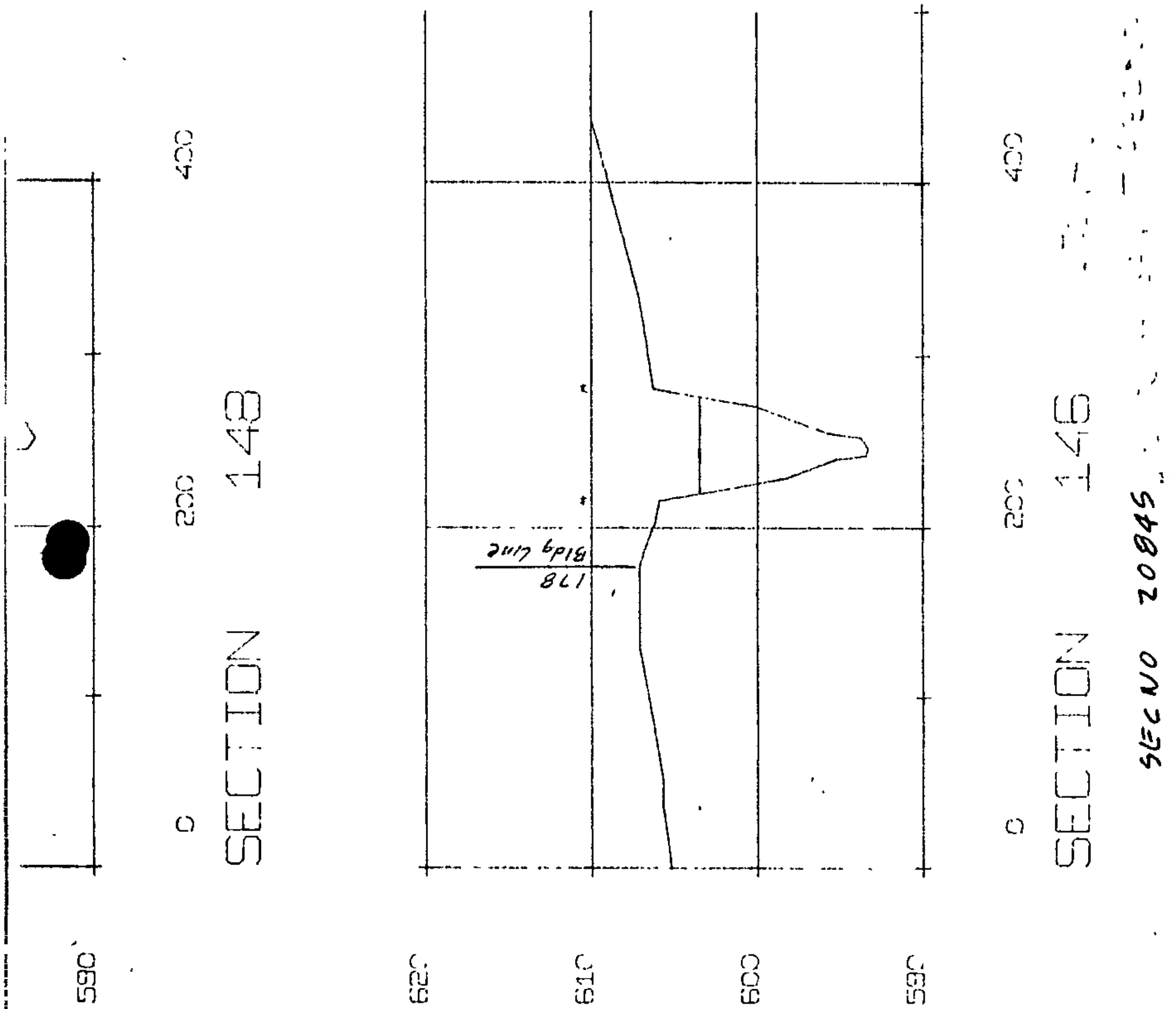
Job Name: CLINTON TWP F.J.S HARRINGTON DRAIN			By:
Date: 9-21-76	Feature:		Water Course:
Remarks:			
Width of Piers:	Pier Shape:	No. of Piers:	Area:
Water Elevation:	Length:	Width of Deck:	Skew: 0

FIELD SKETCH

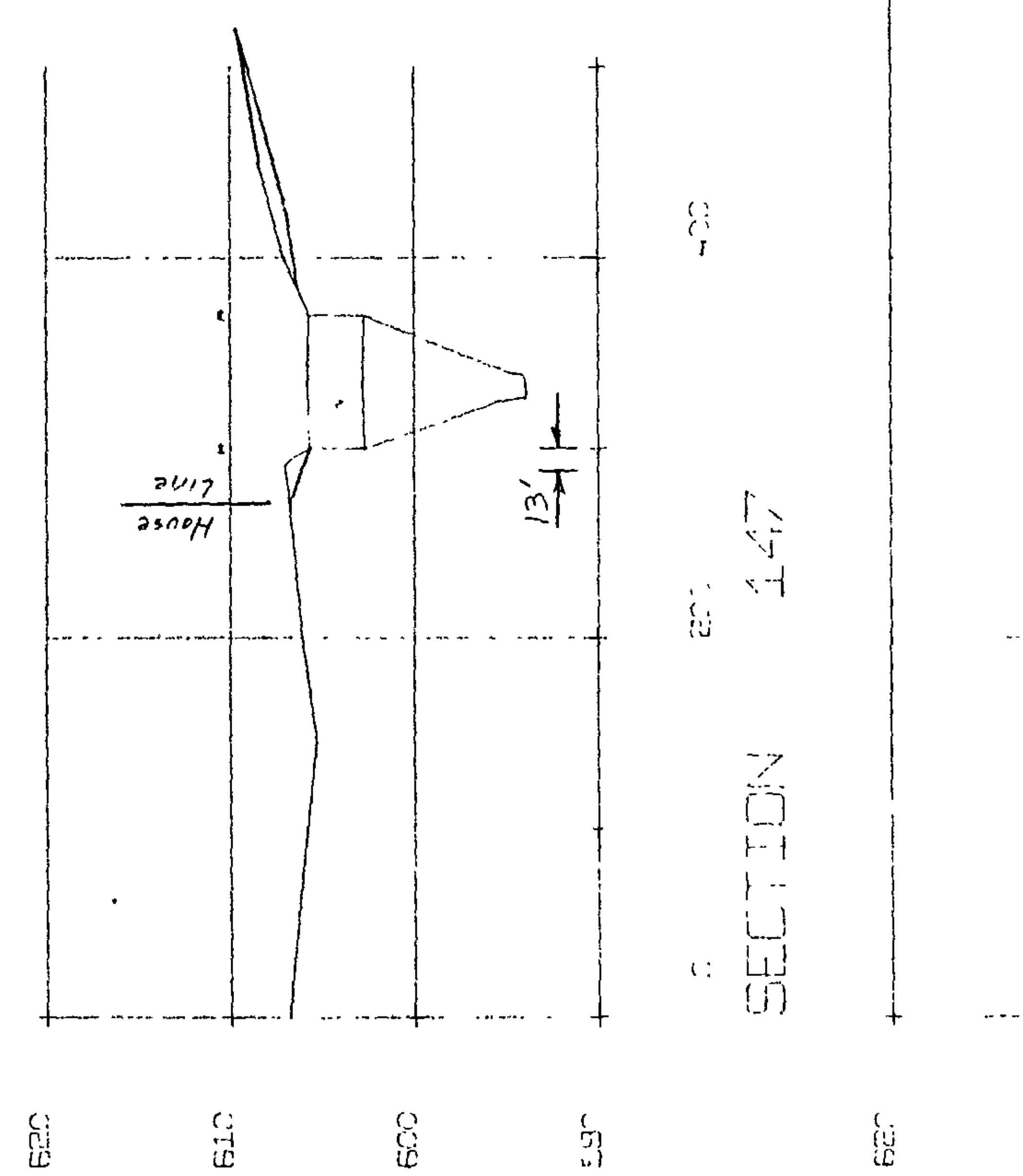
~~Profile View~~

Plan View

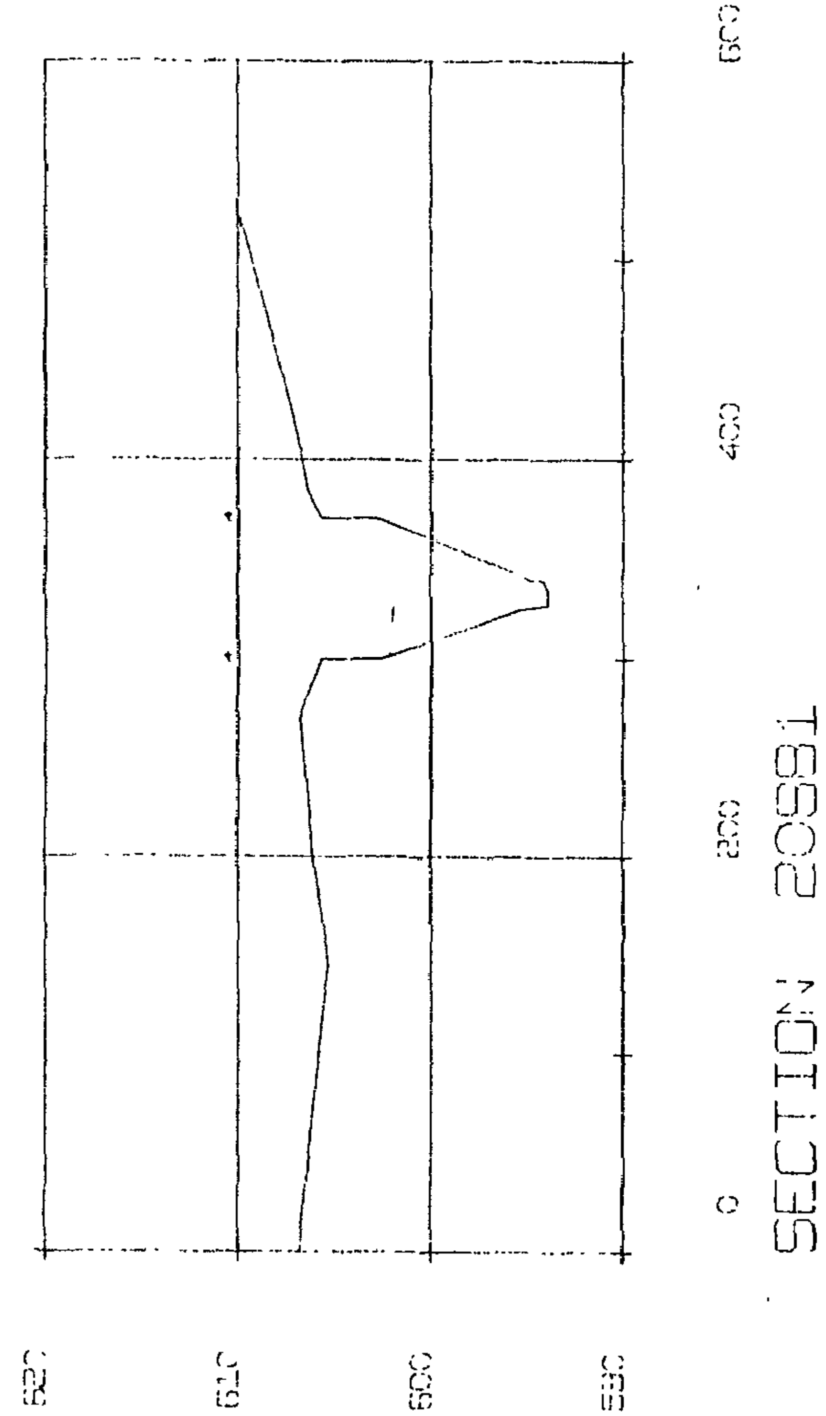




5670-02-147
Harrington Drain
Salk School Footbridge
11-29-76 WCR

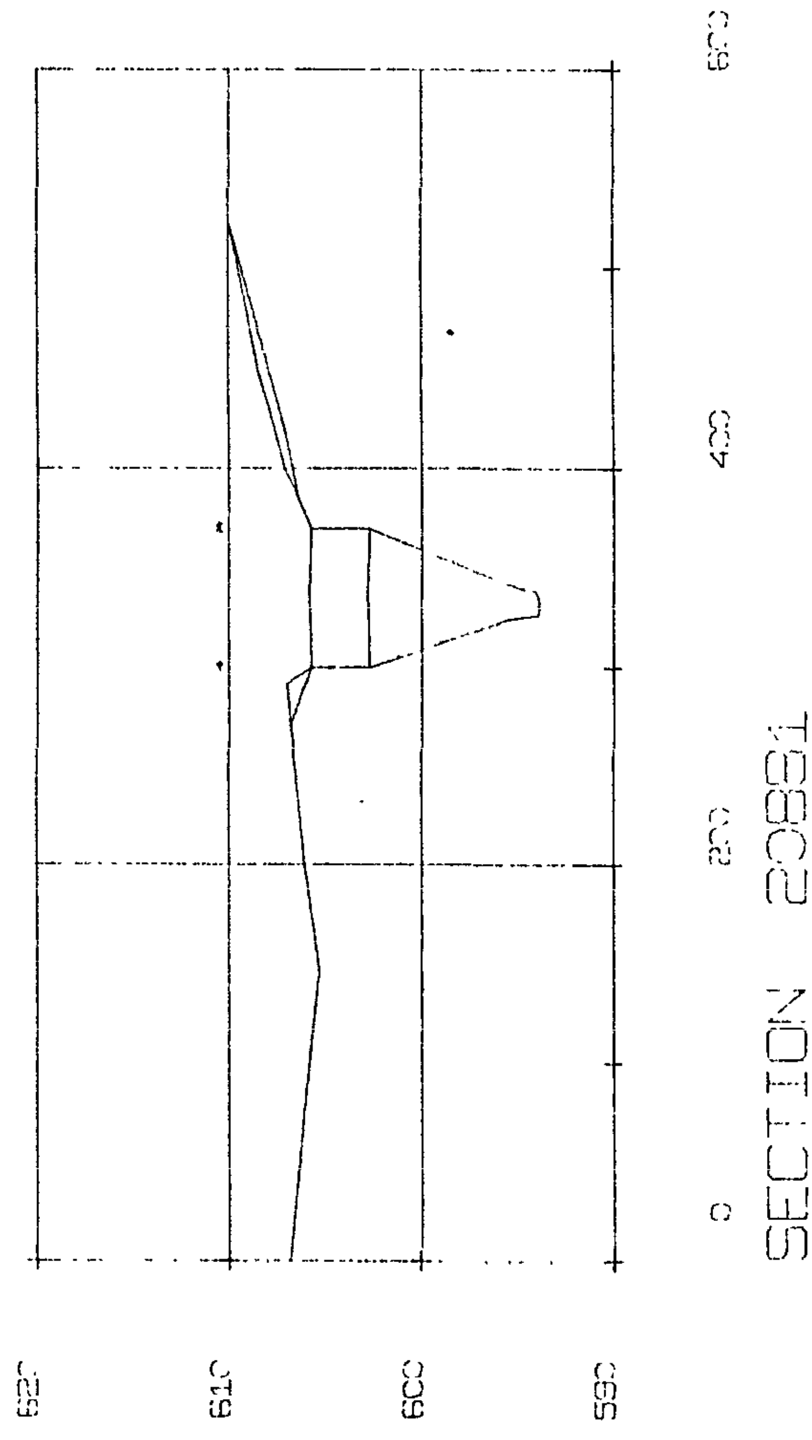


5670-02-147
Harrington Drain
Salk School Footbridge
11-29-76 WCR



WCR

5670-02-147
Harrington Drain
Salk School Footbridge
11-29-76 WCR



5670-02-147
Harrington Drain
Salk School Bridge
11-29-76 WCR

2/10/77

JOB NAME: Clinton Twp, FIS	JOB NO.	5670	02	1 / 151

WATERCOURSE: Harrington Drain

CULVERT LOCATION: Bobcean Drive

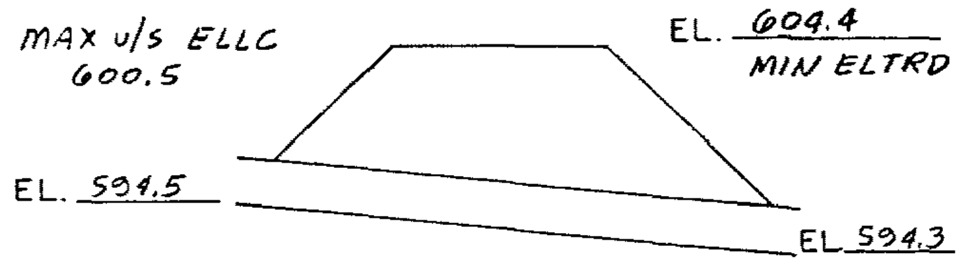
CULVERT DESCRIPTION: 6'-1" x 8'10"

BY WCR

DATE 12-3-76

Structural Plate Pipe Arch Projecting from fill

WEIR DESCRIPTION: Concrete Road with approximately 27 ft breadth



A = 43 ft²

D = 6.0 ft

WP = 24.35 ft

Ke = 0.9

$\frac{29.1}{R^{4/3}}$ = 13.631

n = 0.032

So = 0.0025

L = 80'

Sta. 230+50

Sta. 229+70

CALCULATIONS AND COMMENTS:

— XKOR —

$$XKOR = 1 + Ke + \frac{29.1\, n^2 L}{R^{4/3}}$$

$$= 1 + .9 + 13.631 \times .032^2 \times 80$$

XKOR = 3.017

— COFQ —

Assume h = 1.0 ft for initial run

$\frac{h}{L} = \frac{1}{27} = .04$

COFQ = 3.04 for H = 1.0 ft

Final HEC-2 Run

Average depth on Weir ≈ 1 ft

[redacted]

B[redacted]#151

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HYDRAU[redacted]C STRUCTURAL DATA CODED 9/28/76 BEH SHT 1 of [redacted]

Code No. 5670-02 #151

Job Name: CLINTON TWP. F.I.S. HARRINGTON DRAIN		By: D NETT
Date: 9-21-76	Feature: MULTI-PLATE ARCH STRUCTURE	Water Course: HARRINGTON DR

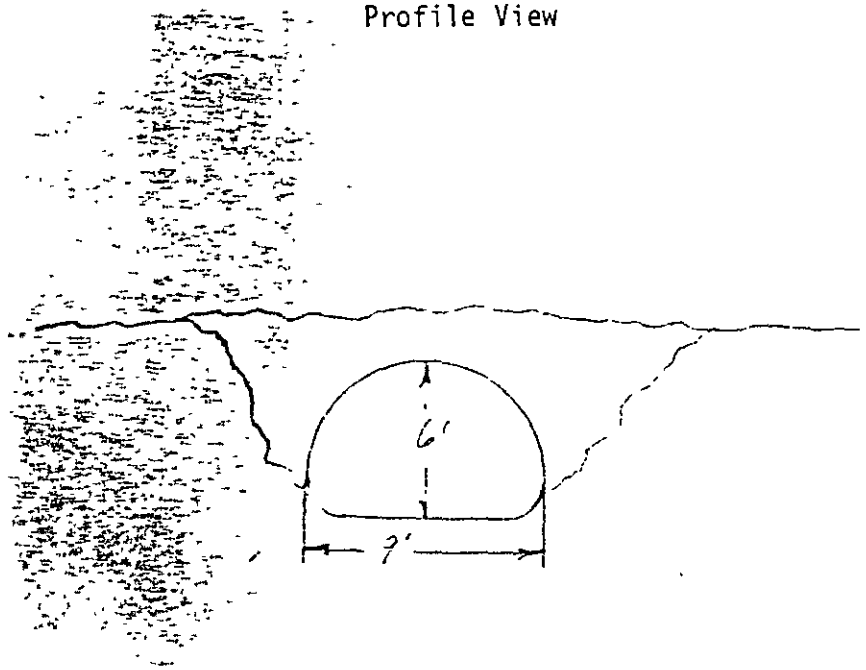
Remarks: PHOTO LOG # 14 U.S. 15 U.S.F 16 D.S. 17 D.S.F 18 R 19 L

HEAVY BRUSH IN DRAIN BOTT U/S RESIDENTIAL AREA D/S COMMERCIAL AREA

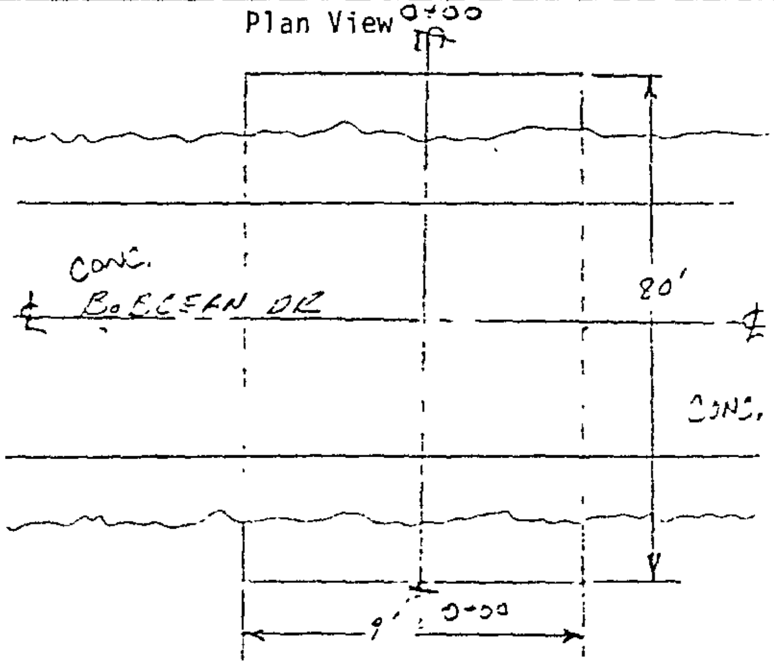
Width of Piers:	Pier Shape:	No. of Piers:	Area:
Water Elevation: 595.0	Length:	Width of Deck:	Skew: 0

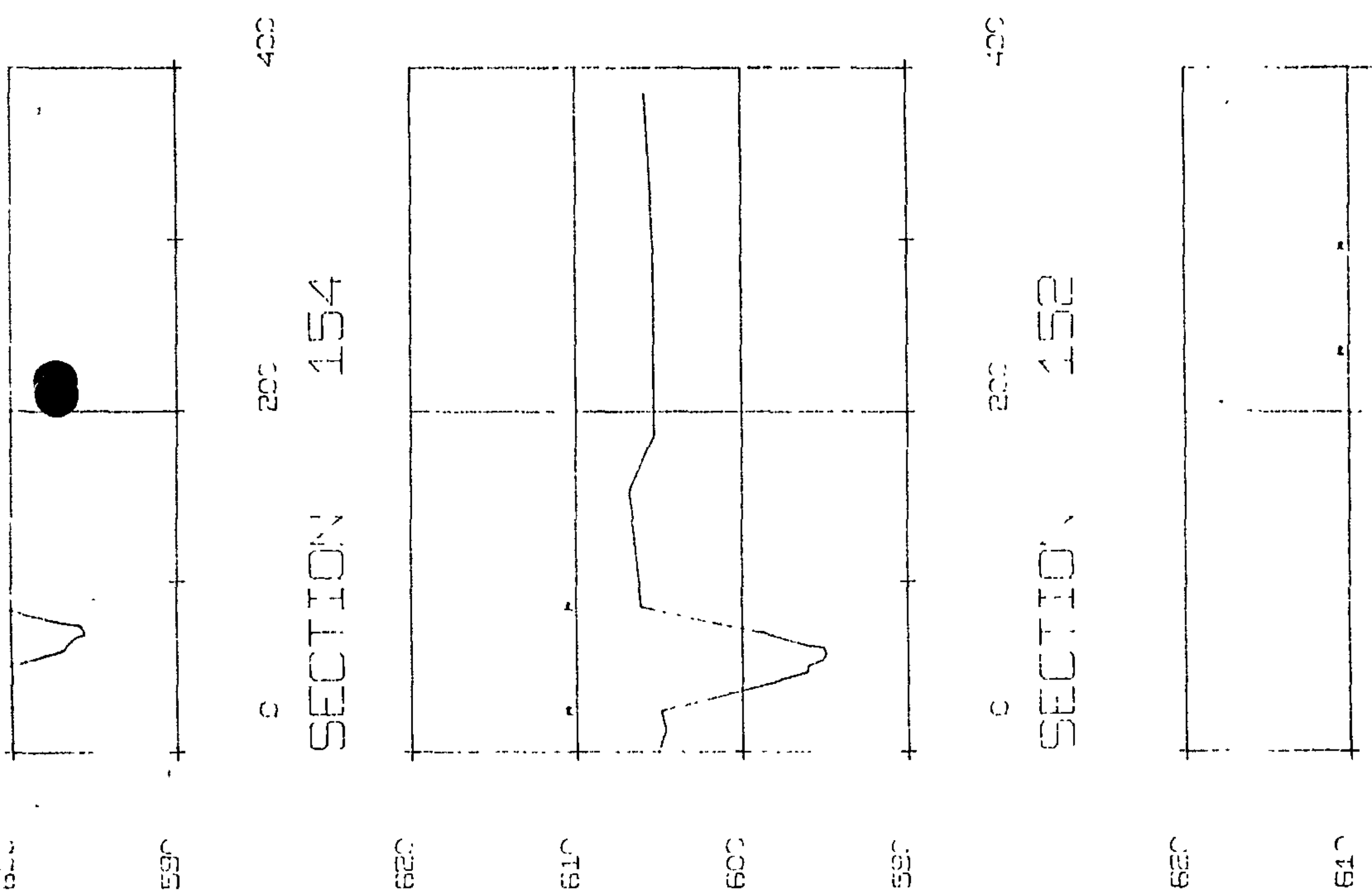
FIELD SKETCH

Profile View

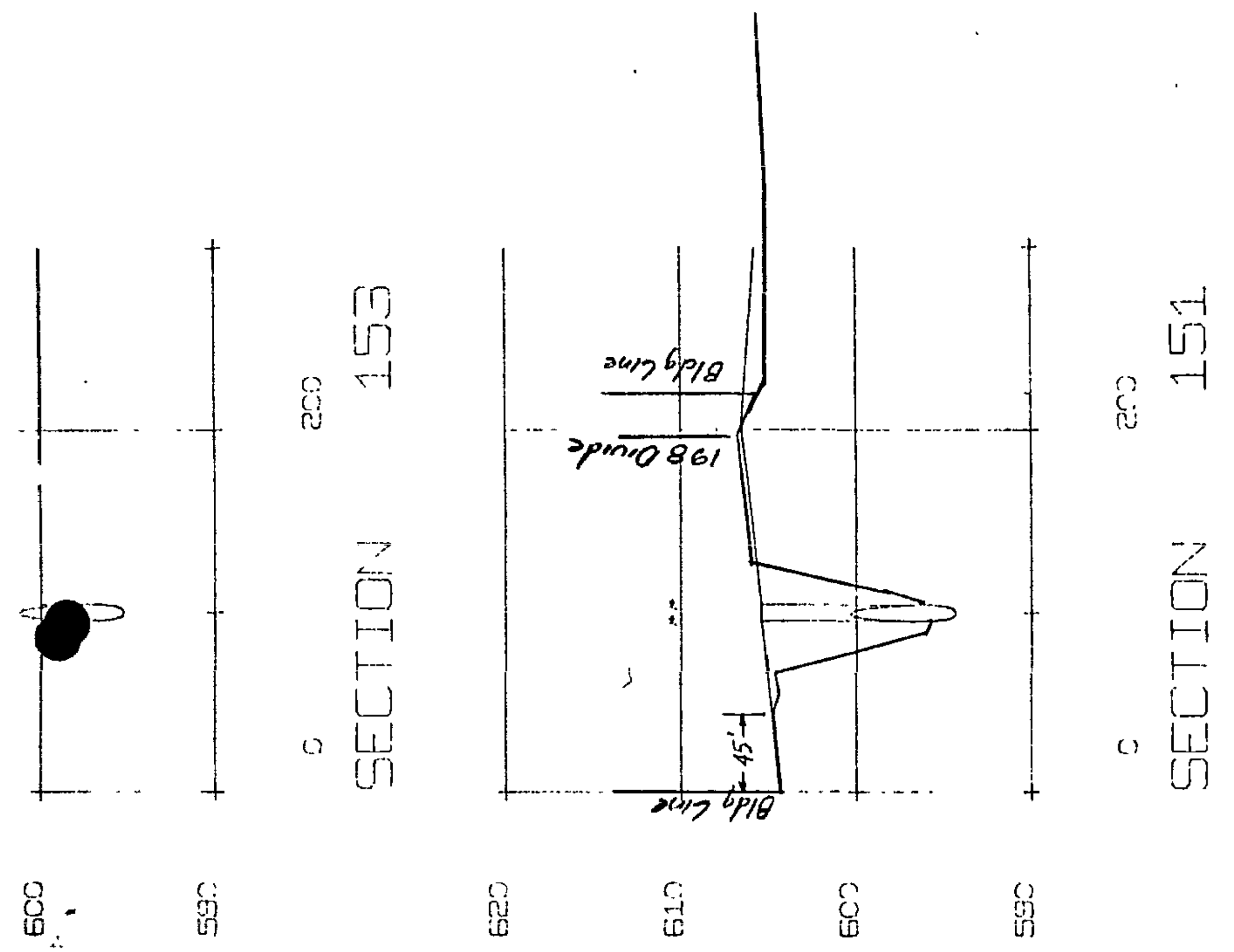


Plan View

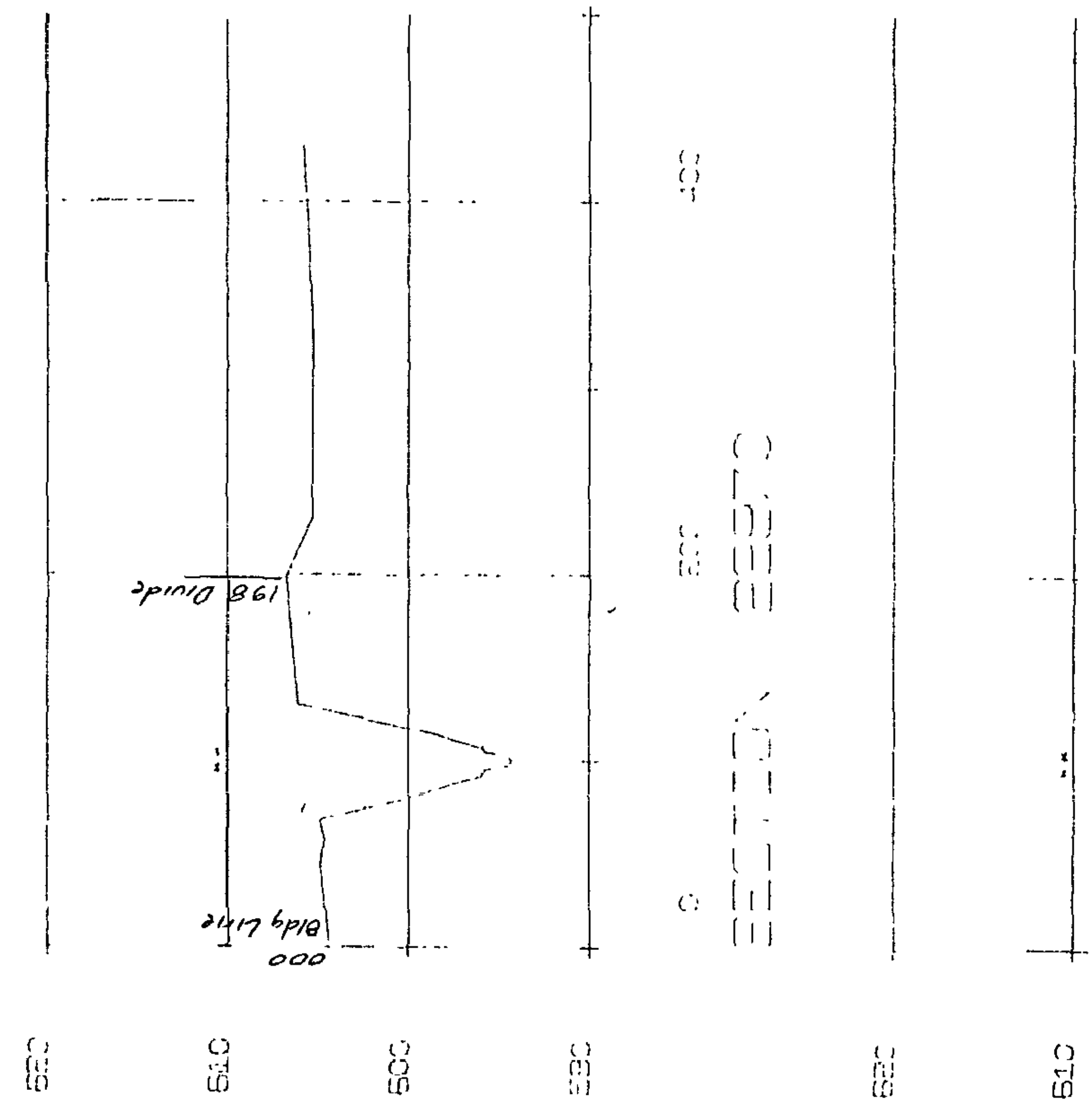




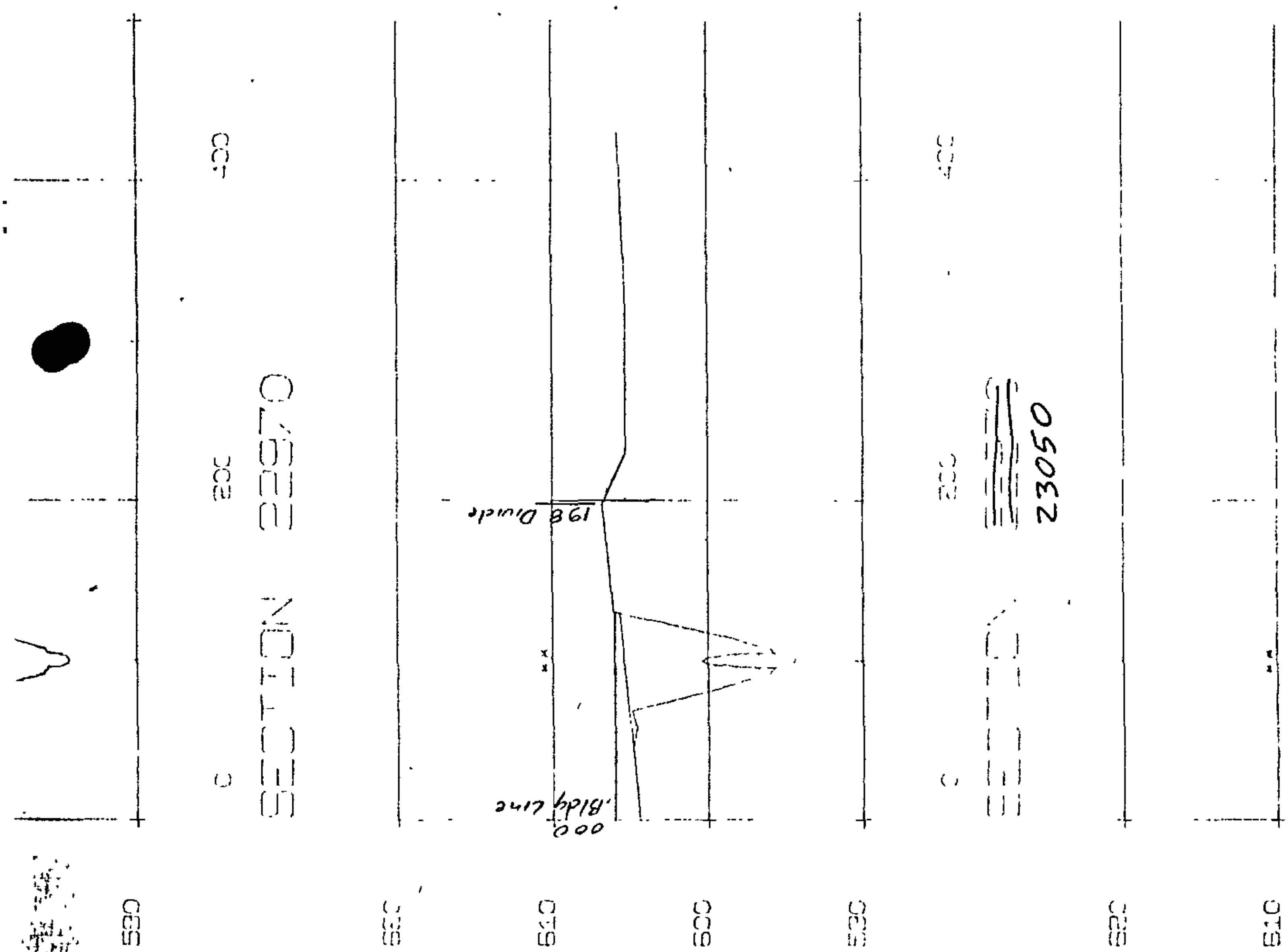
5670-02-151
Harrington Drain
Bobcean Dr
12-8-76 WCR



5670-02-151
Harrington Drain
Bobcean Drive
WCR 12-8-76



5670-02-191
Harrington Drain
Bobcean Dr.
WCR 12-8-76



5670-02-151
Harrington Drain
Bobcean Dr
WCR 12-8-76

JOB NAME: Clinton Twp, FIS

JOB NO. 5670 | 02 | 1 | 153

WATERCOURSE: Harrington Drain

CULVERT LOCATION: Pappstein Drive

CULVERT DESCRIPTION: 6'-1" x 8'-10"

Structural Plate Pipe Arch Projecting from fill

BY WCR

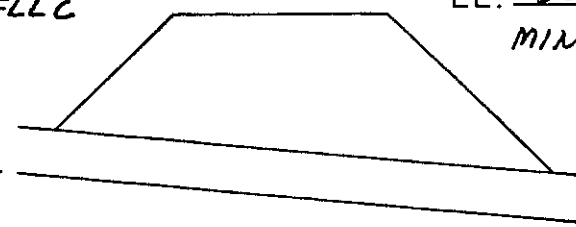
DATE 12-3-76

WEIR DESCRIPTION: Concrete Road with approximately 27 ft. breadth

MAX U/S ELLC 601.2

EL. 605.1

MIN ELTRD



EL. 595.2

EL. 595.2

So = 0.000

L = 80'

Sta. 233+85

Sta. 233+05

A = 43 ft^2

D = 6.0 ft

WP = 24.39

Ke = 0.9

$\frac{29.1}{R^{4/3}}$ = 13.631

n = 0.032

CALCULATIONS AND COMMENTS:

— XKOR —

$$XKOR = 1 + Ke + \frac{29.1 n^2 L}{R^{4/3}}$$

$$= 1 + .9 + 13.631 \times .032^2 \times 80$$

$$XKOR = 3.017$$

— COFQ —

Assume h = 1.0 ft for initial run

$\frac{h}{L} = \frac{1}{27} = .04$

COFQ = 3.04 for H = 1.0 ft

Final HEC-2 Run

Average Depth on Weir ≈ .8 ft

COFQ = 3.03 for H = .8 ft

3.03 ≈ 3.04

B.S.#153   CODED 9/28/76 BEH

Johnson & Anderson, Inc.
Consulting Engineers
P.O. Box 1166   2300 Dixie Highway   Pontiac, Michigan 48056

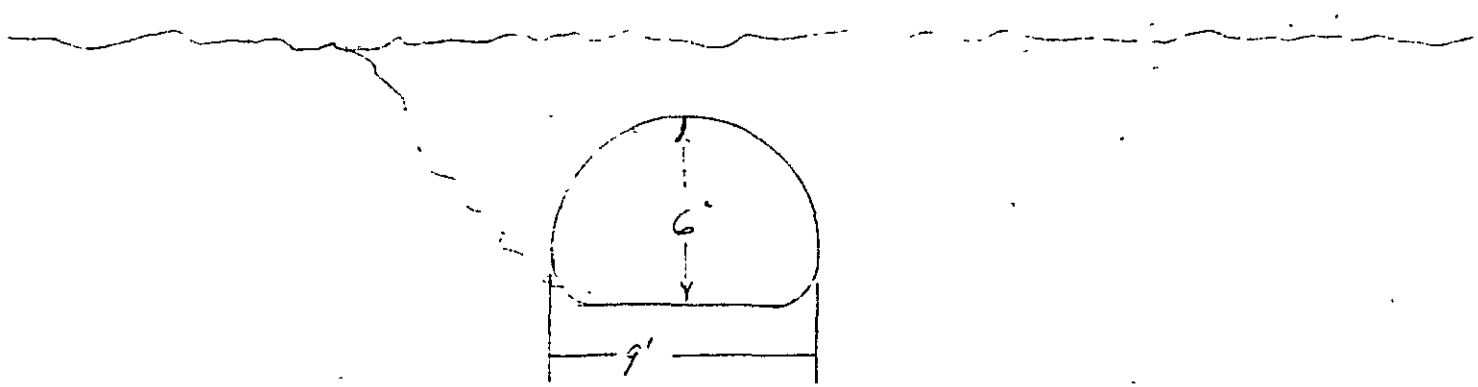
HYDRAUL STRUCTURAL DATA   SHT 1 of 2

Code No. 5670-02 #153

Job Name: CLINTON TWP. F.I.S HARRINGTON DRAIN			By: D. NETT
Date: 9-21-76	Feature: MULTI-PLATE ARCH STRUCTURE		Water Course: HARRINGTON DRAIN
Remarks: PHOTO LOG # 8 U.S 9 U.S.F 10 D.S 11 D.S.F. 12 R 13 L			
HEAVY BRUSH IN DRAIN BOTH L/B RESIDENTIAL R/B COMMERCIAL			
Width of Piers:	Pier Shape:	No. of Piers:	Area:
Water Elevation: 595.5	Length:	Width of Deck:	Skew: 0

FIELD SKETCH

Profile View   ~~Plan View~~



B[illegible]F 153 SH[illegible]OF 2

Johnson & Anderson, Inc.
Consulting Engineers
P.O Box 1166 2300 Dixie Highway Pontiac, Michigan 48056

HYDRA[illegible]IC STRUCTURAL DATA

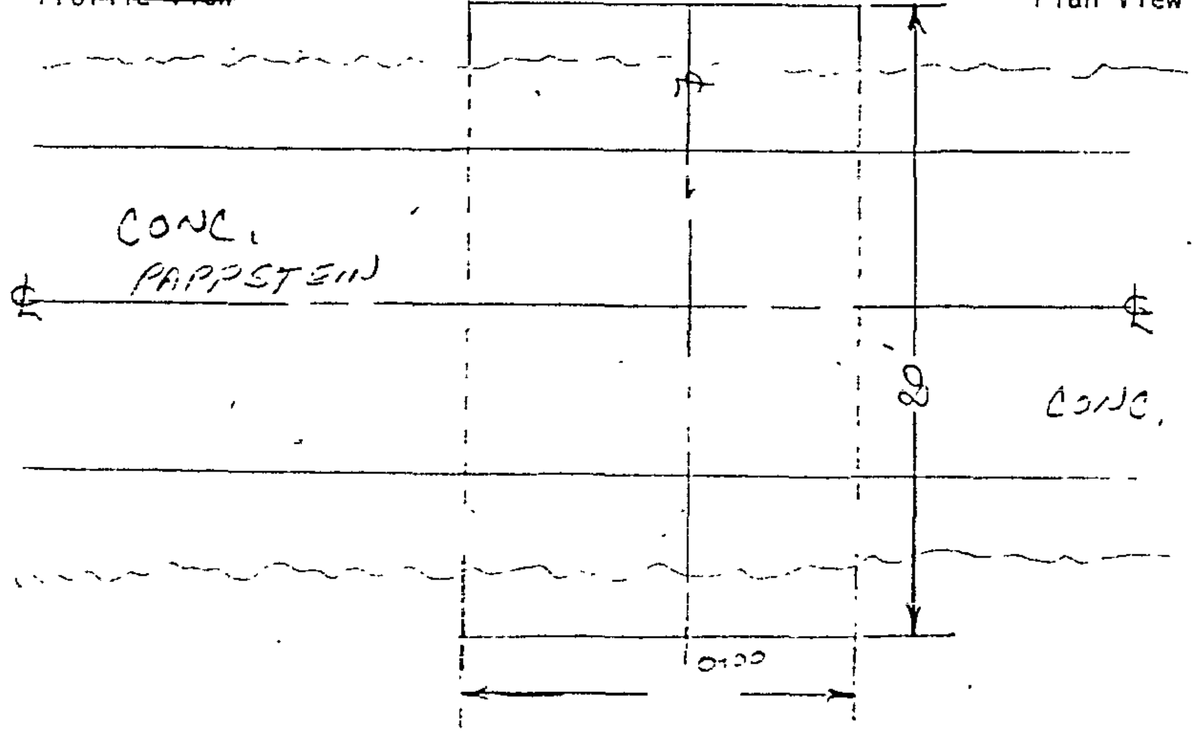
Code No. 5670-02 #153

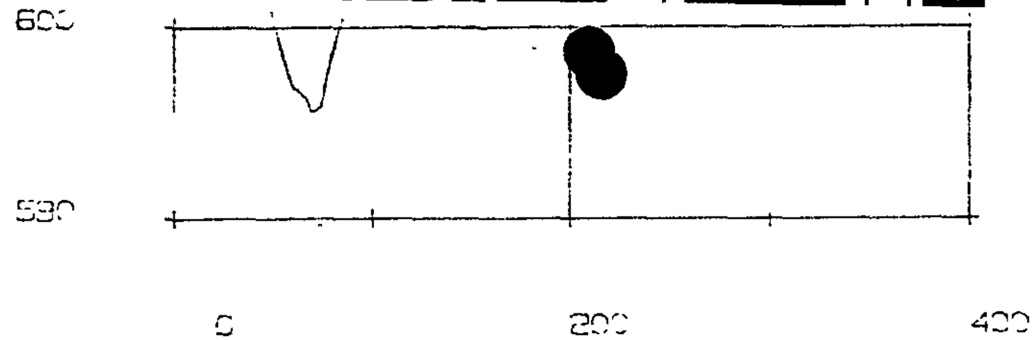
Job Name: CLINTON TWP. F.I.S. HARRINGTON DRAIN		By: D NETT
Date: 9-21-76	Feature: MULTI-PLATE ARCH STRUCTURE	Water Course:
Remarks:		

Width of Piers:	Pier Shape:	No. of Piers:	Area:
Water Elevation:	Length:	Width of Deck:	Skew:

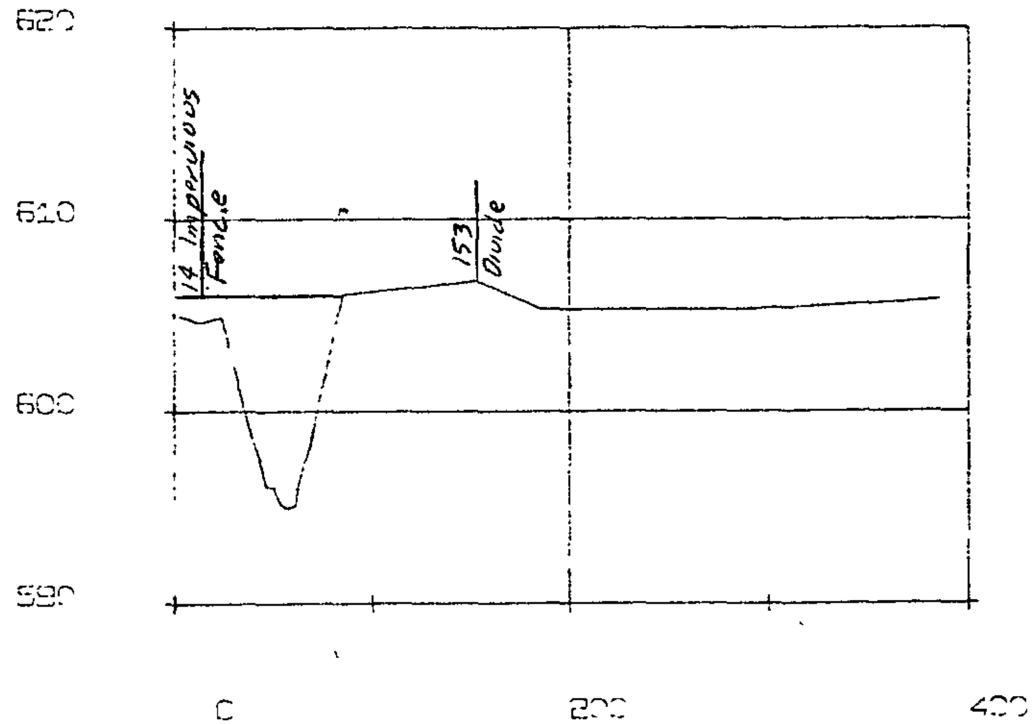
FIELD SKETCH

~~Profile View~~ Plan View



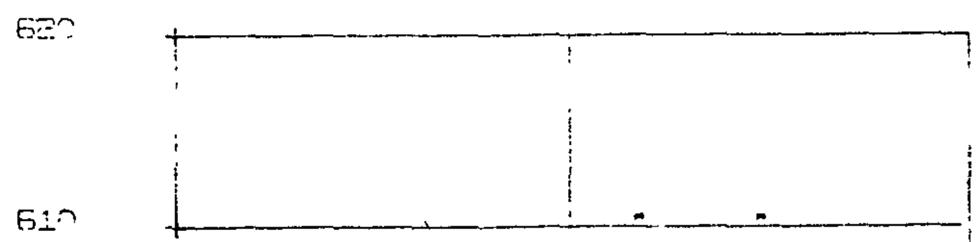


SECTION 154

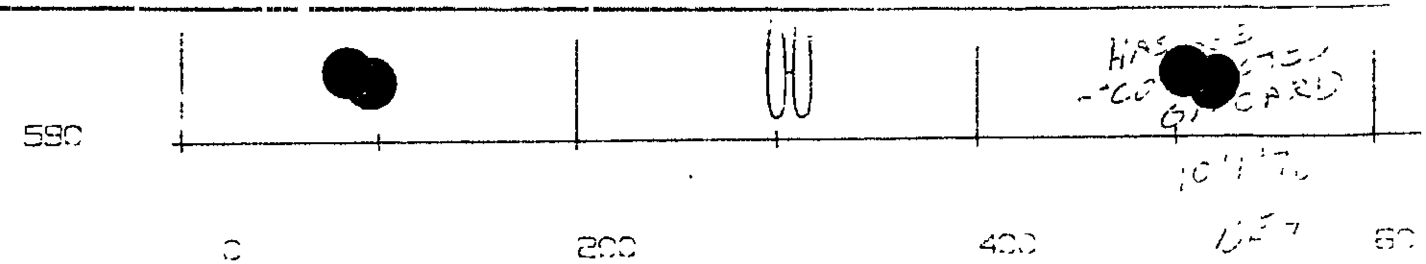


SECTION 152

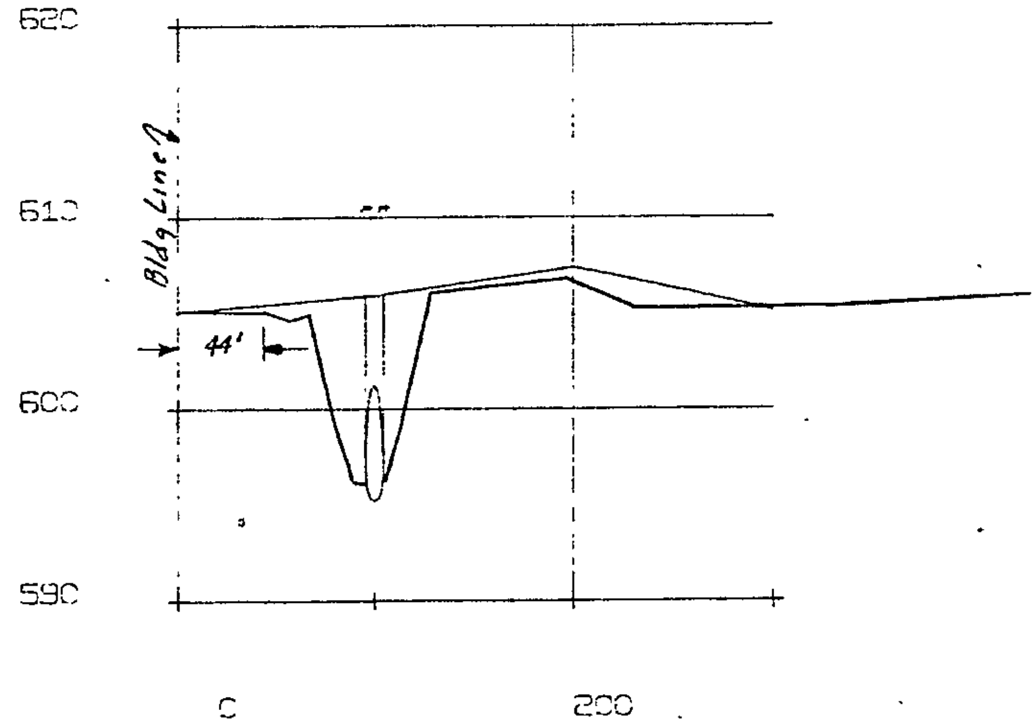
SECNO 23177



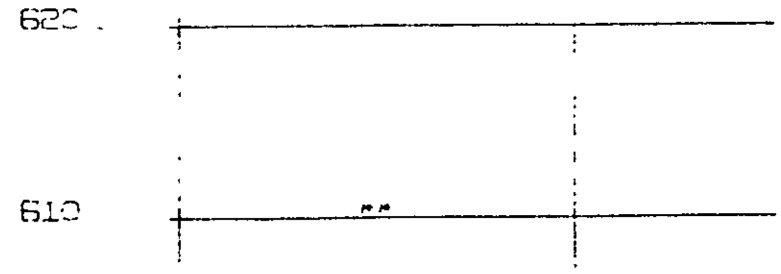
5670-02-153
Harrington Drain
Pappstein Dr.
WCR 12-8-76



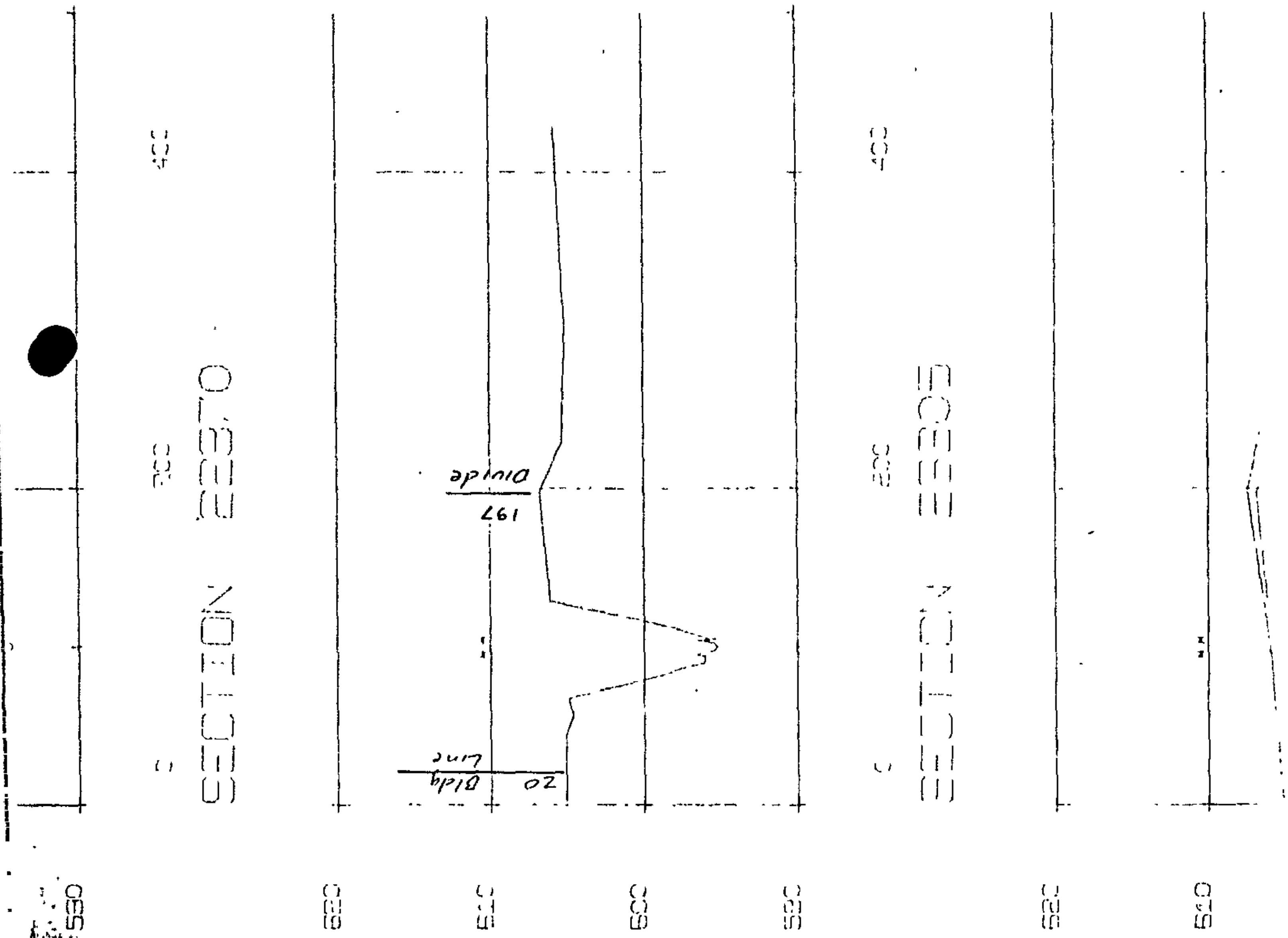
SECTION 159



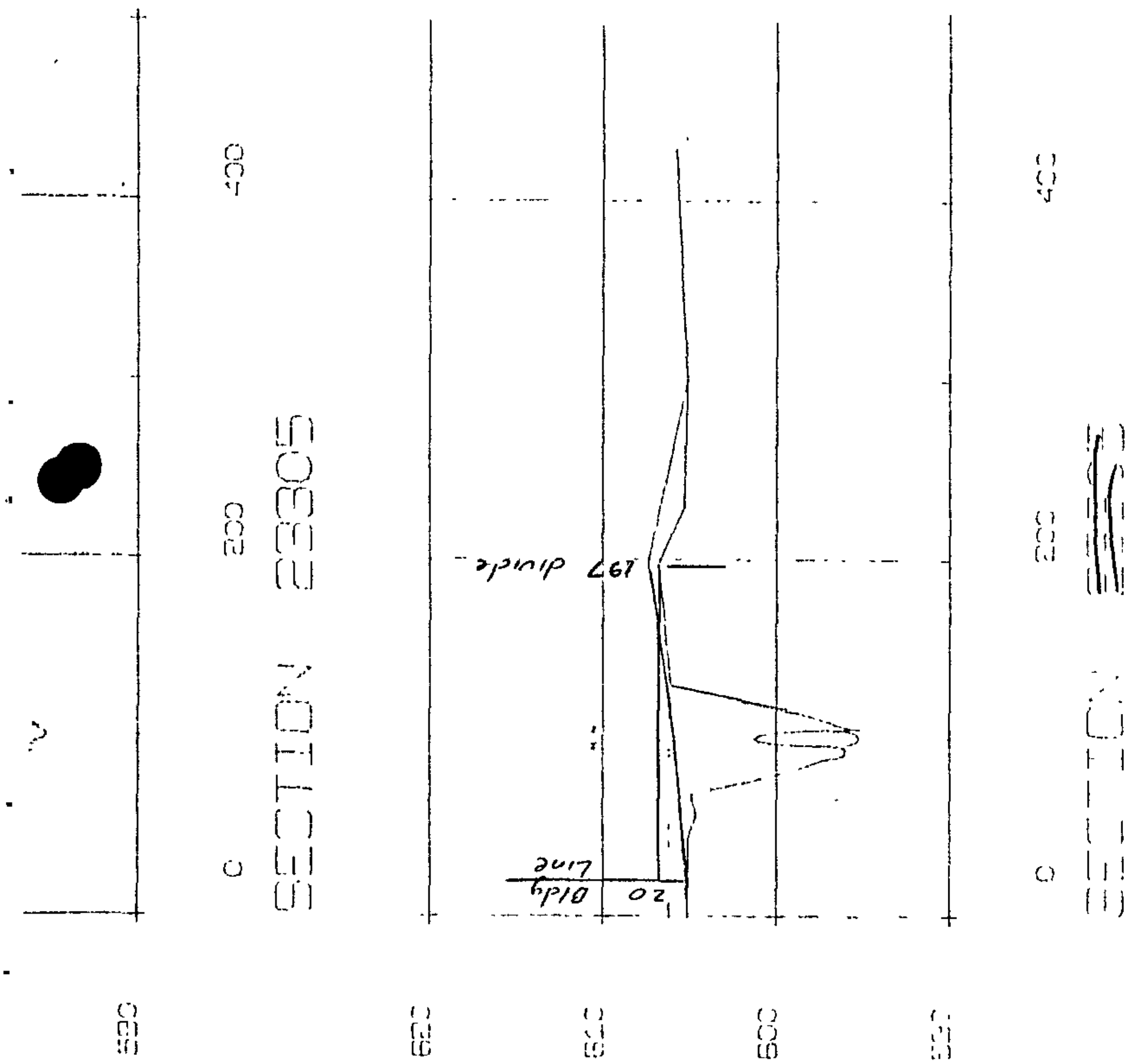
SECTION 153



5670-02-153
Harrington Drain
Pappstein Dr
WCR 12-8-76



5610-02-153
Harrington Drain
Pappstein Dr
WCR 12-8-76



5670-02-153
Harrington Drain
Pappstein Dr.
WCR 12-8-76

JOB NAME: Clinton Twp, FIS

JOB NO. 5670 | 02 | 1 | 155

WATERCOURSE: Harrington Drain

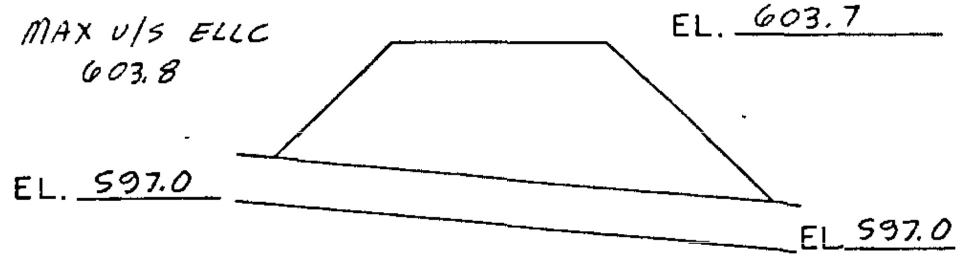
CULVERT LOCATION: 15 Mile Road

CULVERT DESCRIPTION: Structural Plate Steel Arch with Concrete Headwall parallel to embankment (no wingwalls) 6"x2" Corr

BY WCR

DATE 12-9-76

WEIR DESCRIPTION: 232 ft Concrete Road



A = 87.4 ft²

D = 6.8

WP = 44.7 ft

Ke = 0.5

$\frac{29.1}{R^{4/3}}$ = 11.9129

n = 0.0272

So = 0.0000

L = 44

Sta. 240+50

Sta. 240+06

CALCULATIONS AND COMMENTS:

— Manning "n" —

$$n = \left(\frac{24.7 \times .0319^2 + 20 \times .02^2}{44.7}\right)^{1/2}$$

$$n = .0272$$

— XKOR —

$$XKOR = 1 + Ke + \frac{29.1\, n^2 L}{R^{4/3}}$$

$$= 1 + .5 + 11.9129 \times .0272^2 \times 44$$

$$= 1.888$$

— COFQ —

Assume h = 3 ft for initial run

$$\frac{h}{L} = \frac{3}{44} = .07$$

COFQ = 3.04 for H = 3.0

Final HEC-2 Run

Average Depth on Weir ≈ 1.0

COFQ = 3.04 for H = 1.0

```
X1   240.00       17    210.00    230.00    361.00    133.00    271.00    1.000

BT     13.00    168.00    605.27      0.00    200.00    605.30      0.00    210.00    605.30    597.60

BT    215.00    605.30    602.90    220.00    605.30    603.80    225.00    605.30    602.00    230.00
BT    605.30    597.10    249.00    603.70      0.00    317.00    604.40      0.00    346.00    604.60
BT      0.00    382.00    604.80      0.00    446.00    605.30      0.00    573.00    605.90      0.00

GR    605.60      0.00    605.20    100.00    605.27    168.00    605.30    200.00    599.00    210.00
GR    597.60    210.00    597.20    215.00    597.00    220.00    597.00    225.00    597.10    230.00
GR    598.00    230.00    603.70    249.00    604.40    317.00    604.60    346.00    604.80    382.00
GR    605.30    446.00    605.90    573.00
******************LISTING OF TOP AND BOTTOM SECTIONS OF ORIFICE******************

  210.00  597.60  215.00  602.90  220.00  603.80  225.00  602.00  230.00  597.10

  210.00  599.00  210.00  597.60  215.00  597.20  220.00  597.00  225.00  597.00
  230.00  597.10  230.00  598.00
************** LISTING OF COORDINATES OF OPIFICE*********************

  210.00  597.60  215.00  602.90  220.00  603.80  225.00  602.00  230.00  597.10
  230.00  597.10  225.00  597.00  220.00  597.00  215.00  597.20  210.00  597.60
  210.00  597.60

  ORIFICE AREA        87.4 WETTED PERIMETER       44.7  29.1/R**1.333       11.9129
```

B. F 155

CODED 9/27/76 BEH

Johnson & Anderson, Inc.
Consulting Engineers
P O Box 1166 2300 Dixie Highway Pontiac, Michigan 48056

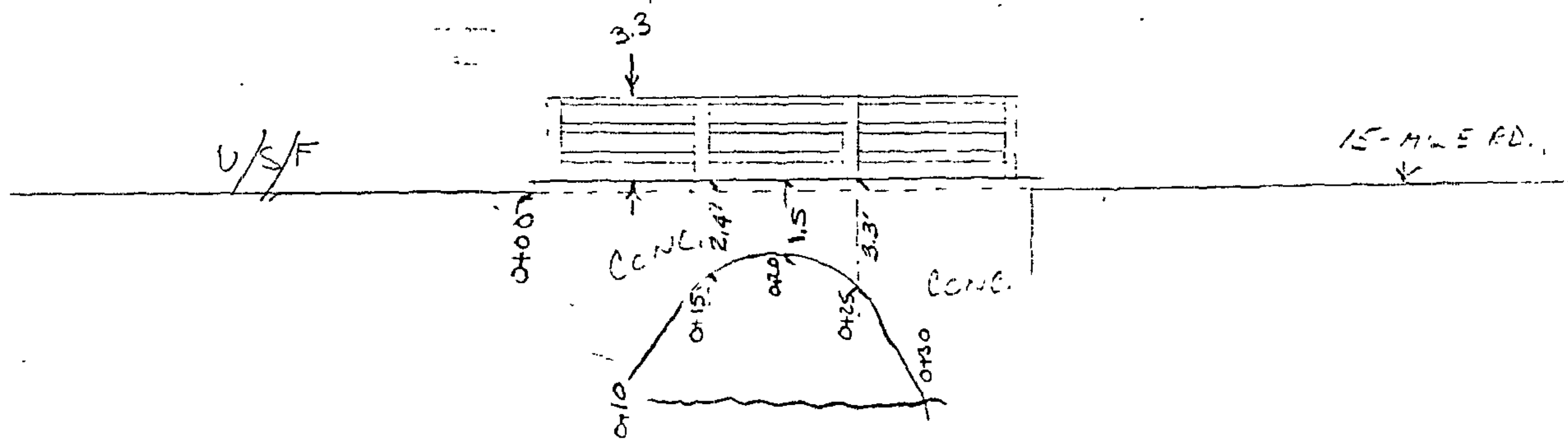
HYDRAULIC STRUCTURAL DATA

Code No. 5670-02 #155

Job Name: CLINTON TWP. F.I.S. HARRINGTON DRAIN			By: D. NETT
Date: 9-20-76	Feature: MULTI-PLATE ARCH		Water Course: HARRINGTON DRAIN
Remarks: ROLL #2 PHOTO LOG # 2 US, 3 USF, 4 DS, 5 DSF, 6 L, 7 R			
BRUSH & SMALL TREES ALONG BOTH BANKS			
SCHOOL & RESIDENTIAL PROP. BEYOND			
Width of Piers:	Pier Shape:	No. of Piers:	Area:
Water Elevation: 597.1	Length:	Width of Deck:	Skew: N.A.

FIELD SKETCH

Profile View | Plan View



#155

Johnson & Anderson, Inc.
Consulting Engineers
P.O. Box 1166 2300 Dixie Highway Pontiac, Michigan 48056

HYDRAULIC STRUCTURAL DATA

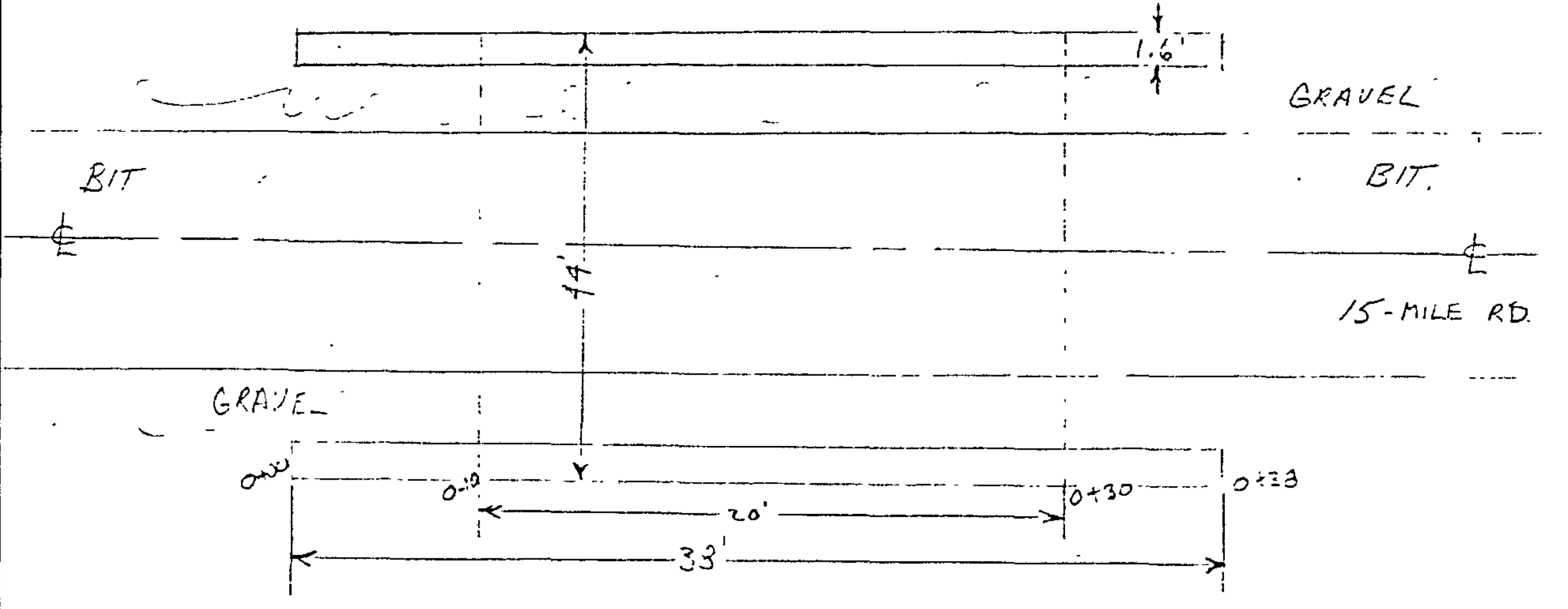
Code No. 5670-02-#155

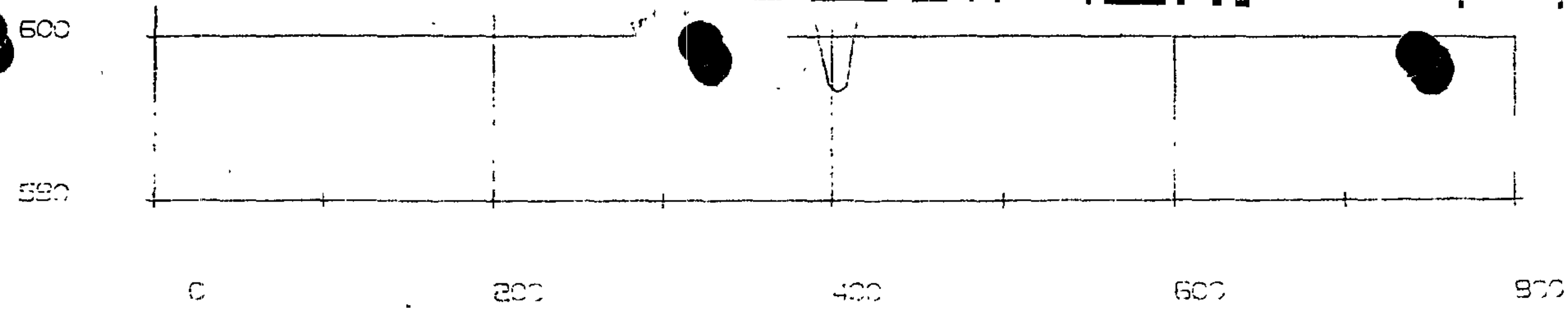
Job Name:			By:
Date:	Feature:		Water Course:
Remarks:			
Width of Piers:	Pier Shape:	No. of Piers:	Area:
Water Elevation:	Length:	Width of Deck:	Skew:

FIELD SKETCH

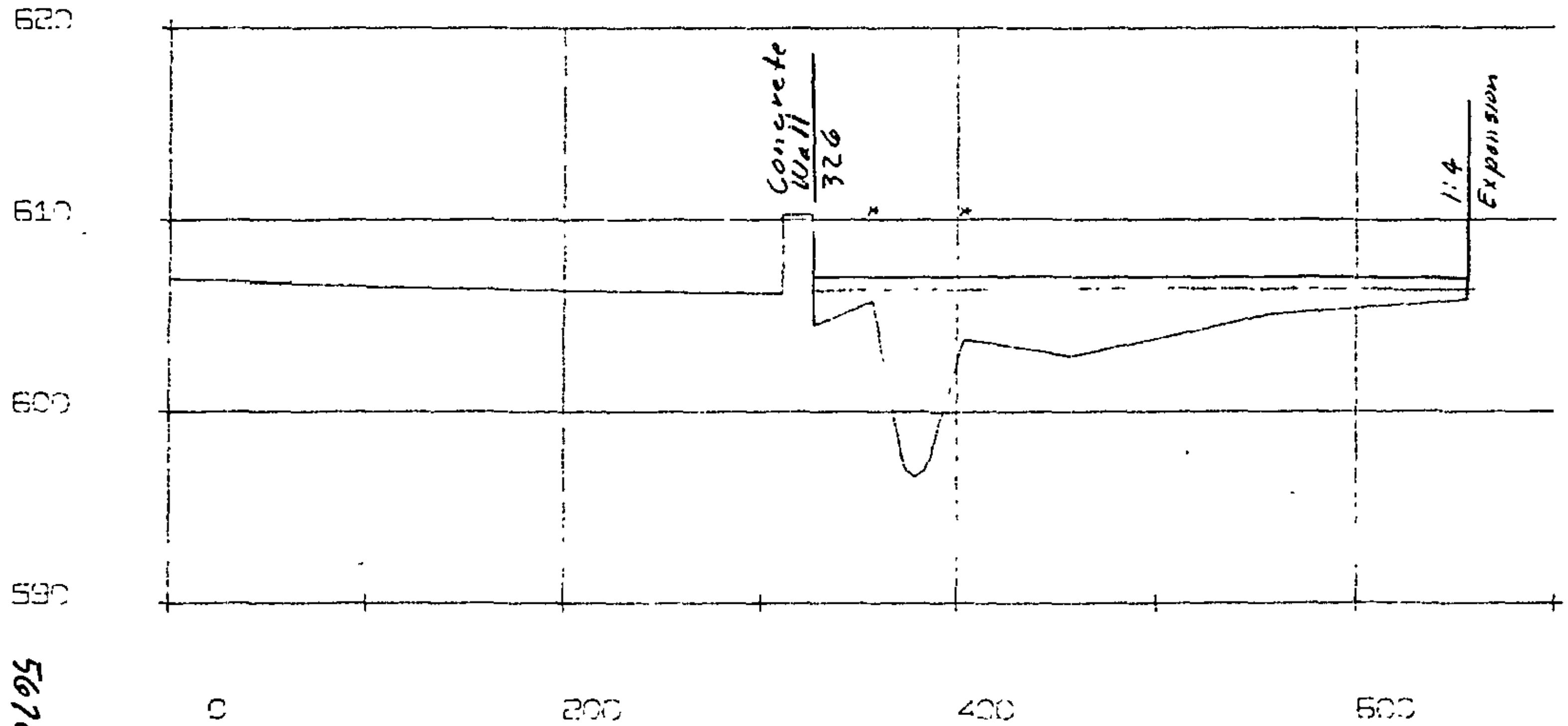
Profile View

Plan View



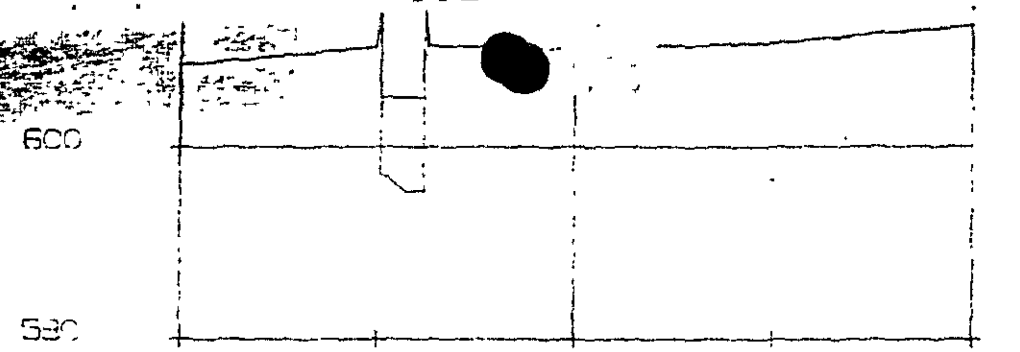


SECTION 157

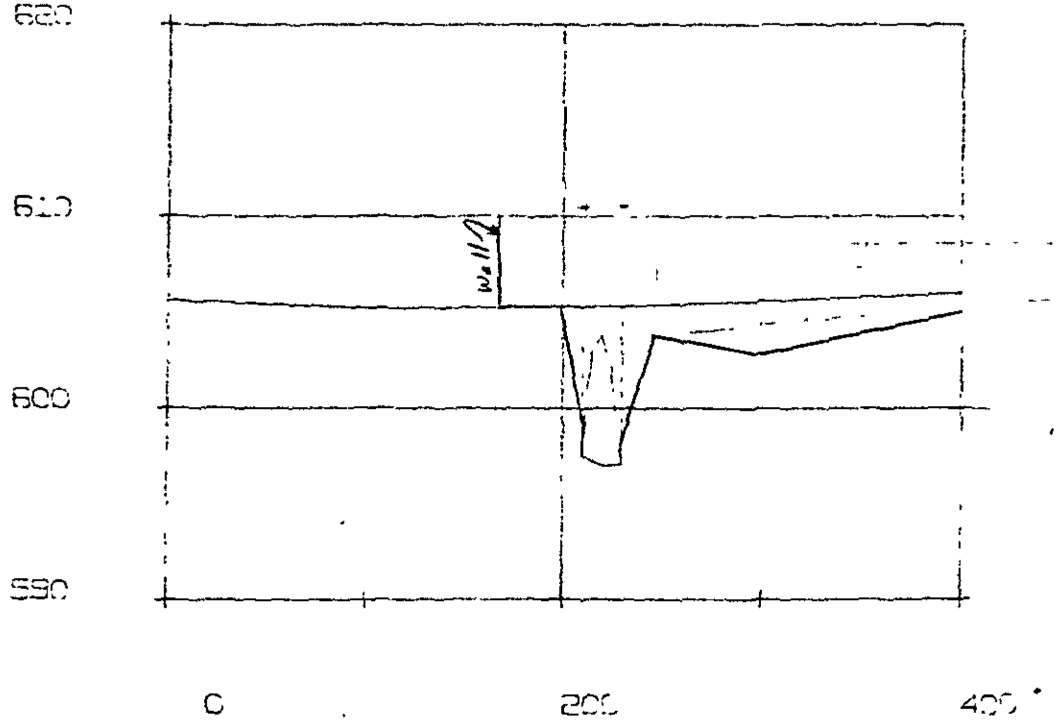


SECTION ~~155~~ 24248

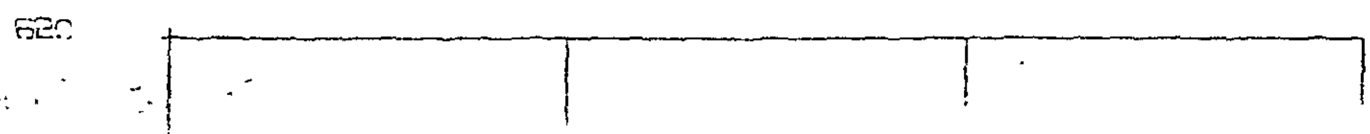
5670-02-155
Harrington Drain
15 Mile Rd
12-10-76 WCR



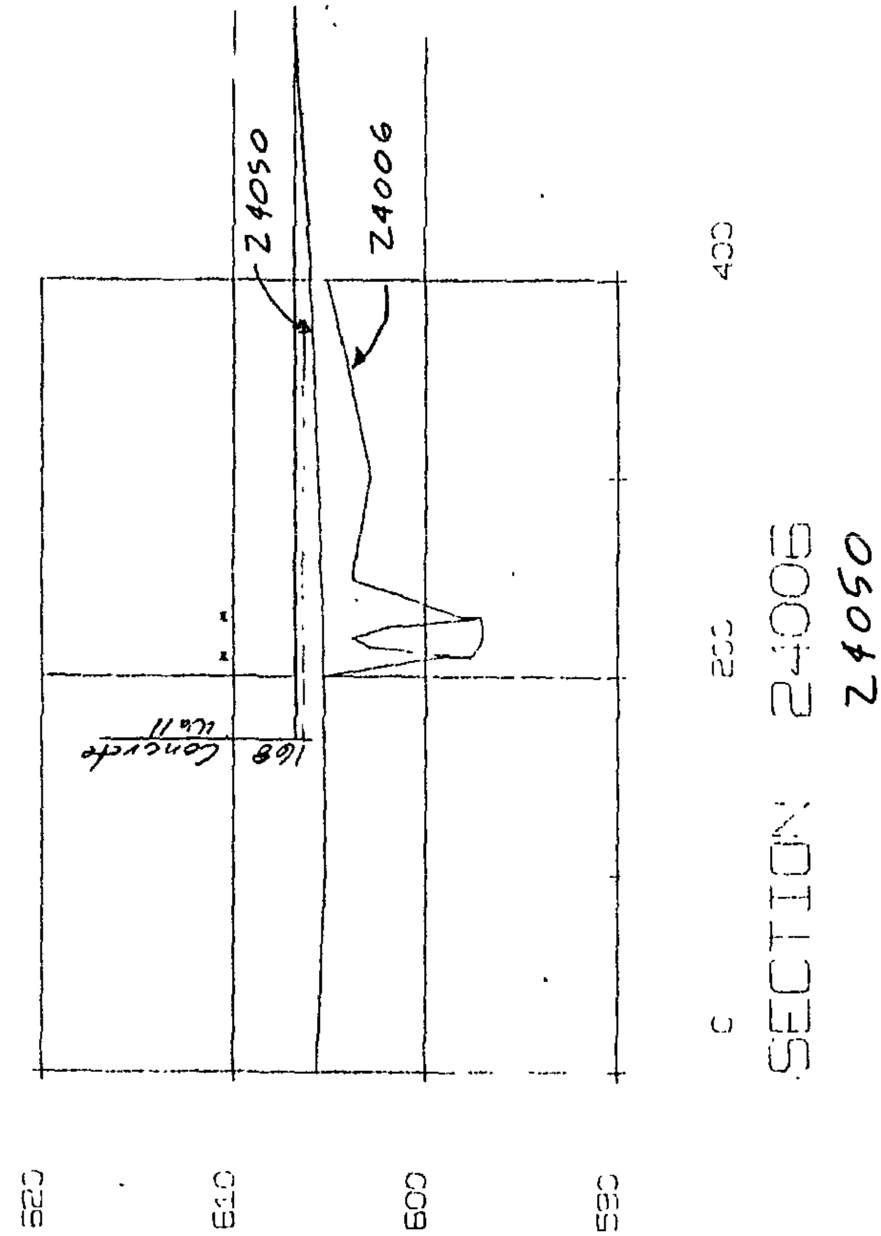
SECTION 161



SECTION 155



5670-02-155
Harrington Drain
15 Mile Rd
WCR 12-10-76
REV 1-19-77



5670-02-155
Harrington Drain
15 Mile Rd
WCR 1-19-77

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Clinton Twp

3) WATERCOURSE: Harrington Drain

4) DOCUMENT TYPE: Natural

00BREAK00

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*********************************************
HEC2 VERSION UPDATED JAN 1976
ERROR CORRECTIONS 01,02,03,04,05,06,07,08,09
MODIFICATIONS 52,53,54,55,56,57,58
*********************************************

C
I       CLINTON TOWNSHIP  FLOOD INSURANCE STUDY
T2        HARRINGTON DRAIN  10 YEAR FLOOD   JHA JOB NO. 5570-02
T3        PROJECT MANAGER  WILLIAM ROSSOW

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC     HVINS      Q         SEL        FQ
       -1.        2.       -0.       -0.  -1.000000    -0.00      -0.0      -0.     -0.000     -1.000

J2  NPROF     IPLOT     PREVS     XSECV     XSECH      FN        ALLOC      IBW       CHNIM      ITRACE
     1.000    -0.000    -1.000    -0.000    -0.000    -0.000    -0.000    -0.000    -0.000    -0.000

J3     1.000    10.000    11.000    12.000    14.000     -.000     4.000    -0.000    -0.000    -0.000
NC      .070      .070      .040      .500     1.000    -0.000    -0.000    -0.000    -0.000    -0.000
QT     4.000   930.000  1320.000  1520.000  2140.000    -0.000    -0.000    -0.000    -0.000    -0.000
NH     5.000      .025    79.000      .055    92.000      .040   113.000      .055   120.000      .025
NH   620.000    -0.000    -0.000    -0.000    -0.000    -0.000    -0.000    -0.000    -0.000    -0.000

X1    75.000    18.000    79.000   120.000    -0.000    -0.000    -0.000    -0.000     -.400    -0.000
X3    -0.000    -0.000    -0.000    -0.000    -0.000   510.000    -0.000    -0.000    -0.000    -0.000
GR   593.800     0.000   597.200    29.000   586.300    54.000   583.800    79.000   575.200    42.000
GR   574.800    95.000   574.600   100.000   575.000   105.000   575.300   113.000   577.000   117.000
GR   581.300   120.000   580.500   220.000   579.700   320.000   564.100   361.000   583.700   420.000
GR   582.500   520.000   586.600   596.000   600.500   620.000    -0.000    -0.000    -0.000    -0.000

X1   125.000    -0.000    -0.000    -0.000    50.000    30.000    50.000    -0.000    -0.000    -0.000
X3    -0.000    -0.000    -0.000    -0.000    -0.000   510.000    -0.000    -0.000    -0.000    -0.000

X1   280.000    -0.000    -0.000    -0.000   155.000    90.000   155.000    -0.000      .100    -0.000
X3    -0.000    -0.000    -0.000    -0.000    -0.000   510.000    -0.000    -0.000    -0.000    -0.000

X1   490.000    -0.000    -0.000    -0.000   210.000   120.000   210.000    -0.000      .100    -0.000
X3    -0.000    -0.000    -0.000    -0.000    -0.000   510.000    -0.000    -0.000    -0.000    -0.000

X1   700.000    -0.000    -0.000    -0.000   210.000   120.000   210.000    -0.000      .100    -0.000
X3    -0.000    -0.000    -0.000    -0.000    -0.000   510.000    -0.000    -0.000    -0.000    -0.000
NH     5.000      .025   175.000      .055   185.000      .040   205.000      .055   205.000      .125
NH   320.000    -0.000    -0.000    -0.000    -0.000    -0.000    -0.000    -0.000    -0.000    -0.000

X1  1470.000    15.000   175.000   209.000   780.000   635.000   770.000    -0.000    -0.000    -0.000
X3    -0.000    -0.000    -0.000   150.000    -0.000   244.000    -0.000    -0.000    -0.000    -0.000
GR   598.400     0.000   587.300    34.000   585.800    75.000   585.400   125.000   582.900   145.000
GR   583.100   175.000   577.200   185.000   575.600   190.000   575.500   195.000   574.900   195.000
GR   577.300   205.000   584.400   209.000   584.500   275.000   585.500   [illegible]   595.100   320.000
NH     3.000      .025   800.000      .050   899.600      .025   995.000    -0.000    -0.000    -0.000

X1  1554.000    33.000   800.000   899.600    84.000    84.000    64.000    -0.000    -0.000    -0.000
GR   605.900     0.000   604.800   100.000   603.500   200.000   602.300   300.000   600.900   400.000
GR   600.700   500.000   600.300   600.000   599.900   700.000   600.500   772.000   601.100   800.000
GR   592.500   800.000   592.500   805.000   581.000   829.000   580.500   831.400   597.800   831.400
GR   597.800   833.000   580.200   833.000   579.900   837.000   576.300   840.000   575.900   845.000
GR   576.400   850.000   576.300   855.000   579.300   861.000   579.800   866.000   598.000   866.600
GR   598.000   868.200   5[illegible]   868.200   581.600   871.000   [illegible]
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* section 75 → 700 are elev. adjusted

GR	601.500	899.600	600.800	930.000	599.700	995.000	-0.000	-0.000	-0.000	-0.000
NH	3.000	.015	800.000	.024	899.600	.015	995.000	-0.000	-0.000	-0.000
X1	1555.000	-0.000	-0.000	-0.000	1.000	1.000	1.000	-0.000	-0.000	-0.000
BT	17.000	0.000	605.900	0.000	100.000	604.800	0.000	200.000	603.500	0.000
BT	300.000	602.300	0.000	400.000	600.900	0.000	500.000	600.700	0.000	500.000
BT	600.300	0.000	700.000	599.900	0.000	772.000	600.500	0.000	800.000	601.100
BT	597.700	831.400	601.200	597.800	833.000	601.200	597.800	866.600	601.400	598.000
BT	868.200	601.400	598.000	899.600	601.500	598.100	930.000	600.300	0.000	995.000
BT	599.700	0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	1586.000	-0.000	-0.000	-0.000	31.000	31.000	31.000	-0.000	-0.000	-0.000
X2	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	1.000	-0.000	-0.000	-0.000
NH	3.000	.040	800.000	.050	899.600	.040	995.000	-0.000	-0.000	-0.000
X1	1587.000	-0.000	-0.000	-0.000	1.000	1.000	1.000	-0.000	-0.000	-0.000
NH	5.000	.040	159.000	.055	170.000	.030	187.000	.070	192.000	.040
NH	623.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	2030.000	17.000	178.000	215.000	400.000	600.000	443.000	.650	-.800	-0.000
GR	601.300	0.000	599.400	100.000	588.300	178.000	580.300	190.000	577.400	194.000
GR	577.200	200.000	577.200	208.000	581.500	210.000	584.100	215.000	587.300	228.000
GR	585.900	300.000	585.200	383.000	590.900	399.000	594.400	500.000	597.600	570.000
GR	594.800	600.000	593.400	700.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
NC	-0.000	-0.000	-0.000	.100	.300	-0.000	-0.000	-0.000	-0.000	-0.000
NH	5.000	.040	159.000	.055	170.000	.030	187.000	.070	192.000	.040
NH	623.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	2670.000	-0.000	-0.000	-0.000	550.000	325.000	640.000	-0.000	.800	-0.000
NH	5.000	.095	85.000	.055	106.000	.030	119.000	.055	163.000	.095
NH	485.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	4470.000	15.000	85.000	163.000	1900.000	1600.000	1800.000	-0.000	-0.000	-0.000
GR	601.400	0.000	590.100	39.000	589.000	85.000	578.300	106.000	578.000	109.000
GR	578.500	112.000	579.100	117.000	580.300	119.000	584.600	135.000	589.700	163.000
GR	587.400	185.000	596.500	255.000	594.200	285.000	595.200	385.000	597.500	485.000
NH	5.000	.095	200.000	.055	205.000	.030	223.000	.055	245.000	.095
NH	439.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	5470.000	12.000	200.000	245.000	1000.000	850.000	1000.000	-0.000	-0.000	-0.000
GR	601.200	0.000	597.000	78.000	590.000	112.000	589.800	200.000	579.900	208.000
GR	579.600	213.000	579.900	219.000	579.700	223.000	588.800	245.000	586.600	300.000
GR	591.100	368.000	603.200	439.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
NH	5.000	.095	400.000	.055	413.000	.030	433.000	.055	447.000	.095
NH	557.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	6770.000	16.000	400.000	447.000	1000.000	1300.000	1300.000	-0.000	-0.000	-0.000
GR	601.500	0.000	599.300	100.000	599.600	113.000	596.000	200.000	594.100	300.000
GR	592.600	400.000	584.900	413.000	582.400	414.000	582.500	424.000	582.300	429.000
GR	582.600	432.000	585.000	433.000	592.600	447.000	589.200	492.000	594.500	512.000
GR	601.800	557.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
NH	5.000	.045	139.000	.070	180.000	.030	200.000	.080	210.000	.085
NH	380.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	8170.000	15.000	167.000	210.000	1300.000	1400.000	1400.000	-0.000	-0.000	-0.000
GR	602.100	0.000	600.500	50.000	593.000	77.000	592.100	139.000	593.300	157.000
GR	586.700	180.000	583.600	184.000	583.500	188.000	583.600	195.000	587.300	200.000
GR	592.600	210.000	596.900	238.000	598.400	280.000	599.600	307.000	600.300	380.000
QT	4.000	830.000	1180.000	1360.000	1910.000	-0.000	-0.000	-0.000	-0.000	-0.000
NH	5.000	.060	113.000	.040	126.000	.030	137.000	.040	160.000	.070
NH	363.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	9270.000	13.000	113.000	160.000	1100.000	1100.000	1100.000	-0.000	-0.000	-0.000
GR	601.700	0.000	594.600	33.000	591.900	113.000	584.700	126.000	584.700	132.000
GR	587.700	137.000	587.900	144.000	593.500	160.000	594.500	186.000	592.800	213.000

NH	5.000	.035	100.000	.040	118.000	.030	135.000	.040	155.700	.060
NH	500.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	10720.000	13.000	100.000	155.000	1350.000	1500.000	1450.000	-0.000	-0.000	-0.000
GR	606.000	0.000	598.000	100.000	587.800	118.000	585.900	119.000	595.500	125.000
GR	586.100	129.000	588.100	136.000	594.400	155.000	594.400	200.000	597.000	230.000
GR	597.600	300.000	598.700	400.000	600.500	500.000	-0.000	-0.000	-0.000	-0.000
NH	5.000	.040	170.000	.060	181.000	.030	197.000	.060	224.000	.040
NH	330.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	12370.000	12.000	170.000	224.000	1700.000	1600.000	1550.000	-0.000	-0.000	-0.000
GR	600.200	0.000	599.000	64.000	595.400	83.000	594.200	170.000	587.500	181.000
GR	586.900	189.000	587.000	196.000	588.700	197.000	595.800	224.000	596.600	240.000
GR	598.400	288.000	603.700	330.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
NC	-0.000	-0.000	-0.000	.500	1.000	-0.000	-0.000	-0.000	-0.000	-0.000
NH	4.000	.040	500.000	.065	519.000	.030	533.000	.050	900.000	-0.000
X1	12900.000	18.000	500.000	550.000	530.000	530.000	530.000	-0.000	.150	-0.000
X3	-0.000	-0.000	-0.000	440.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	603.500	0.000	601.900	100.000	599.700	200.000	599.100	300.000	596.500	[illegible]
GR	596.000	400.000	596.700	500.000	590.600	511.000	590.300	517.000	[illegible]	524.000
GR	587.300	526.000	587.500	532.000	589.200	533.000	595.700	550.000	597.400	600.000
GR	600.800	700.000	604.700	800.000	607.000	900.000	-0.000	-0.000	-0.000	-0.000
X1	13220.000	-0.000	-0.000	-0.000	320.000	320.000	320.000	-0.000	.150	-0.000
X3	-0.000	-0.000	-0.000	490.000	-0.000	560.000	-0.000	-0.000	-0.000	-0.000
NH	3.000	.040	776.000	.040	806.000	.050	1451.000	-0.000	-0.000	-0.000
X1	13299.000	28.000	800.000	830.400	79.000	79.000	79.000	.970	-0.000	-0.000
GR	606.600	0.000	605.600	100.000	604.600	200.000	603.800	300.000	603.100	400.000
GR	602.700	500.000	602.400	600.000	602.300	700.000	602.300	782.000	603.100	800.000
GR	590.800	800.000	590.200	804.000	588.300	805.000	588.100	810.000	588.300	815.000
GR	588.300	820.000	588.400	822.000	589.600	823.000	590.500	830.400	603.200	830.400
GR	602.600	875.000	602.700	900.000	603.100	1000.000	603.900	1100.000	604.100	1132.000
GR	604.800	1200.000	605.800	1300.000	607.000	1400.000	-0.000	-0.000	-0.000	-0.000
NH	3.000	.015	776.000	.030	806.000	.015	1358.000	-0.000	-0.000	-0.000
X1	13300.000	-0.000	-0.000	-0.000	1.000	1.000	1.000	-0.000	-0.000	-0.000
X2	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	.970	-0.000
BT	19.000	0.000	606.600	0.000	100.000	605.600	0.000	200.000	604.600	0.000
BT	300.000	603.800	0.000	400.000	603.100	0.000	500.000	602.700	0.000	600.000
BT	602.400	0.000	700.000	602.300	0.000	782.000	602.300	0.000	800.000	603.100
BT	599.800	830.400	603.200	599.900	875.000	602.600	0.000	900.000	602.700	0.000
BT	1000.000	603.100	0.000	1100.000	603.900	0.000	1132.000	604.100	0.000	1200.000
BT	604.800	0.000	1300.000	605.800	0.000	1400.000	607.000	0.000	-0.000	-0.000
X1	13359.000	-0.000	-0.000	-0.000	59.000	59.000	59.000	-0.000	-0.000	-0.000
X2	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	1.000	-0.000	-0.000	-0.000
NH	3.000	.040	776.000	.040	806.000	.050	1358.000	-0.000	-0.000	-0.000
X1	13360.000	-0.000	-0.000	-0.000	1.000	1.000	1.000	-0.000	-0.000	-0.000
NH	3.000	.040	776.000	.040	806.000	.040	1358.000	-0.000	-0.000	-0.000
X1	13406.000	28.000	800.000	830.400	46.000	46.000	46.000	.970	-0.000	-0.000
GR	606.600	0.000	605.600	100.000	604.600	200.000	603.800	300.000	603.100	400.000
GR	602.700	500.000	602.400	600.000	602.300	700.000	602.300	782.000	603.100	800.000
GR	590.800	800.000	590.200	804.000	588.300	805.000	588.100	810.000	588.300	815.000
GR	588.300	820.000	588.400	822.000	589.600	823.000	590.500	830.400	603.200	830.400
GR	602.600	875.000	602.700	900.000	603.100	1000.000	603.900	1100.000	604.100	1132.000
GR	604.800	1200.000	605.800	1300.000	607.000	1400.000	-0.000	-0.000	-0.000	-0.000
NH	3.000	.015	776.000	.030	806.000	.015	1358.000	-0.000	-0.000	-0.000
X1	13407.000	-0.000	-0.000	-0.000	1.000	1.000	1.000	-0.000	-0.000	-0.000
X2	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	.970	-0.000
BT	19.000	0.000	606.600	0.000	100.000	605.600	0.000	200.000	604.600	0.000

BT	602.400	0.000	700.000	602.300	0.000	782.000	602.300	0.000	800.000	603.100
BT	599.800	830.400	603.200	599.900	875.000	602.600	0.000	900.000	602.700	0.000
BT	1000.000	603.100	0.000	1100.000	603.900	0.000	1132.000	604.100	0.000	1200.000
BT	604.800	0.000	1300.000	605.800	0.000	1400.000	607.000	0.000	-0.000	-0.000
X1	13466.000	-0.000	-0.000	-0.000	59.000	59.000	59.000	-0.000	-0.000	-0.000
X2	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	1.000	-0.000	-0.000	-0.000
NH	3.000	.040	776.000	.040	806.000	.040	1358.000	-0.000	-0.000	-0.000
X1	13467.000	-0.000	-0.000	-0.000	1.000	1.000	1.000	-0.000	-0.000	-0.000
NH	5.000	.070	362.000	.050	375.000	.030	347.000	.050	402.000	.040
NH	600.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	13517.000	14.000	362.000	402.000	50.000	50.000	50.000	-0.000	-.600	-0.000
X3	-0.000	-0.000	-0.000	362.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	604.700	0.000	603.500	100.000	602.200	200.000	599.800	250.000	597.900	300.000
GR	598.700	362.000	592.300	373.000	589.200	375.000	588.700	381.000	589.800	387.000
GR	596.600	402.000	599.500	500.000	603.900	550.000	604.800	600.000	-0.000	-0.000
QT	4.000	720.000	1020.000	1180.000	1660.000	-0.000	-0.000	-0.000	-0.000	-0.000
NC	-0.000	-0.000	-0.000	.100	.300	-0.000	-0.000	-0.000	-0.000	-0.000
NH	5.000	.070	362.000	.050	375.000	.030	337.000	.050	402.000	.040
NH	600.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	15020.000	-0.000	-0.000	-0.000	1500.000	1450.000	1503.000	-0.000	.600	-0.000
X3	-0.000	-0.000	-0.000	-0.000	-0.000	500.000	-0.000	-0.000	-0.000	-0.000
NC	-0.000	-0.000	-0.000	.500	1.000	-0.000	-0.000	-0.000	-0.000	-0.000
NH	5.000	.035	300.000	.050	316.000	.030	324.000	.050	344.000	.040
NH	430.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	16020.000	14.000	300.000	344.000	975.000	1025.000	1000.000	-0.000	-0.000	-0.000
GR	605.300	0.000	604.100	100.000	603.500	200.000	601.300	285.000	599.700	300.000
GR	591.200	316.000	589.500	317.000	589.300	321.000	589.300	326.000	592.600	329.000
GR	593.500	332.000	599.700	344.000	603.700	400.000	605.900	430.000	-0.000	-0.000
NH	5.000	.035	377.000	.050	405.000	.030	428.000	.050	436.000	.040
NH	600.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	16145.000	21.000	400.000	428.000	81.000	141.000	125.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	400.000	-0.000	428.000	-0.000	-0.000	-0.000	-0.000
GR	605.600	0.000	605.300	92.000	604.100	192.000	603.500	292.000	601.800	365.000
GR	601.300	377.000	599.700	392.000	594.200	400.000	594.200	400.000	591.600	405.000
GR	591.400	410.000	591.200	415.000	591.100	420.000	590.900	425.000	591.400	428.000
GR	591.400	428.000	599.700	436.000	602.300	475.000	603.700	492.000	605.900	522.000
GR	604.500	600.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
SB	-0.000	1.479	2.830	-0.000	1.000	-0.000	201.700	-0.000	590.400	590.400
NH	5.000	.060	377.000	.050	405.000	.030	428.000	.050	436.000	.075
NH	600.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	16164.000	-0.000	-0.000	-0.000	19.000	19.000	19.000	-0.000	-0.000	-0.000
X2	-0.000	-0.000	1.000	600.800	601.800	-0.000	-0.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	400.000	-0.000	428.000	-0.000	-0.000	-0.000	-0.000
BT	18.000	0.000	605.600	0.000	92.000	605.300	0.000	192.000	604.100	0.000
BT	292.000	603.500	0.000	365.000	601.800	0.000	400.000	602.000	594.200	400.000
BT	605.000	594.500	405.000	605.000	598.500	410.000	605.000	600.500	415.000	605.000
BT	600.800	420.000	605.000	599.900	425.000	605.000	597.100	428.000	605.000	594.200
BT	428.000	602.000	591.400	475.000	602.300	0.000	492.000	603.700	0.000	522.000
BT	605.900	0.000	600.000	604.500	0.000	-0.000	-0.000	-0.000	-0.000	-0.000
NH	5.000	.075	300.000	.050	316.000	.030	329.000	.050	344.000	.075
NH	430.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	16214.000	14.000	300.000	344.000	50.000	50.000	50.000	-0.000	1.600	-0.000
GR	605.300	0.000	604.100	100.000	603.500	200.000	601.300	285.000	599.700	300.000
GR	591.200	316.000	589.500	317.000	589.300	321.000	589.800	326.000	592.600	329.000
GR	593.500	332.000	599.700	344.000	603.700	400.000	605.900	430.000	-0.000	-0.000
NC	-0.000	-0.000	-0.000	.100	.300	-0.000	-0.000	-0.000	-0.000	-0.000
NH	5.000	.075	199.000	.050	207.000	.030	222.000	.050	237.000	.075

X1	17565.000	12.000	199.000	237.000	1151.000	1601.000	1351.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	-0.000	-0.000	300.000	-0.000	-0.000	-0.000	-0.000
GR	605.900	0.000	601.600	100.000	599.700	199.000	593.200	207.000	591.400	299.000
GR	591.000	214.000	591.500	219.000	594.200	222.000	600.700	237.000	601.700	300.000
GR	601.600	400.000	602.800	500.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
NH	5.000	.070	258.000	.050	270.000	.030	264.000	.050	300.000	.040
NH	650.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	18965.000	17.000	258.000	300.000	1600.000	1100.000	1400.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	100.000	-0.000	370.000	-0.000	-0.000	-0.000	-0.000
GR	605.800	0.000	605.100	50.000	603.200	100.000	600.700	200.000	601.000	258.000
GR	594.100	270.000	592.600	271.000	592.300	279.000	592.500	285.000	595.000	288.000
GR	601.300	300.000	602.500	314.000	603.400	400.000	604.800	482.000	604.700	500.000
GR	605.200	600.000	605.800	650.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
NH	5.000	.070	221.000	.050	242.000	.030	263.000	.050	285.000	.040
NH	510.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	20165.000	20.000	221.000	285.000	1300.000	1100.000	1200.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	221.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	607.300	0.000	605.200	60.000	606.500	100.000	607.000	150.000	606.700	200.000
GR	606.400	221.000	597.200	237.000	594.800	242.000	593.100	247.000	593.200	249.000
GR	592.600	255.000	593.300	260.000	594.300	263.000	596.200	264.000	605.700	265.000
GR	605.500	300.000	606.800	400.000	604.700	452.000	606.000	500.000	606.200	510.000
QT	4.000	560.000	800.000	920.000	1300.000	-0.000	-0.000	-0.000	-0.000	-0.000
NC	-0.000	-0.000	-0.000	.500	1.000	-0.000	-0.000	-0.000	-0.000	-0.000
NH	5.000	.040	216.000	.050	240.000	.030	255.000	.050	281.000	.030
NH	436.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	20845.000	17.000	216.000	281.000	450.000	900.000	680.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	178.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	605.200	0.000	605.700	36.000	605.700	51.000	607.100	124.000	607.100	178.000
GR	606.200	202.000	605.900	216.000	594.300	229.000	593.200	240.000	593.400	242.000
GR	593.300	247.000	593.800	253.000	595.600	255.000	600.200	271.000	606.300	281.000
GR	607.200	336.000	610.000	436.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
NH	5.000	.040	300.000	.050	327.000	.030	339.000	.050	370.000	.030
NH	523.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	20881.000	18.000	300.000	370.000	36.000	36.000	36.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	300.000	-0.000	370.000	-0.000	-0.000	-0.000	-0.000
GR	606.800	0.000	605.800	100.000	605.300	145.000	606.100	200.000	606.800	270.000
GR	606.000	292.000	605.700	300.000	602.700	300.000	595.400	325.000	593.900	327.000
GR	593.900	335.000	594.100	339.000	594.700	340.000	602.700	370.000	605.700	370.000
GR	606.400	385.000	607.200	423.000	610.000	523.000	-0.000	-0.000	-0.000	-0.000
SB	-0.000	1.427	3.020	-0.000	1.000	-0.000	364.300	-0.000	593.300	591.900
X1	20889.000	-0.000	-0.000	-0.000	8.000	8.000	8.000	-0.000	-0.000	-0.000
X2	-0.000	-0.000	1.000	602.800	605.700	-0.000	-0.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	300.000	-0.000	370.000	-0.000	-0.000	-0.000	-0.000
BT	8.000	270.000	606.800	0.000	292.000	507.000	0.000	300.000	605.700	592.700
BT	335.000	605.800	602.800	370.000	605.700	602.700	400.000	607.100	0.000	450.000
BT	608.500	0.000	523.000	610.000	0.000	-0.000	-0.000	-0.000	-0.000	-0.000
NC	-0.000	-0.000	-0.000	.100	.300	-0.000	-0.000	-0.000	-0.000	-0.000
NH	5.000	.040	218.000	.050	244.000	.030	260.000	.050	293.000	.040
NH	325.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	21400.000	15.000	218.000	293.000	511.000	511.000	511.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	170.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	608.200	0.000	606.300	58.000	607.700	100.000	608.300	113.000	607.800	170.000
GR	606.600	200.000	606.200	218.000	595.300	244.000	594.000	245.000	593.500	252.000
GR	594.000	258.000	594.000	260.000	606.400	293.000	606.700	300.000	606.700	325.000
NH	5.000	.040	250.000	.050	271.000	.030	287.000	.050	330.000	.040
NH	400.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	21920.000	16.000	250.000	330.000	610.000	480.000	520.000	-0.000	-0.000	-0.000

GR	605.300	0.000	603.200	50.000	604.900	105.000	605.300	157.000	604.200	200.000
GR	603.900	250.000	598.400	269.000	594.300	271.000	593.500	274.000	593.500	277.000
GR	593.800	282.000	595.100	287.000	597.500	294.000	603.100	317.000	605.900	330.000
GR	605.000	400.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
NC	-0.000	-0.000	-0.000	.500	1.000	-0.000	-0.000	-0.000	-0.000	-0.000
NH	5.000	.040	235.000	.050	256.000	.030	272.000	.050	296.000	.065
NH	400.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	22720.000	16.000	235.000	296.000	850.000	700.000	600.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	170.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	605.600	0.000	604.500	60.000	605.600	100.000	606.000	116.000	606.100	170.000
GR	605.900	200.000	605.600	227.000	604.500	235.000	594.800	256.000	594.300	260.000
GR	593.700	266.000	594.300	272.000	595.900	275.000	597.600	280.000	604.700	296.000
GR	606.800	400.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
QT	4.000	380.000	540.000	620.000	870.000	-0.000	-0.000	-0.000	-0.000	-0.000
NH	5.000	.025	69.000	.045	95.600	.030	104.400	.045	130.000	.025
NH	430.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	22970.000	24.000	95.600	104.400	151.000	401.000	250.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	-0.000	-0.000	198.000	-0.000	-0.000	-0.000	-0.000
GR	604.400	0.000	604.870	45.000	604.600	58.000	604.900	59.000	599.300	62.000
GR	597.400	88.000	596.100	91.000	595.700	95.600	594.900	96.200	594.500	97.400
GR	594.400	98.600	594.300	100.000	594.400	101.400	594.500	102.600	594.900	103.800
GR	595.700	104.400	595.900	107.000	598.800	115.000	606.100	130.000	606.800	198.000
GR	605.800	220.000	605.300	230.000	605.300	330.000	605.800	430.000	-0.000	-0.000
SB	-0.000	3.017	3.040	-0.000	1.000	-0.000	43.000	-0.000	594.500	594.300
X1	23050.000	-0.000	-0.000	-0.000	80.000	80.000	80.000	-0.000	.200	-0.000
X2	-0.000	-0.000	1.000	600.500	604.400	-0.000	-0.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	-0.000	-0.000	198.000	-0.000	-0.000	-0.000	-0.000
BT	15.000	0.000	604.400	0.000	95.600	605.400	595.700	95.600	605.400	596.700
BT	96.200	605.400	598.200	97.400	605.400	599.500	98.600	605.400	600.100	100.000
BT	605.400	600.300	101.400	605.400	600.100	102.600	605.400	599.500	103.800	605.400
BT	598.200	104.400	605.400	596.700	104.400	605.400	595.700	130.000	605.700	0.000
BT	130.000	606.100	0.000	198.000	606.800	0.000	-0.000	-0.000	-0.000	-0.000
NH	5.000	.025	24.000	.045	50.000	.030	62.000	.045	85.000	.025
NH	385.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	23177.000	17.000	24.000	85.000	127.000	127.000	127.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	14.000	-0.000	153.000	-0.000	-0.000	-0.000	-0.000
GR	605.100	0.000	604.600	13.000	604.900	24.000	599.300	37.000	597.400	43.000
GR	596.100	46.000	596.000	50.000	595.200	53.000	594.900	57.000	595.100	61.000
GR	595.900	62.000	598.800	70.000	606.100	85.000	606.800	153.000	605.300	185.000
GR	605.300	285.000	605.800	385.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
NH	5.000	.025	68.000	.045	95.600	.030	104.400	.045	124.000	.025
NH	429.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	23305.000	26.000	95.600	104.400	128.000	128.000	128.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	-0.000	-0.000	197.000	-0.000	-0.000	-0.000	-0.000
GR	605.100	0.000	605.100	44.000	604.600	57.000	604.900	68.000	599.300	81.000
GR	597.400	87.000	596.100	90.000	596.000	94.000	596.600	95.600	595.400	96.200
GR	595.400	97.400	595.300	98.600	595.200	100.000	595.300	101.400	595.400	102.600
GR	595.800	103.800	596.600	104.400	595.100	105.000	595.900	106.000	598.800	114.000
GR	606.100	129.000	606.800	197.000	605.300	229.000	605.100	300.000	605.300	329.000
GR	605.800	429.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
SB	-0.000	3.017	3.040	-0.000	1.000	-0.000	43.000	-0.000	595.200	595.200
X1	23385.000	-0.000	-0.000	-0.000	80.000	80.000	80.000	-0.000	-0.000	-0.000
X2	-0.000	-0.000	1.000	601.200	605.100	-0.000	-0.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	-0.000	-0.000	197.000	-0.000	-0.000	-0.000	-0.000
BT	13.000	0.000	605.100	0.000	95.600	605.900	596.500	95.600	605.900	597.600
BT	96.200	605.900	599.100	97.400	605.900	600.400	98.500	605.900	601.000	100.000
BT	605.900	601.200	101.400	605.900	601.000	102.600	605.900	600.400	103.800	606.000
BT	599.100	104.400	606.000	597.600	104.400	606.000	596.600	197.000	607.400	0.000
NH	5.000	.035	40.000	.050	67.000	.040	76.000	.050	95.000	.025

X1	23735.000	14.000	40.000	95.000	350.000	350.000	350.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	-0.000	-0.000	165.000	-0.000	-0.000	-0.000	-0.000
GR	604.500	0.000	604.800	27.000	604.300	40.000	596.900	59.000	596.100	67.000
GR	595.500	69.000	595.600	71.000	595.800	74.000	597.100	76.000	604.300	95.000
GR	606.300	165.000	605.400	195.000	605.600	295.000	605.600	355.000	-0.000	-0.000
NH	5.000	.035	200.000	.050	210.000	.040	230.000	.030	244.000	.030
NH	400.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	24006.000	14.000	210.000	230.000	350.000	160.000	271.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	168.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	605.600	0.000	605.200	100.000	605.270	168.000	605.300	200.000	599.000	210.000
GR	597.600	210.000	597.200	215.000	597.000	220.000	597.000	225.000	597.100	230.000
GR	598.000	230.000	603.800	249.000	602.900	300.000	605.100	400.000	-0.000	-0.000
SB	-0.000	1.888	3.040	-0.000	1.000	-0.000	44.700	-0.000	597.000	597.000
NH	5.000	.060	200.000	.060	210.000	.040	230.000	.060	249.000	.025
NH	400.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	24050.000	-0.000	-0.000	-0.000	44.000	44.000	44.000	-0.000	-0.000	-0.000
X2	-0.000	-0.000	1.000	603.800	605.300	-0.000	-0.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	168.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
BT	10.000	168.000	605.270	0.000	200.000	605.300	0.000	210.000	605.300	597.600
BT	215.000	605.300	602.900	220.000	605.300	603.800	225.000	605.300	602.000	230.000
BT	605.300	597.100	249.000	605.400	0.000	300.000	605.600	0.000	400.000	606.000
BT	0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
NH	4.000	.060	372.000	.040	384.000	.060	404.000	.025	657.000	-0.000
X1	24248.000	17.000	357.000	404.000	198.000	198.000	198.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	326.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	606.900	0.000	606.500	107.000	606.200	286.000	606.200	311.000	610.300	311.000
GR	610.300	326.000	604.500	326.000	605.800	357.000	597.500	372.000	597.000	374.000
GR	596.600	379.000	597.000	384.000	597.800	387.000	603.800	404.000	602.900	457.000
GR	605.100	557.000	605.900	657.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
EJ	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000

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HEC2 VERSION UPDATED JAN 1976
ERROR CORRECTIONS 01,02,03,04,05,06,07,08,09
MODIFICATIONS 52,53,54,55,56,57,58
****************************************

T1      CLINTON TOWNSHIP  FLOOD INSURANCE STUDY
T2      HARRINGTON DRAIN  100 YEAR FLOOD  JMA JOB NO. 5670-02
T3      PROJECT MANAGER  WILLIAM ROSSOW

J1  ICHECK      INQ      NINV      IDIR      STRT     METRIC    HVINS      Q        WSEL      FQ
       -1.       4.       -0.       -0. -1.000000    -0.00     -0.0      -0.     -0.000    -0.000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH       FN     ALLDC      IBW     CHNIM    ITRACE
    3.000    -0.000    -1.000    -0.000    -0.000    -0.000    -0.000    -0.000    -0.000    -0.000
```

3720 ASSUMED CRITICAL DEPTH

CCHV= .500 CEHV= 1.000
~~1490 NH CARD USED~~
2096 WSEL NOT GIVEN, AVG OF MAX,MIN USED
~~3265 DIVIDED FLOW~~

100-yr flood stage, Clinton River to be superposed (study in progress)

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
3470 ENCROACHMENT STATIONS=		.0	510.0	TYPE=	1	TARGET=		509.999	
75.00	6.21	580.51	580.51	-0.00	581.22	.71	0.00	0.00	583.50
1520.	0.	1250.	270.	0.	171.	85.	0.	0.	581.00
0.00	0.00	7.32	3.17	.025	.042	.025	0.000	574.30	43.52
.005110	-0.	-0.	-0.	0	46	1	0.00	149.89	335.45

** vertical

* sect 75. through 7+00 are [illegible] adjusted

3301 HV CHANGED MORE THAN HVINS ?

** check on st. W.S 580.51 @ 0+75

3470 ENCROACHMENT STATIONS=		.0	510.0	TYPE=	1	TARGET=		509.999	
125.00	7.10	581.40	0.00	0.00	581.59	.19	.10	.26	583.50
1520.	0.	829.	691.	0.	204.	269.	0.	0.	581.00
.00	0.00	4.06	2.57	.025	.042	.025	.045	574.30	82.17
.001346	50.	50.	30.	5	0	1	0.00	265.61	347.78
3470 ENCROACHMENT STATIONS=		.0	510.0	TYPE=	1	TARGET=		509.999	
280.00	7.19	581.59	0.00	0.00	581.75	.17	.16	.01	583.60
1520.	0.	796.	724.	0.	207.	289.	2.	1.	581.10
.01	0.00	3.84	2.51	.025	.042	.025	.048	574.40	82.04
.001184	155.	155.	90.	2	0	1	0.00	266.97	349.00
3470 ENCROACHMENT STATIONS=		.0	510.0	TYPE=	1	TARGET=		509.999	
490.00	7.30	581.80	0.00	0.00	581.94	.15	.18	.01	583.70
1520.	0.	758.	762.	0.	211.	313.	3.	2.	581.20
.03	0.00	3.59	2.43	.025	.043	.025	.049	574.50	81.87
.001017	210.	210.	120.	2	0	1	0.00	268.62	350.49
3470 ENCROACHMENT STATIONS=		.0	510.0	TYPE=	1	TARGET=		509.999	
VALLEY SECTION A								126	
700.00	7.38	581.98	0.00	0.00	582.11	.13	.16	.01	583.80
1520.	0.	734.	786. Qrob	0.	214.	331.	5.	2.	581.30
.05	0.00	3.42	2.37	.025	.043	.025 XNR	.050	574.60	81.76
.000914	210.	210.	120.	2	0	1	0.00	259.80	351.56

ref.; COE FPI Clinton Ri. 1969

580.5 corres. to 3200 cfs (Clinton River S-D curve @ Moravian Drive, Append A, Fig A-6)

3200 cfs corres. to 10-yr flood (Append A, Fig A-3)

⇒ consider st. method reasonable

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3301 HV CHANGED MORE THAN HVINS

  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


3470 ENCROACHMENT STATIONS=      150.0      244.0  TYPE=      1  TARGET=        94.000

                 VALLEY SECTION B                                                127

   1470.00      8.37    583.27      0.00      0.00    584.26       .99      1.29       .86    584.10
   1520.         10.     1510.        0.        6.      188.        0.       11.        5.    584.40
     .07        1.62      8.02      0.00      .025      .041      .025      .045    574.90    150.00
  .004632       780.      770.      635.         2         0         1      0.00     58.36    208.36

1490 NH CARD USED

3265 DIVIDED FLOW

   1554.00      8.44    584.34      0.00      0.00    584.86       .52       .37       .23    601.10
   1520.          0.     1520.        0.        0.      261.        0.       12.        5.    601.50
     .08        0.00      5.81      0.00      .025      .050      .025      .045    575.90    822.04
  .004163        84.       84.       84.         3         0         1      0.00     51.89    877.13

1490 NH CARD USED

3265 DIVIDED FLOW
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ELLC @ 598.10 > 584.34 ⇒ unsubmerged outlet

```
NORMAL BRIDGE,NRD=17 MIN ELTRD=   599.70 MAX ELLC=   598.10

   1555.00      8.44    584.34      0.00      0.00    584.86       .52       .00       .00    601.10
   1520.          0.     1520.        0.        0.      262.        0.       12.        5.    601.50
     .08        0.00      5.81      0.00      .025      .024      .025      .045    575.90    822.03
  .000957         1.        1.        1.         0         0         1      0.00     51.91    877.14


3265 DIVIDED FLOW

NORMAL BRIDGE,NRD=17 MIN ELTRD=   599.70 MAX ELLC=   598.10

                 BRIDGE SECTION C HARRINGTON ROAD UPSTREAM FACE                  123

   1586.00      8.48    584.38      0.00      0.00    584.90       .51       .03       .00    601.10
   1520.          0.     1520.        0.        0.      264.        0.       12.        5.    601.50
     .08        0.00      5.76      0.00      .025      .024      .025      .045    575.90    821.94
  .000936        31.       31.       31.         2         0         1      0.00     52.10    877.24

1490 NH CARD USED

3265 DIVIDED FLOW

   1587.00      8.48    584.38      0.00      0.00    584.90       .51       .00       .00    601.10
   1520.          0.     1520.        0.        0.      264.        0.       12.        5.    601.50
     .08        0.00      5.76      0.00      .025      .050      .025      .044    575.90    821.94
```

1490 NH CARD USED

3265 DIVIDED FLOW

2030.00	9.20	585.60	0.00	0.00	586.37	.77	1.21	.26	587.50
1520.	0.	1407.	113.	0.	192.	79.	15.	6.	583.30
.09	0.00	7.32	1.42	.025	.032	.040	.043	576.40	161.14
.001928	400.	443.	600.	1	0	1	0.00	137.92	343.65

CCHV= .100 CEHV= .300
1490 NH CARD USED

3265 DIVIDED FLOW

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

VALLEY SECTION D 129

2670.00	9.72	586.92	0.00	0.00	587.44	.52	1.05	.02	584.30
1520.	0.	1301.	219.	0.	209.	143.	20.	9.	584.10
.13	0.00	6.24	1.53	.025	.032	.040	.042	577.20	160.38
.001335	550.	640.	825.	3	0	1	0.00	166.17	345.17

1490 NH CARD USED

3265 DIVIDED FLOW

VALLEY SECTION E 130

4470.00	11.03	589.03	0.00	0.00	589.20	.17	1.72	.03	589.00
1520.	0.	1410.	110.	0.	406.	170.	38.	15.	589.70
.28	.00	3.47	.65	.095	.040	.095	.041	578.00	84.17
.000735	1900.	1800.	1600.	2	0	1	0.00	170.41	264.62

excessive reach length
Δ W.S. = (589.03 − 586.92) = 2.11'

1490 NH CARD USED

VALLEY SECTION F 131

5470.00	10.16	589.76	0.00	0.00	590.11	.35	.45	.05	589.60
1520.	0.	1483.	37.	0.	311.	77.	49.	19.	588.80
.34	0.00	4.78	.48	.095	.036	.095	.041	579.60	200.03
.001022	1000.	1000.	850.	2	0	1	0.00	131.57	331.60

* April 1947 flood stage, Clinton River @ elev 590 (COE FPI, Clinton River 1964) intersects @ 54+70*

excessive reach length
Δ W.S. = (589.76 − 589.03) = 0.73

*
1490 NH CARD USED

3265 DIVIDED FLOW

VALLEY SECTION G 132

6770.00	8.90	591.80	0.00	0.00	591.79	.59	1.61	.07	592.60
1520.	0.	1499.	21.	0.	242.	34.	59.	22.	592.60
.40	0.00	6.20	.61	.095	.032	.095	.041	582.30	402.36

excessive reach length
ΔW.S. =(591.2 − 589.76) = 1.44

1490 NH CARD USED

3265 DIVIDED FLOW

VALLEY SECTION H 133

8170.00	9.82	~~593.32~~	0.00	0.00	593.82	.50	2.02	.01	593.40
1520.	56.	1464.	1.	60.	253.	2.	68.	25.	592.60
.47	.93	5.78	.32	.048	.033	.085	.041	583.50	75.46
.001366	1300.	1400.	1400.	2	0	1	0.00	129.97	214.57

excessive reach length
ΔW.S. =(593.32 − 591.2) = 2.12'

1490 NH CARD USED

VALLEY SECTION I 134

9270.00	9.93	594.63	0.00	0.00	594.83	.20	.94	.03	591.60
1360.	83.	1193.	84.	110.	313.	138.	79.	30.	593.50
.56	.75	3.81	.61	.060	.035	.070	.041	584.70	32.86
.000604	1100.	1100.	1100.	2	0	1	0.00	248.25	281.11

excessive reach length

1490 NH CARD USED

* 100-yr flood stage
Clinton River 594.5
@29,000 cfs intersects
@ ~107+20
(ref. COE FPI
Clinton River 1984)

* VALLEY SECTION J 135

10720.00	10.05	595.55	0.00	0.00	595.84	.28	.93	.03	594.00
1360.	0.	1311.	49.	0.	301.	72.	95.	36.	594.40
.65	0.00	4.36	.68	.060	.033	.060	.041	585.50	104.32
.000767	1350.	1450.	1500.	2	0	1	0.00	131.14	235.51

excessive reach length

1490 NH CARD USED

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

VALLEY SECTION K 135

12370.00	9.89	596.79	0.00	0.00	596.93	.14	1.03	.01	594.20
1360.	244.	1110.	6.	177.	343.	10.	112.	42.	595.80
.81	1.37	3.24	.60	.040	.038	.040	.040	586.90	77.20
.000560	1700.	1650.	1600.	2	0	1	0.00	167.89	245.09

excessive reach length

CCHV= .500 CEHV= 1.000
1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 440.0 900.0 TYPE= 1 TARGET= -440.000

12900.00	10.01	597.16	0.00	0.00	597.41	.24	.37	.10	595.55
1360.	49.	1282.	30.	49.	315.	38.	118.	44.	595.55
.85	.98	4.07	.78	.040	.039	.050	.040	587.15	440.00
.000908	530.	530.	530.	2	0	1	0.00	157.46	597.46

3470 ENCROACHMENT STATIONS= 490.0 560.0 TYPE= 1 TARGET= 70.000

VALLEY SECTION L 137

```
  13220.00     10.16    597.46      0.00      0.00    597.72       .26       .29       .02    596.70
   1360.          8.     1333.        19.        8.      322.        16.      121.        45.    595.70
      .87        .97      4.14      1.23      .040      .039      .050      .040    587.30    490.00
  .000923       320.      320.      320.         2         0         1      0.00     70.00    560.00

 1490 NH CARD USED
  13299.00      9.45    597.55      0.00      0.00    598.01       .46       .10       .19    603.10
   1360.          0.     1360.        0.        0.      251.        0.      121.        45.    603.20
      .87       0.00      5.42      0.00      .040      .040      .050      .040    588.10    776.00
  .001636        79.       79.       79.         2         0         1      0.00     29.49    805.49

 1490 NH CARD USED   ELLC=599 ? >597.55  => unsubmerged outlet
 NORMAL BRIDGE,NRD=19 MIN ELTRD=  602.30 MAX ELLC=  599.90

  13300.00      9.45    597.55      0.00      0.00    598.01       .46       .01       .00    603.10
   1360.          0.     1360.        0.        0.      251.        0.      121.        45.    603.20
      .87       0.00      5.42      0.00      .040      .030      .050      .040    588.10    776.00
  .000920         1.        1.        1.         0         0         1      0.01     29.49    805.49

 NORMAL BRIDGE,NRD=19 MIN ELTRD=  602.30 MAX ELLC=  599.90

      BRIDGE SECTION M W.B. METROPOLITAN PARKWAY UPSTREAM FACE      134        * dual structures

  13359.00      9.52    597.62      0.00      0.00    598.07       .45       .05       .00    603.10   @ 133+00 , 133+59
   1360.          0.     1360.        0.        0.      253.        0.      121.        45.    603.20
      .88       0.00      5.37      0.00      .040      .030      .050      .040    588.10    775.00   @ 134+07 , 134+66
  .000895        59.       59.       59.         0         0         1      0.00     29.49    805.49

 1490 NH CARD USED
  13360.00      9.52    597.62      0.00      0.00    598.07       .45       .00       .00    603.10
   1360.          0.     1360.        0.        0.      253.        0.      121.        45.    603.20
      .88       0.00      5.37      0.00      .040      .040      .050      .040    588.10    776.00
  .001591         1.        1.        1.         0         0         1      0.00     29.49    805.49

 1490 NH CARD USED
   SECNO     DEPTH     CWSEL     CRIWS     WSELK       EG        HV        HL      OLOSS  BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN      ELMIN     SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR    TOPWID     ENDST

  13406.00      9.60    597.70      0.00      0.00    598.14       .44       .07       .00    603.10
   1360.          0.     1360.        0.        0.      255.        0.      122.        45.    603.20
      .88       0.00      5.33      0.00      .040      .040      .050      .040    588.10    776.00
  .001555        46.       46.       46.         1         0         1      0.00     29.49    805.49

 1490 NH CARD USED
 NORMAL BRIDGE,NRD=19 MIN ELTRD=  602.30 MAX ELLC=  599.90

  13407.00      9.60    597.70      0.00      0.00    598.14       .44       .00       .00    603.10
   1360.          0.     1360.        0.        0.      255.        0.      122.        45.    603.20
      .88       0.00      5.33      0.00      .040      .030      .050      .040    588.10    776.00
  .000874         1.        1.        1.         0         0         1      0.00     29.49    805.49
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NORMAL BRIDGE,NRD=19 MIN ELTRD=  602.30 MAX ELLC=  599.90.

              BRIDGE SECTION N E. B. METROPOLITAN PARKWAY UPSTREAM FACE      139

  13466.00      9.67    597.77      0.00      0.00    598.20       .43       .05       .00    603.10
   1360.         0.      1360.        0.        0.      257.        0.      122.       45.    603.20
     .88      0.00      5.28      0.00      .040      .030      .050      .040    588.10    775.00
 .000853       59.       59.       59.         0         0         1      0.00     29.49    805.49

 1490 NH CARD USED
  13467.00      9.67    597.77      0.00      0.00    598.20       .43       .00       .00    603.10
   1360.         0.      1360.        0.        0.      257.        0.      122.       45.    603.20
     .88      0.00      5.28      0.00      .040      .040      .050      .040    588.10    775.00
 .001515        1.        1.        1.         0         0         1      0.00     29.49    805.49

 1490 NH CARD USED

 3470 ENCROACHMENT STATIONS=        362.0     600.0  TYPE=      1  TARGET=      362.000
  13517.00      9.75    597.85      0.00      0.00    598.28       .42       .07       .00    598.10
   1360.         0.      1283.       77.        0.      239.       58.      122.       45.    596.00
     .88      0.00      5.37      1.32      .040      .036      .040      .040    588.10    362.42
 .001405       50.       50.       50.         2         0         1      0.00    102.24    464.66

 CCHV=     .100 CEHV=     .300
 1490 NH CARD USED

 3470 ENCROACHMENT STATIONS=           .0     500.0  TYPE=      1  TARGET=      499.999

              VALLEY SECTION O                                              140

  15020.00     10.72    599.42      0.00      0.00    599.59       .16      1.28       .03    598.70
   1180.        50.       983.      147.      100.      278.      135.      136.       51.    596.60
    1.02       .50      3.54      1.09      .070      .036      .040      .040    588.70    259.96
 .000547     1500.     1503.     1450.         2         0         1      0.00    237.38    497.34
```

excessive reach length

ΔW.S. = (599.42 - 597.85) = 1.57

```
 CCHV=     .500 CEHV=    1.000
 1490 NH CARD USED

              VALLEY SECTION P                                              141

  16020.00     10.81    600.11      0.00      0.00    600.41       .30       .69       .13    599.70
   1180.         0.      1179.        0.        1.      270.        1.      145.       54.    599.70
    1.08       .44      4.37       .39      .035      .035      .040      .040    589.30    299.14
 .000891      975.     1000.     1025.         2         0         1      0.00     53.62    349.76
```

excessive reach length

ΔW.S. = (600.11 - 599.42) = .69'

```
 1490 NH CARD USED
    SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS  BANK ELEV
        Q      QLOB       QCH      QROB      ALOB       ACH      AROB       VOL       TWA LEFT/RIGHT
     TIME      VLOB       VCH      VROB       XNL      XNCH       XNR       WTN     ELMIN       SSTA
    SLOPE     XLOBL      XLCH     XLOBR     ITRIAL      IDC     ICONT     CORAR    TOPWID     ENDST
```

Kelly Rd @ 161+45

comparision with DNR 1976 HW (in file)

ELLC @ 600.8 > 600.2 ⇒ unsubmerged outlet

```
 3470 ENCROACHMENT STATIONS=        400.0     428.0  TYPE=      1  TARGET=       28.000
  16145.00      9.30    600.20      0.00      0.00    600.57       .37       .04       .07    594.20
   1180.         0.      1180.        0.        0.      243.        0.      146.       54. 100000.00
    1.09       .01      4.86      0.00      .050      .032      .040      .040    590.30    400.00
 .000609       81.      125.      141.         0         0         1      0.00     28.00    428.00
```

top wingwall @ top rdway @ 601.8

SPECIAL BRIDGE

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
-0.00	1.48	2.83	-0.00	1.00	-0.00	201.70	-0.00	590.90	590.90

601.8
− 3.67
597.13 (1976 DNR HW in File)

1490 NH CARD USED

~~6070,LOW FLOW BY NORMAL BRIDGE~~

EGPRS= 0.000 EGLWC= 600.569 ELLC= 600.800 PCWSE= 600.203 ELTRD= 601.800

TW d/s Kelly 100-yr 1180 cfs
@ 600.2

NORMAL BRIDGE,NRD=18 MIN ELTRD= 601.80 MAX ELLC= 600.80

3470 ENCROACHMENT STATIONS= 400.0 428.0 TYPE= 1 TARGET= 28.000

(600.2 − 597.13) = 3.07' above

~~BRIDGE SECTION Q KELLY ROAD UPSTREAM FACE~~ ~~142~~

16164.00	9.32	600.22	0.00	0.00	600.78	.56	.02	.14	594.20
~~1180.~~	~~0.~~	~~1180.~~	~~0.~~	~~0.~~	~~197.~~	~~0.~~	~~146.~~	~~54.~~	~~100000.00~~
1.09	0.00	5.98	0.00	.050	.031	.040	.040	590.90	400.00
.001597	19.	19.	19.	1	0	1	-45.86	28.00	428.00

1490 NH CARD USED

~~16214.00~~	~~9.53~~	~~600.43~~	~~0.00~~	~~0.00~~	~~600.90~~	~~.47~~	~~.08~~	~~.04~~	~~601.30~~
1180.	0.	1180.	0.	0.	215.	0.	146.	54.	601.30
1.09	0.00	5.48	0.00	.050	.035	.040	.040	590.90	301.63
~~.001560~~	~~50.~~	~~50.~~	~~50.~~	~~2~~	~~0~~	~~1~~	~~0.00~~	~~40.69~~	~~342.32~~

~~CCHV= .100 CEHV= .300~~

1490 NH CARD USED

~~3470 ENCROACHMENT STATIONS= .0 300.0 TYPE= 1 TARGET= 299.999~~

VALLEY SECTION R 143

17565.00	10.96	601.96	0.00	0.00	602.20	.24	1.28	.02	599.70
1180.	78.	1082.	20.	131.	266.	48.	156.	58.	600.70
~~1.19~~	~~.59~~	~~4.07~~	~~.42~~	~~.075~~	~~.034~~	~~.075~~	~~.040~~	~~591.00~~	~~91.62~~
.000638	1151.	1351.	1601.	2	0	1	0.00	208.38	301.00

excessive reach length
ΔW.S. = (601.96 − 600.43) = 1.53'

1490 NH CARD USED

~~3470 ENCROACHMENT STATIONS= 100.0 370.0 TYPE= 1 TARGET= 270.000~~

VALLEY SECTION S 144

18965.00	10.48	602.78	0.00	0.00	602.95	.17	.75	.01	601.00
1180.	118.	1052.	10.	199.	300.	16.	172.	65.	601.30
~~1.31~~	~~.59~~	~~3.51~~	~~.60~~	~~.070~~	~~.034~~	~~.040~~	~~.040~~	~~592.30~~	~~115.53~~
.000446	1600.	1400.	1100.	2	0	1	0.00	224.87	341.40

excessive reach length
ΔW.S. = (602.78 − 601.96) = 0.82'

1490 NH CARD USED

~~3470 ENCROACHMENT STATIONS= 221.0 510.0 TYPE= 1 TARGET= 221.000~~

VALLEY SECTION T 145

20165.00	10.69	603.29	0.00	0.00	603.45	.16	.49	.00	605.40
1180.	0.	1180.	0.	0.	369.	0.	185.	69.	605.70

```
.000371    1300.    1200.    1100.    2    0    1    0.00    54.52    250.93
```

excessive reach length

Δ W.S. = (603.29 − 602.78) = .5'

```
CCHV=    .500 CEHV=    1.000
1490 NH CARD USED

3470 ENCROACHMENT STATIONS=     178.0     436.0  TYPE=    1  TARGET=    -178.000

           VALLEY SECTION U                                               146

  20845.00    10.30    603.60    0.00    0.00    603.71    .11    .24    .03    605.90
    920.      0.      920.      0.      0.      348.      0.    190.    70.    606.30
    1.49     0.00     2.64     0.00    .070    .037    .040    .040    593.30    214.93
 .000335    450.     680.     900.      2       0       1     0.00    56.65    275.56

1490 NH CARD USED
   SECNO   DEPTH    CWSEL    CRIWS    WSELK    EG      HV      HL      OLOSS   BANK ELEV
   Q       QLOB     QCH      QROB     ALOB     ACH     AROB    VOL     TWA     LEFT/RIGHT
   TIME    VLOB     VCH      VROB     XNL      XNCH    XNR     WTN     ELMIN   SSTA
   SLOPE   XLOBL    XLCH     XLOBR    ITRIAL   IDC     ICONT   CORAR   TOPWID  ENDST
```

ELLC @ 602.8 < 603.66 $\Rightarrow$ submerged outlet

```
3470 ENCROACHMENT STATIONS=     300.0     370.0  TYPE=    1  TARGET=     70.000
  20881.00     9.76    603.66    0.00    0.00    603.74    .08    .01    .01    605.70
    920.      0.      920.      0.      0.      408.      0.    191.    70.  100000.00
    1.50     0.00     2.25     0.00    .070    .040    .040    .040    593.90    300.00
 .000325     36.      36.      36.      2       0       1     0.00    70.00    370.00

SPECIAL BRIDGE
SB  XK      XKOR     COFQ     RDLEN    BWC     BWP     BAREA    SS      ELCHU    ELCHD
   -0.00    1.43     3.02    -0.00     1.00   -0.00   344.30   -0.00   593.90   593.90
```

see check, J&A write up, bridge sections

our check shows XKOR may be 1.63 ; not 1.43

```
PRESSURE FLOW

  EGPRS    EGLWC     H3      QWEIR     QPR     BAREA    ELLC     ELTRD    CLASS
  603.82   603.74    0.00     0.       920.     344.    602.80   605.70   10.00

3470 ENCROACHMENT STATIONS=     300.0     370.0  TYPE=    1  TARGET=     70.000

           BRIDGE SECTION V SALK SCHOOL FOOTBRIDGE UPSTREAM FACE            147

  20889.00     9.84    603.74    0.00    0.00    603.82    .08    .08    0.00    605.70
    920.      0.      920.      0.      0.      414.      0.    191.    70.  100000.00
    1.50     0.00     2.22     0.00    .070    .040    .040    .040    593.90    300.00
 .000313      8.       8.       8.      2       0       1     0.00    70.00    370.00
```

$\Rightarrow$ need additional section to bring W.S. up (1:1 flume effect)

```
CCHV=    .100 CEHV=    .300
1490 NH CARD USED
3470 ENCROACHMENT STATIONS=     170.0     325.0  TYPE=    1  TARGET=    -170.000

           VALLEY SECTION W                                               148

  21400.00    10.39    603.89    0.00    0.00    603.98    .09    .15    .00    606.20
    920.      0.      920.      0.      0.      379.      0.    195.    71.    606.40
```

check on Salk footbridge

pressure flow

let ~~K = 1.63~~ ; $C = 1/\sqrt{K}$ = .783

A = 344.3

$Q = CA\sqrt{2gH}$ = .783(344.3)(8.026)$H^{1/2}$

$Q = 2164.15 H^{1/2}$

TW = 603.66

let HW @ 214+00 = 603.89

H = (603.89 − 603.66) = .23

Q = 2164.15(.479) = 1037.89 cfs

1038 − 920 = 118 cfs

@ K = 1.43 ; $C = 1/\sqrt{K}$ = .836

Q = .83(344.3)(8.026)$H^{1/2}$ = 2310.59 $H^{1/2}$

TW = 603.66

let HW @ 208+89 = 603.82

H = (603.82 − 603.66) = .16

Q = 2310.54(.40) = 924.2 cfs

(9242 - 920) = 42cfs

```
 .000292     511.      511.      511.         1         0         1      0.00     62.83    255.33

 1490 NH CARD USED

 3470 ENCROACHMENT STATIONS=      200.0      400.0  TYPE=      1   TARGET=     -200.000

                  VALLEY SECTION X                                            149

  21920.00     10.54    604.04      0.00      0.00    604.13       .09       .15       .00    603.90
      920.        0.      920.        0.        2.      374.        0.      200.       72.    605.90
      1.61       .11      2.46      0.00      .040      .036      .040      .040    593.50    227.32
  .000295       610.      520.      480.         2         0         1      0.00     34.03    321.3-

 CCHV=     .500 CEHV=    1.000
 1490 NH CARD USED

 3470 ENCROACHMENT STATIONS=      170.0      400.0  TYPE=      1   TARGET=     -170.000

                  VALLEY SECTION Y                                            150

  22720.00     10.56    604.26      0.00      0.00    604.36       .09       .23       .00    604.50
      920.        0.      920.        0.        0.      374.        0.      207.       73.    604.70
      1.70      0.00      2.46      0.00      .040      .037      .040      .040    593.70    235.51
  .000274       850.      800.      700.         0         0         1      0.00     54.52    295.12
```

⇒ excessive reach length
ΔW.S. = (604.26 - 604.04) = .22'

```
 1490 NH CARD USED

 3470 ENCROACHMENT STATIONS=         .0      198.0  TYPE=      1   TARGET=      197.999
  22970.00     10.04    604.34      0.00      0.00    604.42       .08       .06       .01    595.70
      620.      193.      264.      163.      127.       86.      110.      209.       73.    595.70
      1.74      1.52      3.08      1.49      .045      .030      .045      .040    594.30     70.29
  .000203       151.      250.      401.         0         0         1      0.00     56.09    126.39


 SPECIAL BRIDGE

 SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     -0.00      3.02      3.04     -0.00     -1.00     -0.00     43.00     -0.00    594.50    594.30

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 PRESSURE AND WEIR FLOW

    EGPRS     EGLWC     H3        QWEIR     QPR       BAREA     ELLC      ELTRD     CLASS

    614.08    604.62      0.00      365.      255.       43.    600.50    604.40     30.00

 3470 ENCROACHMENT STATIONS=         .0      198.0  TYPE=      1   TARGET=      197.999

                  BRIDGE SECTION Z BOBCEAN ROAD UPSTREAM FACE                 151

  23050.00     11.45    605.95      0.00      0.00    605.99       .04      1.57      0.00    595.90
      620.      235.      226.      159.      238.       98.      143.      210.       74.    595.90
      1.75       .99      2.31      1.11      .041      .030      .045      .040    594.50       .00
  .000096        80.       80.       80.         2         0         6      0.00    120.23     30.--
```

1490 NH CARD USED
3280 CROSS SECTION 23177.00 EXTENDED .17 FEET

3470 ENCROACHMENT STATIONS= 14.0 153.0 TYPE= 1 TARGET= 139.000

VALLEY SECTION AA 152

23177.00	11.07	605.97	0.00	0.00	606.01	.03	.01	.00	604.40
620.	8.	612.	0.	12.	414.	0.	211.	74.	606.10
1.78	.65	1.48	0.00	.025	.038	.045	.040	594.90	14.00
.000095	127.	127.	127.	0	0	1	0.00	70.73	64.73

1490 NH CARD USED
3280 CROSS SECTION 23305.00 EXTENDED .18 FEET

ELTRD @ 605.1 < 605.98 ⇒ TW over roadway

3470 ENCROACHMENT STATIONS= .0 197.0 TYPE= 1 TARGET= 196.999

23305.00	10.88	605.98	0.00	0.00	606.02	.04	.01	.01	596.60
620.	259.	211.	151.	246.	92.	139.	212.	74.	596.60
1.80	1.05	2.29	1.09	.042	.030	.045	.040	595.10	.00
.000102	128.	128.	128.	0	0	1	0.00	124.75	124.75

$D/H = \frac{0.88}{1.64} = .53$ ⇒ low submergence

SPECIAL BRIDGE

?

SB XK	XKOR	COEQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
-0.00	3.02	3.04	-0.00	1.00	-0.00	43.00	-0.00	595.20	595.20

— bottom width ?

3280 CROSS SECTION 23385.00 EXTENDED .92 FEET

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
615.72	606.12	0.00	448.	173.	43.	601.20	605.10	30.00

3470 ENCROACHMENT STATIONS= .0 197.0 TYPE= 1 TARGET= 196.999

BRIDGE SECTION AB PAPPSTEIN DRIVE UPSTREAM FACE 153

23385.00	11.62	606.72	0.00	0.00	606.74	.03	.72	0.00	596.60
620.	285.	188.	147.	316.	99.	175.	213.	74.	596.60
1.82	.90	1.90	.84	.039	.030	.044	.040	595.10	.00
.000065	80.	80.	80.	2	0	6	0.00	188.75	188.76

1490 NH CARD USED
3280 CROSS SECTION 23735.00 EXTENDED 1.14 FEET

3470 ENCROACHMENT STATIONS= .0 165.0 TYPE= 1 TARGET= 164.999

VALLEY SECTION AC 154

check on 233+05
pressure flow

$K = 3.02;\ C = 1/\sqrt{K} = .5754$
$A = 43$ sf

$Q = CA\sqrt{2gH} = .5754(43)(8.02)H^{1/2}$
$Q = 198.568\ H^{1/2}$

TW @ 605.98
HW @ 606.74
$H = 606.74 - 605.98 = .76$

$Q = 198.568(.872) = 173.1$ cfs

check
@ .76 + 0.1 = .86 = H
$Q = 198.568(.927) = 184.14$ cfs

23735.00	11.25	606.75	0.00	0.00	606.77	.02	.03	.00	604.30
620.	58.	489.	74.	85.	412.	101.	218.	76.	604.30
1.91	.68	1.19	.73	.035	.047	.025	.040	595.50	.00
.000093	350.	350.	350.	0	0	1	0.00	165.00	165.00

1490 NH CARD USED
3280 CROSS SECTION 24006.00 EXTENDED 1.67 FEET

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

ELTRD @ 605.3 < 606.78 ⇒ The over roadway

3470 ENCROACHMENT STATIONS= 168.0 400.0 TYPE= 1 TARGET= -168.000

24006.00	9.78	606.78	0.00	0.00	606.79	.01	.01	.00	599.10
620.	37.	187.	396.	94.	193.	563.	222.	77.	598.00
1.99	.40	.97	.70	.043	.040	.030	.040	597.00	168.00
.000038	350.	271.	160.	1	0	1	0.00	232.00	400.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	-0.00	1.89	3.04	-0.00	1.00	-0.00	44.70	-0.00	597.00	597.00

width ?

1490 NH CARD USED
3280 CROSS SECTION 24050.00 EXTENDED 1.77 FEET

PRESSURE AND WEIR FLOW D/H = 1.48/1.57 = .942 ✓ high submergence

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
612.42	606.79	0.00	542.	80.	45.	603.80	605.30	30.00

3470 ENCROACHMENT STATIONS= 168.0 400.0 TYPE= 1 TARGET= -168.000

BRIDGE SECTION AD FIFTEEN MILE ROAD UPSTREAM FACE 155

24050.00	9.86	606.86	0.00	0.00	606.87	.01	.08	0.00	599.00
620.	28.	185.	408.	98.	195.	580.	223.	77.	598.00
2.01	.28	.95	.70	.060	.040	.030	.040	597.00	168.00
.000036	44.	44.	44.	0	0	8	0.00	232.00	400.00

1490 NH CARD USED
3280 CROSS SECTION 24248.00 EXTENDED .98 FEET

3470 ENCROACHMENT STATIONS= 326.0 657.0 TYPE= 1 TARGET= -326.000

VALLEY SECTION A (CITY OF FRASER STUDY) 156

* 606.87 is starting W.S., 100-yr, @ City of Fraser for 550 cfs
(620 - 550) = 70 cfs

* 24248.00	10.27	606.87	0.00	0.00	606.88	.01	.01	.00	605.80
620.	10.	211.	399.	54.	330.	613.	227.	78.	603.80
2.10	.19	.64	.65	.060	.049	.025	.040	596.60	326.00

SUMMARY PRINTOUT FOR MULTIPLE PROFILES

PROJECT MANAGER WILLIAM

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	HV	HL	OLOSS	QCH	DEPTH	TOPWID
75.00	0.00	0.00	0.00	574.30	930.00	578.23	1.51	0.00	0.00	930.00	3.93	31.10
75.00	0.00	0.00	0.00	574.30	1320.00	580.27	.75	0.00	0.00	1133.38	5.97	156.37
75.00	0.00	0.00	0.00	574.30	1520.00	580.51	.71	0.00	0.00	1249.39	6.21	189.85
75.00	0.00	0.00	0.00	574.30	2140.00	580.93	.69	0.00	0.00	1430.57	6.63	257.08
125.00	50.00	0.00	0.00	574.30	930.00	580.14	.44	.29	.54	864.38	5.84	138.75
125.00	50.00	0.00	0.00	574.30	1320.00	581.24	.17	.10	.29	771.25	6.94	263.26
125.00	50.00	0.00	0.00	574.30	1520.00	581.40	.19	.11	.26	823.65	7.10	265.61
125.00	50.00	0.00	0.00	574.30	2140.00	581.76	.24	.11	.22	996.15	7.46	271.12
280.00	155.00	0.00	0.00	574.40	930.00	580.79	.20	.30	.12	708.20	6.39	216.10
280.00	155.00	0.00	0.00	574.40	1320.00	581.42	.16	.15	.01	745.61	7.02	264.45
280.00	155.00	0.00	0.00	574.40	1520.00	581.59	.17	.16	.01	795.64	7.19	266.97
280.00	155.00	0.00	0.00	574.40	2140.00	581.98	.21	.18	.02	946.51	7.58	273.15
490.00	210.00	0.00	0.00	574.50	930.00	581.11	.15	.23	.03	643.89	6.61	246.31
490.00	210.00	0.00	0.00	574.50	1320.00	581.63	.13	.18	.01	708.18	7.13	266.14
490.00	210.00	0.00	0.00	574.50	1520.00	581.80	.15	.19	.01	758.48	7.30	268.62
490.00	210.00	0.00	0.00	574.50	2140.00	582.22	.18	.20	.01	898.52	7.72	275.12
700.00	210.00	0.00	0.00	574.60	930.00	581.32	.12	.13	.01	608.45	6.72	259.83
700.00	210.00	0.00	0.00	574.60	1320.00	581.80	.12	.15	.01	686.25	7.20	267.10
700.00	210.00	0.00	0.00	574.60	1520.00	581.98	.13	.16	.01	733.55	7.38	269.80
700.00	210.00	0.00	0.00	574.60	2140.00	582.42	.17	.17	.01	867.59	7.82	276.56
1470.00	770.00	0.00	0.00	574.90	930.00	582.40	.53	1.03	.40	930.00	7.50	31.69
1470.00	770.00	0.00	0.00	574.90	1320.00	583.01	.94	1.21	.72	1319.82	8.11	44.34
1470.00	770.00	0.00	0.00	574.90	1520.00	583.27	.99	1.29	.66	1509.77	8.37	58.36
1470.00	770.00	0.00	0.00	574.90	2140.00	583.93	1.41	1.51	1.24	2039.90	9.03	58.73
1554.00	84.00	0.00	0.00	575.90	930.00	582.90	.36	.26	.08	930.00	7.00	45.72
1554.00	84.00	0.00	0.00	575.90	1320.00	583.89	.47	.34	.18	1320.00	7.99	49.98
1554.00	84.00	0.00	0.00	575.90	1520.00	584.34	.52	.37	.23	1520.00	8.44	51.39
1554.00	84.00	0.00	0.00	575.90	2140.00	585.47	.68	.46	.36	2140.00	9.57	56.82
1555.00	1.00	599.70	598.10	575.90	930.00	582.90	.36	.00	.00	930.00	7.00	45.73
1555.00	1.00	599.70	598.10	575.90	1320.00	583.90	.47	.00	.00	1320.00	8.00	50.00
1555.00	1.00	599.70	598.10	575.90	1520.00	584.34	.52	.00	.00	1520.00	8.44	51.91
1555.00	1.00	599.70	598.10	575.90	2140.00	585.48	.68	.00	.00	2140.00	9.58	56.84
1586.00	31.00	599.70	598.10	575.90	930.00	582.93	.36	.02	.00	930.00	7.03	45.83
1586.00	31.00	599.70	598.10	575.90	1320.00	583.94	.47	.03	.00	1320.00	8.04	50.17
1586.00	31.00	599.70	598.10	575.90	1520.00	584.38	.51	.03	.00	1520.00	8.48	52.10
1586.00	31.00	599.70	598.10	575.90	2140.00	585.53	.67	.03	.01	2140.00	9.63	57.06
1587.00	1.00	0.00	0.00	575.90	930.00	582.94	.36	.00	.00	930.00	7.04	45.83
1587.00	1.00	0.00	0.00	575.90	1320.00	583.94	.46	.00	.00	1320.00	8.04	50.17
1587.00	1.00	0.00	0.00	575.90	1520.00	584.38	.51	.00	.00	1520.00	8.48	52.10
1587.00	1.00	0.00	0.00	575.90	2140.00	585.53	.67	.00	.00	2140.00	9.63	57.07

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	HV	HL	OLOSS	QCH	DEPTH	TOPWID
2030.00	443.00	0.00	0.00	576.40	930.00	583.98	.63	1.04	.27	929.39	7.58	30.36
2030.00	443.00	0.00	0.00	576.40	1320.00	585.13	.79	1.19	.32	1286.55	8.73	113.03
2030.00	443.00	0.00	0.00	576.40	1520.00	585.60	.77	1.21	.26	1407.25	9.20	137.42
2030.00	443.00	0.00	0.00	576.40	2140.00	586.82	.59	1.17	.04	1614.71	10.42	187.52
2670.00	640.00	0.00	0.00	577.20	930.00	585.08	.56	1.03	.01	928.43	7.88	31.90
2670.00	640.00	0.00	0.00	577.20	1320.00	586.44	.56	1.07	.02	1213.59	9.24	140.72
2670.00	640.00	0.00	0.00	577.20	1520.00	586.92	.52	1.05	.02	1300.64	9.72	165.17
2670.00	640.00	0.00	0.00	577.20	2140.00	587.93	.46	.97	.01	1519.22	10.73	188.75
4470.00	1800.00	0.00	0.00	578.00	930.00	587.30	.16	1.77	.04	924.21	9.30	126.52
4470.00	1800.00	0.00	0.00	578.00	1320.00	588.59	.16	1.71	.04	1248.79	10.59	160.58
4470.00	1800.00	0.00	0.00	578.00	1520.00	589.03	.17	1.72	.03	1409.54	11.03	170.41
4470.00	1800.00	0.00	0.00	578.00	2140.00	590.02	.21	1.61	.02	1491.16	12.02	225.14
5470.00	1000.00	0.00	0.00	579.60	930.00	588.01	.25	.74	.03	930.00	8.41	41.64
5470.00	1000.00	0.00	0.00	579.60	1320.00	589.30	.31	.81	.04	1307.09	9.70	118.59
5470.00	1000.00	0.00	0.00	579.60	1520.00	589.76	.35	.85	.05	1483.23	10.16	131.57
5470.00	1000.00	0.00	0.00	579.60	2140.00	590.85	.42	.93	.06	1950.60	11.25	253.49
6770.00	1300.00	0.00	0.00	582.30	930.00	589.27	.48	1.43	.07	930.00	6.97	36.54
6770.00	1300.00	0.00	0.00	582.30	1320.00	590.66	.55	1.54	.07	1311.12	8.36	65.10
6770.00	1300.00	0.00	0.00	582.30	1520.00	591.20	.59	1.61	.07	1499.27	8.90	76.10
6770.00	1300.00	0.00	0.00	582.30	2140.00	592.47	.71	1.82	.09	2058.33	10.17	102.17
8170.00	1400.00	0.00	0.00	583.50	930.00	591.30	.45	1.99	.00	930.00	7.80	35.97
8170.00	1400.00	0.00	0.00	583.50	1320.00	592.73	.51	2.02	.00	1311.24	9.23	94.98
8170.00	1400.00	0.00	0.00	583.50	1520.00	593.32	.50	2.02	.01	1463.90	9.82	129.97
8170.00	1400.00	0.00	0.00	583.50	2140.00	594.76	.44	1.98	.03	1804.49	11.26	153.40
9270.00	1100.00	0.00	0.00	584.70	830.00	592.67	.22	1.12	.02	826.80	7.97	67.49
9270.00	1100.00	0.00	0.00	584.70	1180.00	594.09	.21	1.03	.03	1093.27	9.39	210.40
9270.00	1100.00	0.00	0.00	584.70	1360.00	594.63	.20	.93	.03	1192.64	9.93	248.25
9270.00	1100.00	0.00	0.00	584.70	1910.00	595.89	.17	.84	.03	1427.36	11.19	267.47
10720.00	1450.00	0.00	0.00	585.50	830.00	593.76	.24	1.10	.01	830.00	8.26	45.55
10720.00	1450.00	0.00	0.00	585.50	1180.00	595.07	.27	1.02	.02	1162.17	9.57	115.32
10720.00	1450.00	0.00	0.00	585.50	1360.00	595.55	.28	.98	.03	1311.08	10.05	131.19
10720.00	1450.00	0.00	0.00	585.50	1910.00	596.71	.32	.92	.04	1719.12	11.21	168.84
12370.00	1650.00	0.00	0.00	586.90	830.00	595.03	.16	1.20	.01	816.29	8.13	111.46
12370.00	1650.00	0.00	0.00	586.90	1180.00	596.31	.14	1.10	.01	1022.73	9.41	154.92
12370.00	1650.00	0.00	0.00	586.90	1360.00	596.79	.14	1.08	.01	1110.38	9.89	167.89
12370.00	1650.00	0.00	0.00	586.90	1910.00	597.96	.13	1.05	.02	1347.49	11.06	203.94
12900.00	530.00	0.00	0.00	587.15	830.00	595.44	.20	.41	.04	830.00	8.29	47.72
12900.00	530.00	0.00	0.00	587.15	1180.00	596.69	.24	.38	.10	1156.37	9.54	143.57
12900.00	530.00	0.00	0.00	587.15	1360.00	597.16	.24	.37	.10	1281.71	10.01	157.46
12900.00	530.00	0.00	0.00	587.15	1910.00	598.31	.23	.35	.10	1571.73	11.16	191.14

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	HV	HL	OLOSS	QCH	DEPTH	TOPWID
13220.00	320.00	0.00	0.00	587.30	830.00	595.73	.19	.27	.01	830.00	8.43	49.06
13220.00	320.00	0.00	0.00	587.30	1180.00	596.98	.24	.29	.00	1167.87	9.68	70.00
13220.00	320.00	0.00	0.00	587.30	1360.00	597.46	.26	.29	.02	1332.49	10.16	70.00
13220.00	320.00	0.00	0.00	587.30	1910.00	598.61	.34	.31	.11	1820.45	11.31	70.00
13299.00	79.00	0.00	0.00	588.10	830.00	595.81	.27	.08	.08	830.00	7.71	29.49
13299.00	79.00	0.00	0.00	588.10	1180.00	597.07	.39	.09	.15	1180.00	8.97	29.49
13299.00	79.00	0.00	0.00	588.10	1360.00	597.55	.46	.10	.19	1350.00	9.45	29.49
13299.00	79.00	0.00	0.00	588.10	1910.00	598.73	.69	.12	.35	1910.00	10.63	29.49
13300.00	1.00	602.30	599.90	588.10	830.00	595.81	.27	.00	.00	830.00	7.71	29.49
13300.00	1.00	602.30	599.90	588.10	1180.00	597.07	.39	.00	.00	1180.00	8.97	29.49
13300.00	1.00	602.30	599.90	588.10	1360.00	597.55	.46	.00	.00	1360.00	9.45	29.49
13300.00	1.00	602.30	599.90	588.10	1910.00	598.73	.69	.00	.00	1910.00	10.63	29.49
13359.00	59.00	602.30	599.90	588.10	830.00	595.85	.26	.04	.00	830.00	7.75	29.49
13359.00	59.00	602.30	599.90	588.10	1180.00	597.13	.38	.05	.00	1180.00	9.03	29.49
13359.00	59.00	602.30	599.90	588.10	1360.00	597.62	.45	.05	.00	1360.00	9.52	29.49
13359.00	59.00	602.30	599.90	588.10	1910.00	598.82	.68	.07	.01	1910.00	10.72	29.49
13360.00	1.00	0.00	0.00	588.10	830.00	595.85	.26	.00	.00	830.00	7.75	29.49
13360.00	1.00	0.00	0.00	588.10	1180.00	597.13	.38	.00	.00	1180.00	9.03	29.49
13360.00	1.00	0.00	0.00	588.10	1360.00	597.62	.45	.00	.00	1360.00	9.52	29.49
13360.00	1.00	0.00	0.00	588.10	1910.00	598.83	.68	.00	.00	1910.00	10.73	29.49
13406.00	46.00	0.00	0.00	588.10	830.00	595.91	.26	.05	.00	830.00	7.81	29.49
13406.00	46.00	0.00	0.00	588.10	1180.00	597.21	.37	.07	.00	1180.00	9.11	29.49
13406.00	46.00	0.00	0.00	588.10	1360.00	597.70	.44	.07	.00	1360.00	9.60	29.49
13406.00	46.00	0.00	0.00	588.10	1910.00	598.94	.66	.10	.01	1910.00	10.84	29.49
13407.00	1.00	602.30	599.90	588.10	830.00	595.92	.26	.00	.00	830.00	7.82	29.49
13407.00	1.00	602.30	599.90	588.10	1180.00	597.21	.37	.00	.00	1180.00	9.11	29.49
13407.00	1.00	602.30	599.90	588.10	1360.00	597.70	.44	.00	.00	1360.00	9.60	29.49
13407.00	1.00	602.30	599.90	588.10	1910.00	598.95	.66	.00	.00	1910.00	10.85	29.49
13466.00	59.00	602.30	599.90	588.10	830.00	595.96	.26	.04	.00	830.00	7.86	29.49
13466.00	59.00	602.30	599.90	588.10	1180.00	597.26	.37	.05	.00	1180.00	9.16	29.49
13466.00	59.00	602.30	599.90	588.10	1360.00	597.77	.43	.05	.00	1360.00	9.67	29.49
13466.00	59.00	602.30	599.90	588.10	1910.00	599.03	.65	.07	.01	1910.00	10.93	29.49
13467.00	1.00	0.00	0.00	588.10	830.00	595.96	.26	.00	.00	830.00	7.86	29.49
13467.00	1.00	0.00	0.00	588.10	1180.00	597.26	.37	.00	.00	1180.00	9.16	29.49
13467.00	1.00	0.00	0.00	588.10	1360.00	597.77	.43	.00	.00	1360.00	9.67	29.49
13467.00	1.00	0.00	0.00	588.10	1910.00	599.03	.65	.00	.00	1910.00	10.93	29.49
13517.00	50.00	0.00	0.00	588.10	830.00	596.03 7.93	.37	.06	.12	830.00	7.93	36.49
13517.00	50.00	0.00	0.00	588.10	1180.00	597.33 9.23	.42	.07	.05	1148.14	9.23	83.56
13517.00	50.00	0.00	0.00	588.10	1360.00	597.85 9.75	.42	.07	.00	1283.09	9.75	102.24
13517.00	50.00	0.00	0.00	588.10	1910.00	599.63 11.53	.30	.07	.18	1502.22	11.53	146.24

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	HV	HL	OLOSS	QCH	DEPTH	TOPWID
15020.00	1503.00	0.00	0.00	588.70	720.00	597.65	.18	1.41	.02	706.81	6.95	73.62
15020.00	1503.00	0.00	0.00	588.70	1020.00	598.94	.17	1.33	.02	909.87	10.24	208.09
15020.00	1503.00	0.00	0.00	588.70	1180.00	599.42	.16	1.28	.03	983.25	10.72	237.38
15020.00	1503.00	0.00	0.00	588.70	1660.00	600.73	.12	.91	.02	1094.75	12.03	269.47
16020.00	1000.00	0.00	0.00	589.30	720.00	598.32	.21	.68	.03	720.00	9.02	38.75
16020.00	1000.00	0.00	0.00	589.30	1020.00	599.62	.26	.68	.09	1020.00	10.32	43.69
16020.00	1000.00	0.00	0.00	589.30	1180.00	600.11	.30	.64	.13	1179.19	10.81	53.62
16020.00	1000.00	0.00	0.00	589.30	1660.00	601.35	.38	.62	.26	1624.43	12.05	64.13
16145.00	125.00	0.00	0.00	590.90	720.00	598.40	.22	.07	.01	720.00	7.50	28.00
16145.00	125.00	0.00	0.00	590.90	1020.00	599.70	.31	.08	.05	1020.00	8.80	28.00
16145.00	125.00	0.00	0.00	590.90	1180.00	600.20	.37	.09	.07	1180.00	9.30	28.00
16145.00	125.00	0.00	0.00	590.90	1660.00	601.46	.55	.11	.17	1660.00	10.56	28.00
16164.00	19.00	601.80	600.80	590.90	720.00	598.41	.27	.01	.06	720.00	7.51	28.00
16164.00	19.00	601.80	600.80	590.90	1020.00	599.72	.44	.01	.13	1020.00	8.82	28.00
16164.00	19.00	601.80	600.80	590.90	1180.00	600.22	.56	.02	.19	1180.00	9.32	28.00
16164.00	19.00	601.80	600.80	590.90	1660.00	602.24	.47	.70	0.00	1660.00	11.34	28.00
16214.00	50.00	0.00	0.00	590.90	720.00	598.46	.40	.05	.12	720.00	7.56	33.17
16214.00	50.00	0.00	0.00	590.90	1020.00	599.78	.45	.06	.01	1020.00	8.88	34.20
16214.00	50.00	0.00	0.00	590.90	1180.00	600.43	.47	.08	.04	1180.00	9.53	40.69
16214.00	50.00	0.00	0.00	590.90	1660.00	602.29	.49	.04	.01	1654.87	11.39	66.91
17565.00	1351.00	0.00	0.00	591.00	720.00	599.98	.22	1.32	.02	719.73	8.98	50.74
17565.00	1351.00	0.00	0.00	591.00	1020.00	601.34	.25	1.34	.02	985.05	10.34	163.94
17565.00	1351.00	0.00	0.00	591.00	1180.00	601.96	.24	1.24	.02	1082.10	10.96	208.38
17565.00	1351.00	0.00	0.00	591.00	1660.00	603.64	.17	1.01	.03	1257.06	12.64	247.36
18965.00	1400.00	0.00	0.00	592.30	720.00	600.83	.17	.80	.01	719.84	8.53	71.78
18965.00	1400.00	0.00	0.00	592.30	1020.00	602.21	.18	.79	.01	956.07	9.91	170.97
18965.00	1400.00	0.00	0.00	592.30	1180.00	602.78	.17	.75	.01	1051.72	10.48	224.87
18965.00	1400.00	0.00	0.00	592.30	1660.00	604.25	.13	.57	.00	1211.47	11.95	270.00
20165.00	1200.00	0.00	0.00	592.60	720.00	601.36	.11	.46	.01	720.00	8.76	47.92
20165.00	1200.00	0.00	0.00	592.60	1020.00	602.73	.14	.44	.00	1020.00	10.13	52.60
20165.00	1200.00	0.00	0.00	592.60	1180.00	603.29	.16	.49	.00	1180.00	10.69	54.52
20165.00	1200.00	0.00	0.00	592.60	1660.00	604.67	.21	.47	.03	1660.00	12.07	59.25
20845.00	680.00	0.00	0.00	593.30	560.00	601.61	.08	.21	.01	560.00	8.31	50.01
20845.00	680.00	0.00	0.00	593.30	800.00	603.02	.10	.23	.02	800.00	9.72	54.06
20845.00	680.00	0.00	0.00	593.30	920.00	603.60	.11	.24	.03	920.00	10.30	56.65
20845.00	680.00	0.00	0.00	593.30	1300.00	605.06	.14	.23	.04	1300.00	11.76	61.53
20881.00	36.00	0.00	0.00	593.90	560.00	601.65	.07	.01	.01	560.00	7.75	62.41
20881.00	36.00	0.00	0.00	593.90	800.00	603.07	.07	.01	.01	800.00	9.17	70.00
20881.00	36.00	0.00	0.00	593.90	920.00	603.66	.08	.01	.01	920.00	9.76	70.00
20881.00	36.00	0.00	0.00	593.90	1300.00	605.13	.10	.01	.02	1300.00	11.23	70.00

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	HV	HL	OLOSS	QCH	DEPTH	TOPWID
20889.00	8.00	605.70	602.80	593.90	560.00	601.65	.07	.00	.00	560.00	7.75	62.48
20889.00	8.00	605.70	602.80	593.90	800.00	603.12	.07	.05	0.00	800.00	9.22	70.00
20889.00	8.00	605.70	602.80	593.90	920.00	603.74	.08	.09	0.00	920.00	9.84	70.00
20889.00	8.00	605.70	602.80	593.90	1300.00	605.35	.09	.22	0.00	1300.00	11.45	70.00
21400.00	511.00	0.00	0.00	593.50	560.00	601.81	.07	.16	.00	560.00	8.31	52.30
21400.00	511.00	0.00	0.00	593.50	800.00	603.26	.09	.16	.00	800.00	9.76	59.64
21400.00	511.00	0.00	0.00	593.50	920.00	603.89	.09	.15	.00	920.00	10.34	62.63
21400.00	511.00	0.00	0.00	593.50	1300.00	605.50	.11	.16	.00	1300.00	12.00	70.44
21920.00	520.00	0.00	0.00	593.50	560.00	601.95	.08	.15	.00	560.00	8.45	55.54
21920.00	520.00	0.00	0.00	593.50	800.00	603.41	.09	.15	.00	800.00	9.91	66.52
21920.00	520.00	0.00	0.00	593.50	920.00	604.04	.09	.15	.00	919.84	10.54	94.03
21920.00	520.00	0.00	0.00	593.50	1300.00	605.67	.09	.15	.00	1227.05	12.17	101.75
22720.00	800.00	0.00	0.00	593.70	560.00	602.19	.07	.22	.01	560.00	8.49	56.30
22720.00	800.00	0.00	0.00	593.70	800.00	603.64	.09	.22	.00	800.00	9.94	56.78
22720.00	800.00	0.00	0.00	593.70	920.00	604.26	.09	.23	.00	920.00	10.56	59.52
22720.00	800.00	0.00	0.00	593.70	1300.00	605.89	.11	.22	.02	1285.83	12.19	155.15
22970.00	250.00	0.00	0.00	594.30	380.00	602.25	.07	.06	.00	183.84	7.95	46.96
22970.00	250.00	0.00	0.00	594.30	540.00	603.72	.08	.06	.00	247.47	9.42	53.38
22970.00	250.00	0.00	0.00	594.30	620.00	604.34	.08	.06	.01	263.65	10.04	56.04
22970.00	250.00	0.00	0.00	594.30	870.00	606.01	.07	.06	.02	304.95	11.71	129.62
23050.00	80.00	604.40	600.50	594.50	380.00	605.10	.02	2.80	0.00	155.53	10.60	127.49
23050.00	80.00	604.40	600.50	594.50	540.00	605.75	.03	1.94	0.00	202.97	11.25	128.87
23050.00	80.00	604.40	600.50	594.50	620.00	605.95	.04	1.57	0.00	226.24	11.45	129.28
23050.00	80.00	604.40	600.50	594.50	870.00	606.52	.06	.50	0.00	290.48	12.02	151.53
23177.00	127.00	0.00	0.00	594.90	380.00	605.12	.02	.01	.00	379.25	10.22	68.98
23177.00	127.00	0.00	0.00	594.90	540.00	605.77	.03	.01	.00	534.71	10.87	70.32
23177.00	127.00	0.00	0.00	594.90	620.00	605.97	.03	.01	.00	612.13	11.07	70.73
23177.00	127.00	0.00	0.00	594.90	870.00	606.54	.05	.02	.00	848.40	11.64	113.47
23305.00	128.00	0.00	0.00	595.10	380.00	605.12	.02	.01	.01	143.47	10.02	126.99
23305.00	128.00	0.00	0.00	595.10	540.00	605.78	.03	.01	.01	188.82	10.68	128.34
23305.00	128.00	0.00	0.00	595.10	620.00	605.98	.04	.01	.01	210.80	10.88	128.75
23305.00	128.00	0.00	0.00	595.10	870.00	606.56	.06	.02	.00	270.50	11.46	173.50
23385.00	80.00	605.10	601.20	595.10	380.00	606.18	.01	1.05	0.00	125.27	11.08	137.82
23385.00	80.00	605.10	601.20	595.10	540.00	606.57	.02	.77	0.00	167.63	11.47	174.46
23385.00	80.00	605.10	601.20	595.10	620.00	606.72	.03	.72	0.00	187.75	11.62	188.76
23385.00	80.00	605.10	601.20	595.10	870.00	607.11	.04	.54	0.00	244.34	12.01	147.00
23735.00	350.00	0.00	0.00	595.50	380.00	606.20	.01	.01	.00	326.32	10.70	161.77
23735.00	350.00	0.00	0.00	595.50	540.00	606.60	.02	.02	.00	436.48	11.10	165.00
23735.00	350.00	0.00	0.00	595.50	620.00	606.75	.02	.03	.00	488.60	11.25	165.00
23735.00	350.00	0.00	0.00	595.50	870.00	607.17	.03	.04	.00	640.55	11.67	165.00

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	HV	HL	OLOSS	QCH	DEPTH	TOPWID
24006.00	271.00	0.00	0.00	597.00	380.00	606.22	.01	.01	.00	131.35	9.22	232.00
24006.00	271.00	0.00	0.00	597.00	540.00	606.62	.01	.01	.00	165.04	9.62	232.00
24006.00	271.00	0.00	0.00	597.00	620.00	606.78	.01	.01	.00	167.15	9.78	232.00
24006.00	271.00	0.00	0.00	597.00	870.00	607.21	.01	.02	.01	234.54	10.21	232.00
24050.00	44.00	605.30	603.80	597.00	380.00	606.30	.00	.04	0.00	131.01	9.30	232.00
24050.00	44.00	605.30	603.80	597.00	540.00	606.70	.01	.04	0.00	167.27	9.70	232.00
24050.00	44.00	605.30	603.80	597.00	620.00	606.86	.01	.04	0.00	184.63	9.86	232.00
24050.00	44.00	605.30	603.80	597.00	870.00	607.31	.01	.19	0.00	234.59	10.31	232.00
24248.00	198.00	0.00	0.00	596.60	380.00	606.31	.00	.00	.00	153.82	9.71	331.00
24248.00	198.00	0.00	0.00	596.60	540.00	606.71	.01	.01	.00	192.26	10.11	331.00
24248.00	198.00	0.00	0.00	596.60	620.00	606.87	.01	.01	.00	210.60	10.27	331.00
24248.00	198.00	0.00	0.00	596.60	870.00	607.33	.01	.01	.00	262.84	10.73	331.00

SECTION NUMBER	DISCHARGE CFS	CWSEL	CWSEL DIFF EACH Q	CWSEL DIFF EACH SECTION	CWSEL-WSELK	TOPWID	T.W. DIFF	LENGTH
75.000	930.000	578.231	0.000	0.000	0.000	31.103	0.000	-0.000
75.000	1320.000	580.270	2.039	0.000	0.000	156.374	-125.272	-0.000
75.000	1520.000	580.507	.238	0.000	0.000	189.387	-158.284	-0.000
75.000	2140.000	580.984	.476	0.000	0.000	257.081	-225.978	-0.000
125.000	930.000	580.142	0.000	1.911	0.000	138.747	0.000	50.000
125.000	1320.000	581.241	1.100	.972	0.000	263.259	-124.512	50.000
125.000	1520.000	581.399	.158	.892	0.000	265.611	-126.863	50.000
125.000	2140.000	581.761	.363	.778	0.000	271.119	-132.371	50.000
280.000	930.000	580.791	0.000	.649	0.000	216.096	0.000	155.000
280.000	1320.000	581.421	.630	.180	0.000	264.451	-48.356	155.000
280.000	1520.000	581.586	.165	.188	0.000	266.970	-50.674	155.000
280.000	2140.000	581.984	.397	.222	0.000	273.053	-56.958	155.000
490.000	930.000	581.106	0.000	.315	0.000	246.313	0.000	210.000
490.000	1320.000	581.631	.524	.209	0.000	266.142	-19.829	210.000
490.000	1520.000	581.799	.169	.213	0.000	268.617	-22.304	210.000
490.000	2140.000	582.222	.423	.238	0.000	275.116	-28.802	210.000
700.000	930.000	581.319	0.000	.213	0.000	259.833	0.000	210.000
700.000	1320.000	581.801	.481	.170	0.000	267.103	-7.270	210.000
700.000	1520.000	581.976	.176	.177	0.000	269.803	-9.970	210.000
700.000	2140.000	582.416	.440	.194	0.000	276.563	-16.730	210.000
1470.000	930.000	582.403	0.000	1.084	0.000	31.692	0.000	770.000
1470.000	1320.000	583.010	.607	1.209	0.000	44.342	-12.650	770.000
1470.000	1520.000	583.265	.255	1.289	0.000	58.363	-26.671	770.000
1470.000	2140.000	583.927	.662	1.511	0.000	58.735	-27.043	770.000
1554.000	930.000	582.902	0.000	.499	0.000	45.718	0.000	84.000
1554.000	1320.000	583.894	.992	.884	0.000	49.978	-4.261	84.000
1554.000	1520.000	584.336	.442	1.071	0.000	51.888	-6.170	84.000
1554.000	2140.000	585.472	1.136	1.545	0.000	56.817	-11.099	84.000
1555.000	930.000	582.904	0.000	.002	0.000	45.731	0.000	1.000
1555.000	1320.000	583.897	.992	.003	0.000	49.996	-4.265	1.000
1555.000	1520.000	584.339	.443	.003	0.000	51.907	-6.176	1.000
1555.000	2140.000	585.476	1.137	.004	0.000	56.840	-11.109	1.000
1586.000	930.000	582.934	0.000	.030	0.000	45.831	0.000	31.000
1586.000	1320.000	583.936	1.002	.039	0.000	50.167	-4.336	31.000
1586.000	1520.000	584.382	.446	.043	0.000	52.100	-6.269	31.000

1587.000	930.000	582.936	0.000	.002	0.000	45.834	0.000	1.000
1587.000	1320.000	583.938	1.002	.002	0.000	50.171	-4.337	1.000
1587.000	1520.000	584.384	.446	.002	0.000	52.104	-6.270	1.000
1587.000	2140.000	585.530	1.146	.002	0.000	57.065	-11.231	1.000
2030.000	930.000	583.977	0.000	1.041	0.000	30.360	0.000	443.000
2030.000	1320.000	585.126	1.149	1.188	0.000	113.026	-82.665	443.000
2030.000	1520.000	585.597	.472	1.213	0.000	137.921	-107.560	443.000
2030.000	2140.000	586.815	1.218	1.285	0.000	187.515	-157.155	443.000
2670.000	930.000	585.082	0.000	1.105	0.000	31.900	0.000	640.000
2670.000	1320.000	586.445	1.363	1.319	0.000	140.719	-108.819	640.000
2670.000	1520.000	586.922	.477	1.325	0.000	166.170	-134.270	640.000
2670.000	2140.000	587.932	1.010	1.117	0.000	186.757	-154.857	640.000
4470.000	930.000	587.300	0.000	2.218	0.000	126.523	0.000	1400.000
4470.000	1320.000	588.595	1.294	2.150	0.000	160.578	-34.056	1400.000
4470.000	1520.000	589.029	.433	2.105	0.000	170.405	-43.882	1400.000
4470.000	2140.000	590.017	.989	2.085	0.000	226.145	-99.621	1400.000
5470.000	930.000	588.008	0.000	.707	0.000	41.636	0.000	1000.000
5470.000	1320.000	589.298	1.290	.703	0.000	118.586	-76.950	1000.000
5470.000	1520.000	589.761	.463	.734	0.000	131.569	-89.933	1000.000
5470.000	2140.000	590.855	1.093	.838	0.000	253.490	-211.854	1000.000
6770.000	930.000	589.275	0.000	1.267	0.000	36.542	0.000	1300.000
6770.000	1320.000	590.665	1.390	1.367	0.000	65.097	-28.554	1300.000
6770.000	1520.000	591.200	.536	1.439	0.000	76.101	-39.559	1300.000
6770.000	2140.000	592.469	1.269	1.614	0.000	102.173	-65.631	1300.000
8170.000	930.000	591.299	0.000	2.024	0.000	35.967	0.000	1400.000
8170.000	1320.000	592.731	1.431	2.066	0.000	94.976	-59.009	1400.000
8170.000	1520.000	593.319	.588	2.118	0.000	129.974	-94.006	1400.000
8170.000	2140.000	594.759	1.440	2.290	0.000	153.396	-117.429	1400.000
9270.000	830.000	592.672	0.000	1.372	0.000	67.486	0.000	1100.000
9270.000	1180.000	594.095	1.423	1.364	0.000	210.463	-142.977	1100.000
9270.000	1360.000	594.631	.536	1.312	0.000	248.254	-180.768	1100.000
9270.000	1910.000	595.892	1.261	1.133	0.000	267.473	-199.987	1100.000
10720.000	830.000	593.759	0.000	1.088	0.000	45.552	0.000	1450.000
10720.000	1180.000	595.066	1.307	.972	0.000	115.316	-69.765	1450.000
10720.000	1360.000	595.554	.488	.923	0.000	131.192	-85.640	1450.000
10720.000	1910.000	596.710	1.156	.818	0.000	168.337	-122.785	1450.000
12370.000	830.000	595.033	0.000	1.273	0.000	111.456	0.000	1650.000
12370.000	1180.000	596.307	1.274	1.241	0.000	154.918	-43.461	1650.000
12370.000	1360.000	596.791	.484	1.237	0.000	167.891	-56.435	1650.000
12370.000	1910.000	597.961	1.169	1.250	0.000	203.944	-92.488	1650.000
12900.000	830.000	595.443	0.000	.410	0.000	47.723	0.000	530.000
12900.000	1180.000	596.691	1.249	.384	0.000	143.570	-95.847	530.000
12900.000	1360.000	597.163	.472	.372	0.000	157.455	-109.732	530.000
12900.000	1910.000	598.306	1.142	.345	0.000	191.137	-143.414	530.000
13220.000	830.000	595.728	0.000	.285	0.000	49.060	0.000	320.000
13220.000	1180.000	596.984	1.256	.292	0.000	69.999	-20.939	320.000
13220.000	1360.000	597.456	.473	.293	0.000	69.999	-20.939	320.000
13220.000	1910.000	598.612	1.156	.306	0.000	69.999	-20.939	320.000
13299.000	830.000	595.806	0.000	.078	0.000	29.488	0.000	79.000
13299.000	1180.000	597.072	1.266	.088	0.000	29.488	0.000	79.000
13299.000	1360.000	597.551	.480	.095	0.000	29.488	0.000	79.000
13299.000	1910.000	598.730	1.178	.117	0.000	29.488	0.000	79.000

13300.000	830.000	595.807	0.000	.001	0.000	29.488	0.000	1.000
13300.000	1180.000	597.073	1.266	.001	0.000	29.498	0.000	1.000
13300.000	1360.000	597.553	.480	.001	0.000	29.488	0.000	1.000
13300.000	1910.000	598.731	1.179	.002	0.000	29.488	0.000	1.000
13359.000	830.000	595.854	0.000	.047	0.000	29.488	0.000	59.000
13359.000	1180.000	597.131	1.277	.058	0.000	29.488	0.000	59.000
13359.000	1360.000	597.618	.487	.065	0.000	29.488	0.000	59.000
13359.000	1910.000	598.824	1.205	.092	0.000	29.488	0.000	59.000
13360.000	830.000	595.855	0.000	.001	0.000	29.488	0.000	1.000
13360.000	1180.000	597.132	1.278	.001	0.000	29.488	0.000	1.000
13360.000	1360.000	597.620	.487	.001	0.000	29.488	0.000	1.000
13360.000	1910.000	598.825	1.206	.002	0.000	29.488	0.000	1.000
13406.000	830.000	595.915	0.000	.060	0.000	29.488	0.000	46.000
13406.000	1180.000	597.208	1.293	.076	0.000	29.488	0.000	46.000
13406.000	1360.000	597.702	.494	.082	0.000	29.433	0.000	46.000
13406.000	1910.000	598.943	1.241	.118	0.000	29.488	0.000	46.000
13407.000	830.000	595.916	0.000	.001	0.000	29.488	0.000	1.000
13407.000	1180.000	597.209	1.293	.001	0.000	29.488	0.000	1.000
13407.000	1360.000	597.703	.494	.001	0.000	29.488	0.000	1.000
13407.000	1910.000	598.945	1.242	.002	0.000	29.488	0.000	1.000
13466.000	830.000	595.960	0.000	.044	0.000	29.488	0.000	59.000
13466.000	1180.000	597.263	1.303	.054	0.000	29.488	0.000	59.000
13466.000	1360.000	597.765	.502	.062	0.000	29.433	0.000	59.000
13466.000	1910.000	599.030	1.265	.085	0.000	29.483	0.000	59.000
13467.000	830.000	595.961	0.000	.001	0.000	29.488	0.000	1.000
13467.000	1180.000	597.264	1.303	.001	0.000	29.488	0.000	1.000
13467.000	1360.000	597.766	.502	.001	0.000	29.488	0.000	1.000
13467.000	1910.000	599.032	1.265	.002	0.000	29.488	0.000	1.000
13517.000	830.000	596.026	0.000	.064	0.000	36.993	0.000	50.000
13517.000	1180.000	597.334	1.308	.070	0.000	83.562	-46.564	50.000
13517.000	1360.000	597.854	.520	.088	0.000	102.240	-65.247	50.000
13517.000	1910.000	599.626	1.772	.594	0.000	146.238	-109.245	50.000
15020.000	720.000	597.649	0.000	1.624	0.000	73.623	0.000	1503.000
15020.000	1020.000	598.935	1.286	1.602	0.000	208.093	-134.470	1503.000
15020.000	1180.000	599.424	.488	1.569	0.000	237.383	-163.760	1503.000
15020.000	1660.000	600.735	1.311	1.109	0.000	269.474	-145.250	1503.000
16020.000	720.000	598.325	0.000	.676	0.000	38.745	0.000	1000.000
16020.000	1020.000	599.619	1.295	.684	0.000	43.693	-4.947	1000.000
16020.000	1180.000	600.112	.493	.688	0.000	53.622	-14.877	1000.000
16020.000	1660.000	601.353	1.241	.618	0.000	84.182	-45.437	1000.000
16145.000	720.000	598.398	0.000	.074	0.000	27.495	0.000	125.000
16145.000	1020.000	599.703	1.304	.084	0.000	27.999	-.000	125.000
16145.000	1180.000	600.203	.500	.091	0.000	27.999	-.000	125.000
16145.000	1660.000	601.463	1.260	.110	0.000	27.999	-.000	125.000
16164.000	720.000	598.410	0.000	.012	0.000	27.999	0.000	19.000
16164.000	1020.000	599.717	1.307	.014	0.000	27.999	-.000	19.000
16164.000	1180.000	600.221	.504	.018	0.000	27.999	-.000	19.000
16164.000	1660.000	602.245	2.024	.781	0.000	27.999	-.000	19.000
16214.000	720.000	598.464	0.000	.054	0.000	33.174	0.000	50.000
16214.000	1020.000	599.782	1.317	.065	0.000	38.204	-5.011	50.000
16214.000	1180.000	600.432	.651	.212	0.000	40.692	-7.213	50.000
16214.000	1660.000	602.288	1.856	.044	0.000	66.415	-33.741	50.000

17565.000	1020.000	601.342	1.364	1.560	0.000	163.937	-113.160	1351.000
17565.000	1180.000	601.964	.622	1.531	0.000	208.375	-157.599	1351.000
17565.000	1660.000	603.638	1.675	1.350	0.000	247.360	-196.583	1351.000
18965.000	720.000	600.831	0.000	.853	0.000	71.783	0.000	1400.000
18965.000	1020.000	602.208	1.378	.867	0.000	170.969	-99.185	1400.000
18965.000	1180.000	602.784	.575	.820	0.000	224.373	-153.090	1400.000
18965.000	1660.000	604.254	1.470	.615	0.000	269.999	-146.216	1400.000
20165.000	720.000	601.358	0.000	.528	0.000	47.920	0.000	1200.000
20165.000	1020.000	602.726	1.368	.518	0.000	52.603	-4.683	1200.000
20165.000	1180.000	603.286	.559	.502	0.000	54.513	-6.598	1200.000
20165.000	1660.000	604.668	1.382	.414	0.000	59.250	-11.330	1200.000
20845.000	560.000	601.615	0.000	.256	0.000	50.015	0.000	680.000
20845.000	800.000	603.018	1.403	.291	0.000	54.661	-4.647	680.000
20845.000	920.000	603.603	.586	.317	0.000	56.651	-6.636	680.000
20845.000	1300.000	605.061	1.458	.393	0.000	61.534	-11.519	680.000
20881.000	560.000	601.651	0.000	.037	0.000	62.411	0.000	36.000
20881.000	800.000	603.069	1.418	.051	0.000	69.999	-7.548	36.000
20881.000	920.000	603.659	.590	.056	0.000	69.999	-7.548	36.000
20881.000	1300.000	605.132	1.472	.071	0.000	69.999	-7.538	36.000
20889.000	560.000	601.654	0.000	.003	0.000	62.475	0.000	8.000
20889.000	800.000	603.116	1.461	.047	0.000	69.994	-7.524	8.000
20889.000	920.000	603.741	.625	.081	0.000	69.994	-7.524	8.000
20889.000	1300.000	605.353	1.612	.221	0.000	69.994	-7.524	8.000
21400.000	560.000	601.808	0.000	.153	0.000	52.301	0.000	511.000
21400.000	800.000	603.263	1.455	.147	0.000	59.644	-7.343	511.000
21400.000	920.000	603.885	.622	.144	0.000	62.832	-10.591	511.000
21400.000	1300.000	605.502	1.617	.149	0.000	70.990	-18.669	511.000
21920.000	560.000	601.949	0.000	.142	0.000	55.536	0.000	520.000
21920.000	800.000	603.411	1.462	.149	0.000	66.819	-11.283	520.000
21920.000	920.000	604.036	.625	.151	0.000	94.025	-36.440	520.000
21920.000	1300.000	605.674	1.638	.172	0.000	141.792	-126.240	520.000
22720.000	560.000	602.186	0.000	.237	0.000	50.309	0.000	800.000
22720.000	800.000	603.642	1.456	.230	0.000	56.795	-6.454	800.000
22720.000	920.000	604.263	.622	.227	0.000	59.516	-9.216	800.000
22720.000	1300.000	605.892	1.628	.217	0.000	155.153	-104.853	800.000
22970.000	380.000	602.250	0.000	.064	0.000	46.926	0.000	250.000
22970.000	540.000	603.715	1.465	.074	0.000	53.385	-6.429	250.000
22970.000	620.000	604.342	.626	.078	0.000	56.093	-9.137	250.000
22970.000	870.000	606.013	1.671	.121	0.000	129.821	-62.405	250.000
23050.000	380.000	605.099	0.000	2.849	0.000	127.492	0.000	80.000
23050.000	540.000	605.750	.651	2.035	0.000	128.369	-1.378	80.000
23050.000	620.000	605.949	.198	1.607	0.000	129.277	-1.795	80.000
23050.000	870.000	606.522	.573	.509	0.000	151.530	-24.039	80.000
23177.000	380.000	605.118	0.000	.019	0.000	68.930	0.000	127.000
23177.000	540.000	605.771	.654	.021	0.000	70.319	-1.339	127.000
23177.000	620.000	605.972	.200	.023	0.000	70.728	-1.748	127.000
23177.000	870.000	606.545	.573	.023	0.000	113.772	-44.793	127.000
23305.000	380.000	605.125	0.000	.007	0.000	126.933	0.000	128.000
23305.000	540.000	605.782	.657	.011	0.000	128.339	-1.346	128.000
23305.000	620.000	605.984	.202	.013	0.000	128.752	-1.759	128.000
23305.000	870.000	606.563	.579	.018	0.000	173.501	-45.508	128.000
23385.000	380.000	606.184	0.000	1.059	0.000	137.322	0.000	80.000

23385.000	620.000	606.715	.147	.731	0.000	148.755	-50.933	80.000
23385.000	870.000	607.114	.399	.551	0.000	196.993	-59.176	80.000
23735.000	380.000	606.203	0.000	.019	0.000	161.757	0.000	350.000
23735.000	540.000	606.599	.395	.031	0.000	164.998	-3.231	350.000
23735.000	620.000	606.752	.153	.037	0.000	164.998	-3.231	350.000
23735.000	870.000	607.169	.417	.055	0.000	164.998	-3.231	350.000
24006.000	380.000	606.219	0.000	.015	0.000	231.999	0.000	271.000
24006.000	540.000	606.622	.403	.023	0.000	231.999	-.000	271.000
24006.000	620.000	606.779	.157	.027	0.000	231.999	-.000	271.000
24006.000	870.000	607.209	.430	.040	0.000	231.999	-.000	271.000
24050.000	380.000	606.299	0.000	.081	0.000	232.000	0.000	44.000
24050.000	540.000	606.702	.403	.081	0.000	232.000	-.000	44.000
24050.000	620.000	606.863	.161	.084	0.000	232.000	-.000	44.000
24050.000	870.000	607.309	.446	.100	0.000	232.000	-.000	44.000
24248.000	380.000	606.306	0.000	.006	0.000	330.999	0.000	194.000
24248.000	540.000	606.712	.406	.009	0.000	330.999	-.000	194.000
24248.000	620.000	606.874	.163	.011	0.000	330.999	-.000	194.000
24248.000	870.000	607.325	.451	.016	0.000	330.999	-.000	194.000

DATA FOR LAST CROSS SECTION

PROFILE	TYPE ENC	TARGET	TOP WIDTH AREA-ACRES	TOP WIDTH AREA-DIFF
1	0.000	-326.000	36.613	0.000
2	0.000	-326.000	68.115	31.502
3	0.000	-326.000	78.401	41.788
4	0.000	-326.000	97.462	60.849

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Clinton Twp.
Muller Drain
N. Br. Clinton River

3) WATERCOURSE: Middle Br. Clinton River

4) DOCUMENT TYPE: Analysis

00BREAK00

5/94

Federal Emergency Management Agency

Clinton Township
Flood Insurance Study
Hydraulic Analyses Report
Contract No. EMW-91-C-3361

Clinton Township, Michigan

RECEIVED

APR 14 1994

Natural Resources
Land & Water Management

March 31, 1994

Mr. Bruce Menerey
Land & Water Management Division
Michigan Department of Natural Resources
P.O. Box 30028
Lansing, Michigan 48909

RE: Clinton Township Flood Insurance Study
Hydraulic Analyses Report

Dear Mr. Menerey:

Enclosed is the Hydraulic Analyses Report for the Clinton Township Flood Insurance Study (FIS). Clinton Township is located in Macomb County, Michigan. This report was generated for the Federal Emergency Management Agency (FEMA) as part of the National Flood Insurance Program (Contract No. EMW-91-C-3361).

The enclosed report summarizes the technical analyses which were performed to assess flooding conditions in Clinton Township. These analyses included the estimation of flood plain elevations and limits, and floodway location for the Miller Drain, and Middle Branch and North Branch of the Clinton River.

Your review of this report is requested. Upon receipt of approval of the results presented in this report, STS will proceed with finalizing the FIS for Clinton Township. If you have any questions regarding the enclosed report, please contact us at (517) 321-4964.

Sincerely,

STS CONSULTANTS, LTD.

Bernard B. Sheff, P.E.
Principal Engineer
Vice President

BBS/lch

lch.water
clinton township hydraulic

STS Consultants Ltd.
Consulting Engineers

3340 Ranger Road
Lansing, Michigan 48906
517.321.4964/Fax 517.321.2132

TABLE OF CONTENTS

Clinton Township Flood Insurance Study
Final Hydraulic Analyses Report

1.0 INTRODUCTION

The Clinton Township Flood Insurance Study (FIS) is being performed for the Federal Emergency Management Agency (FEMA) as part of the National Flood Insurance Program. Clinton Township is located in Macomb County, Michigan and a vicinity map is presented as Figure 1. The location of Clinton Township within Macomb County is presented in Figure 2. The detailed technical studies performed for the FIS were completed in two steps. The Hydrologic Analyses Report was the first step, and is preceded by this Hydraulic Analyses Report. This report provides a re-analysis of a previously completed study.

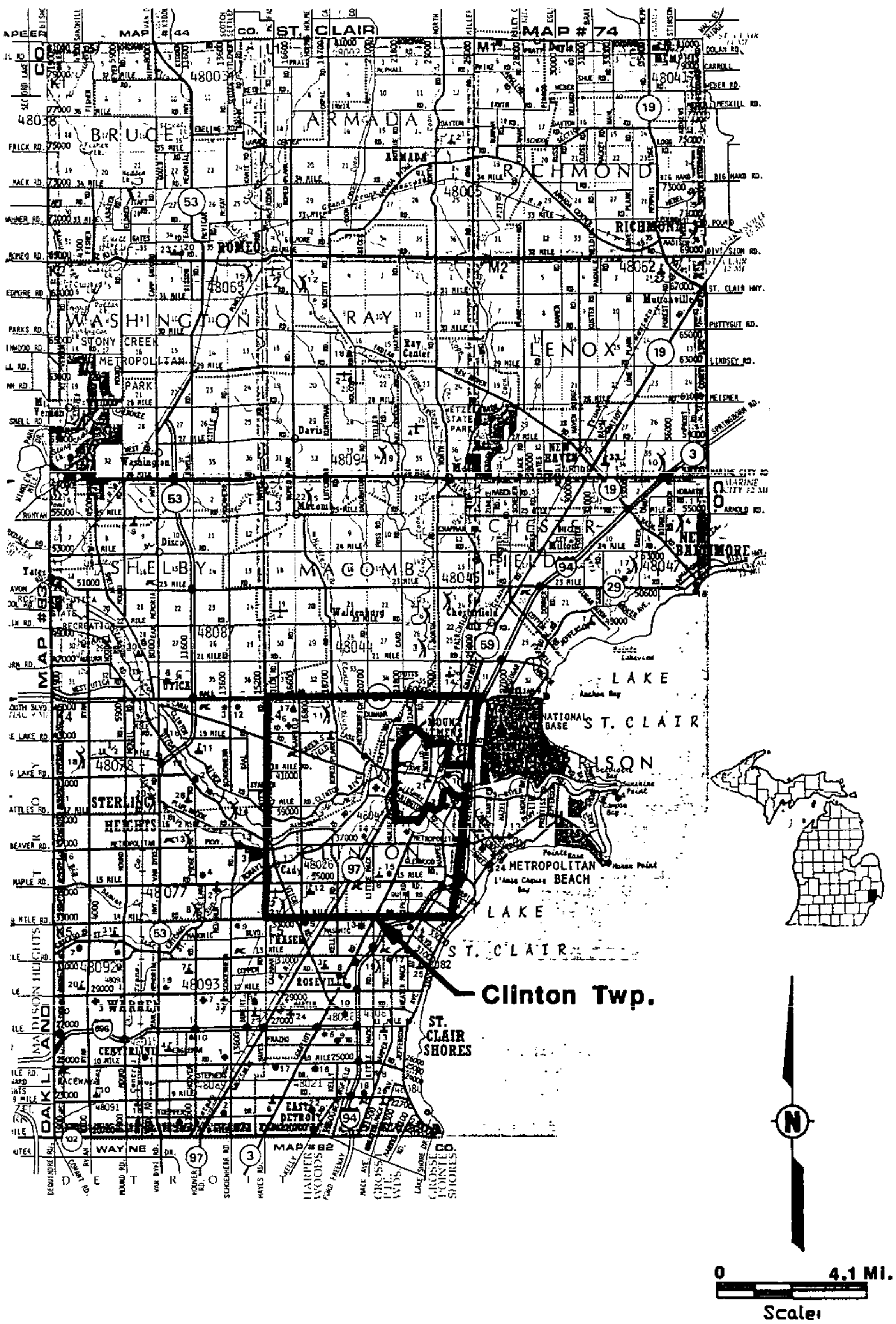
The objective of the hydraulic analysis phase of the project was to develop floodway and flood plain limits and elevations for the stream systems designated for detailed study. The scope of this study includes the performance of hydraulic analyses for the following:

1. Miller Drain — The mouth of the Miller Drain is confluent with the Middle Branch of the Clinton River and will be studied from the confluence upstream approximately 1.9 miles to the corporate limits.

2. Middle Branch — The mouth of the Middle Branch of the Clinton River is confluent with the North Branch of the Clinton River and will be studied from the confluence approximately 3.0 miles upstream to the corporate limits.

3. North Branch — The mouth of North Branch of the Clinton River is confluent with the Clinton River and will be studied from the confluence approximately 3.2 miles upstream to the corporate limits.

The locations of these watercourses within Clinton Township are illustrated in Figure 1. The peak flows developed from the hydrologic analysis were used during the hydraulic analysis of the project. Except for the Middle Branch, this study utilized the same flows as the original study of 1979.



LOCATION OF CLINTON TOWNSHIP WITHIN MACOMB COUNTY

FLOOD INSURANCE STUDY
CLINTON TOWNSHIP, MICHIGAN
FEDERAL EMERGENCY MANAGEMENT AGENCY

DRAWN BY	CJD	DATE	4/94
CHECKED BY	DMR	DATE	4/94
APPROVED BY	BBS	DATE	4/94
CADFILE			

STS Consultants Ltd.
Consulting Engineers

STS PROJECT NO.
718691

STS PROJECT FILE

SCALE
1"=4.1 Miles

SHEET NO.
2

2.0 HYDRAULIC ANALYSIS

2.1 General

Flood insurance studies were initially performed in 1979 for Clinton Township. A new flood insurance study was originally re-evaluated by STS due to the following changes in the hydraulic of the Miller Drain, Middle Branch and North Branch.

1) Reconstructed Heydenreich Road Bridges over the Miller Drain and the Middle Branch.

2) New channel configuration on the upstream portion of the Miller Drain.

After STS initiated the study, it was learned that the Little Road Bridge was removed and this change was then incorporated into the study. The hydrology has also been re-evaluated and approved by the Michigan Department of Natural Resources, Land and Water Management Division by a letter dated December 17, 1993. A summary of the MDNR approved hydrologic analysis discharges are presented in Table 1.

TABLE 1
Clinton Township Final Hydrologic Analysis

	Discharges in cfs Recurrence Intervals			
	10-yr	50-yr	100-yr	500-yr
Miller Drain				
@ mouth	260	380	430	590
North Branch Clinton				
u/s of M-59	5,440	8,970	10,700	15,300
d/s of M-59	5,440	8,410	9,720	13,100
u/s of Middle Branch Clinton	5,250	8,260	9,590	13,000
d/s of Middle Branch Clinton	6,710	10,200	11,600	15,500
Middle Branch Clinton				
u/s of Miller Drain	2,000	3,250	3,900	5,430
@ mouth	2,190	3,540	4,240	5,900

2.2 Methodology

The Army Corps of Engineers' HEC-2 computer model *(Reference 1)* was utilized to simulate the 10-, 50-, 100- and 500-year flood events and to estimate water surface elevations. This program simulates water surface profiles for steady, gradually varied flow in natural or manmade channels based on the solution of the one-dimensional energy equation. Energy losses due to friction are evaluated using Manning's Equation *(Reference 2)*. The program has the capability to assess the impacts of various obstructions to flow, including bridges, culverts and weirs. The computational procedure utilized by the program is generally known as the standard step method. Parameters that were input to the HEC-2 computer model include stream, bridge and culvert cross-section dimensions and elevations; roughness coefficients associated with the stream bed and overbank areas; expansion and contraction loss coefficients; and the distance between cross-sections and structures.

2.2.1 Starting Point

Profile computations for the Miller Drain, Middle Branch and North Branch of the Clinton River were begun at the mouth of each stream. The starting water surface elevations were determined from the 1979 FIS study. These water surface elevations were determined by backwater curves started at Lake St. Clair and carried on up to the mouth of each stream. From the profiles, stage discharge curves were established at the mouth of each stream. The flow used below the confluence were those when the stream in question was at peak discharge. The Clinton River and Clinton River Spillway were begun at the mean annual flood level of Lake St. Clair.

2.3 Miller Drain

In August 1991, a topographic survey was performed by Abrams Aerial Survey Corporation to develop maps with a scale of 1 inch equals 400 feet, with 2 foot contours. On May 1, 1992, a land survey was performed by STS. Two detailed cross-sections of the Miller Drain were obtained. This information was utilized to develop the cross-sections for the HEC-2 model. The following is the hydraulic model changes from the 1979 model, made by STS, for the Miller Drain.

1) Recorded bridge data for Heydenreich Road Bridge.

2) Changed contraction and expansion coefficients between Heydenreich crossing and Section No. 2270.

3) Adjust miscellaneous bank locations

4) Added Section No. 7390 to define downstream limit of channelized portions of drain.

5) Updated ground points data for Section Nos. 8510 to 10220 to reflect channelization.

6) Fixed numerous miscellaneous input errors and warning messages in original model[1].

Table 2 presents a cross-section reference between cross-section designations for the HEC-2 model, the land survey, and mapping in the FIS distances between cross-sections and structures for both the channel and overbank areas were obtained from the work map that was generated from the aerial survey.

Manning's Equation coefficients utilized in the computer model ranged from 0.03 to 0.08 for the stream channel and ranged from 0.04 to 0.1 in the stream overbank areas. Contraction and expansion coefficients *(Reference 3)* were established as 0.1 and 0.3 for smooth transitions, and 0.3 and 0.5 for abrupt transitions.

2.3.1 Results

Table 3 presents the floodplain elevations for the 10, 50, 100, and 500 year floods. Due to the backwater effect of the North Branch, flood elevations would be controlled by the North Branch. Re-evaluated flood elevations compared to the 1979 model did not change significantly. Vertical profiles of the Miller Drain flood elevations are presented in Appendix A.

2.4 North Branch Clinton River

In August 1991, a topographic survey was performed by Abrams Aerial Survey Corporation to develop maps with a scale of 1 inch equals 400 feet, with 2 foot contours. On May 1, 1992, a land survey was performed by STS, and two detailed cross-sections of the North Branch were obtained at the former Little Road crossing. This information was utilized to develop the cross-sections for the HEC-2 model. The following is hydraulic model changes from the 1979 model, made by STS, for the North Branch of the Clinton River.

1) Corrected X3.10 data for Cass Avenue Bridge.
2) Fixed numerous miscellaneous input errors and warnings present in original model[2].
3) Adjust miscellaneous bank station locations.
4) Remove bridge data for old Little Road Crossing.

---

[1] Many changes were necessitated due to revisions to the HEC-2 code.

[2] Many errors were due to revised HEC-2 code.

TABLE 2
Miller Drain Cross-Section Locations

HEC-2 Designation	FIS Map Designation	Description
850.0	A	850′ upstream of confluence with Middle Branch Clinton River.
989.0		1′ downstream of Heydenreich Road Bridge.
990.0		Downstream face of Heydenreich Road Bridge.
1,010.0	B	Upstream face of Heydenreich Road Bridge.
1,011.0		1′ upstream of Heydenreich Road Bridge.
2,270.0	C	1,259′ upstream of the Heydenreich Road Bridge.
3,200.0	D	2,189′ upstream of the Heydenreich Road Bridge.
3,662.0		Downstream of Private Bridge.
3,663.0		1′ downstream of Private Bridge.
3,675.0		Upstream of Private Bridge.
3,676.0		1′ upstream of Private Bridge.
4,800.0	E	92′ downstream of Dunham Road Bridge.
4,892.0	F	Downstream face of Dunham Road Bridge.
4,926.0		Upstream face of Dunham Road Bridge.
5,101.0		175′ upstream of the Dunham Road Bridge.
6,610.0	G	1,684′ upstream of the Dunham Road Bridge.
7,390.0		2,464′ upstream of the Dunham Road Bridge.
8,510.0	H	1,710′ downstream of Clinton Township corporate limits.
10,220.0	I	Clinton Township corporate limits.

TABLE 3
Miller Drain Flood Elevation

Cross-Section	10-yr.	50-yr.	100-yr.	500-yr.
850	581.10	583.10	584.20	587.00
989	584.41	584.20	584.61	587.07
990	584.57	584.62	584.92	587.08
1,010	584.58	584.64	584.94	587.13
1,011	584.58	584.64	584.94	587.19
2,270	585.60	586.71	587.08	588.34
3,200	588.88	589.44	589.63	589.96
3,662	589.35	589.88	590.06	590.45
3,663	589.38	589.90	590.08	590.47
3,675	589.40	589.92	590.10	590.49
3,676	589.40	589.91	590.09	590.49
4,800	590.39	591.01	591.22	591.65
4,892	590.40	591.02	591.22	591.67
4,926	590.47	591.12	591.34	591.66
5,101	590.73	591.48	591.75	592.28
6,610	591.55	592.30	592.57	593.17
7,390	591.78	592.60	592.88	593.57
8,510	591.95	592.80	593.09	593.81
10,220	592.20	593.05	593.34	594.08

Table 4 presents a cross-section reference between cross-section designations for the HEC-2 model, the land survey, and mapping in the FIS distances between cross-sections and structures for both the channel and overbank areas were obtained from the work map that was generated from the aerial survey.

Manning's Equation coefficients utilized in the computer model ranged from 0.045 to 0.068 for the stream channel and ranged from 0.04 to 0.1 in the stream overbank areas. Contraction and expansion coefficients *(Reference 3)* were established as 0.1 and 0.3 for smooth transitions, and 0.3 and 0.5 for abrupt transitions.

2.4.1 Results

Table 5 presents the floodplain elevations for the 10, 50, 100, and 500 year floods. Re-evaluated flood elevations compared to the 1979 model did not change significantly. Vertical profiles of the North Branch flood elevations are presented in Appendix A.

2.5 Middle Branch Clinton River

In August 1991, a topographic survey was performed by Abrams Aerial Survey Corporation to develop maps with a scale of 1 inch equals 400 feet, with 2 foot contours. This information was utilized to develop the cross-sections for the HEC-2 model. The following is hydraulic model changes from the 1977 model, made by STS, for the Middle Branch of the Clinton River.

1) Recorded bridge data for Heydenreich Road Bridge replacement, including weir data for road changes.

2) Fixed numerous miscellaneous input errors and warnings present in original model[1].

3) Changed contraction and expansion coefficient between Heydenreich Road and Section Number 6120.

4) Increased flood discharges based on approved changes. Above Miller drain, adjusted QT data based on same flow proportions as original model. Method approved by MDNR.

5) Recorded ground data for sections 5050 and 11700 based on revised topographic mapping.

---

[1] Many errors were due to changes in the HEC-2 code.

TABLE 4
North Branch Cross-Section Locations

HEC-2 Designation	FIS Map Designation	Description
300.0	A	300' upstream of confluence with Clinton River.
858.0		Downstream face of Cass Avenue Bridge.
944.0	B	Upstream face of Cass Avenue Bridge.
1,244.0		Upstream of confluence with Middle Branch
1,650.0	C	1,650' upstream of confluence with Clinton River
4,670.0	D	4,670' upstream of confluence with Clinton River
7,680.0	E	7,680' upstream of confluence with Clinton River
10,100.0	F	10,100' upstream of confluence with Clinton River
11,580.0	G	11,580' upstream of confluence with Clinton River
11,721.0		Downstream face of former Little Road Bridge.
11,738.0	H	1' downstream of former Little Road Bridge.
11,739.0		Upstream face of former Little Road Bridge.
14,670.0	I	14,670' upstream face of former Little Road Bridge.
17,820.0	J	17,820' upstream face of former Little Road Bridge.
19,270.0	K	19,270' upstream face of former Little Road Bridge.
19,360.0		Downstream face of Hall Road Bridge
19,401.0	L	Upstream face of Hall Road Bridge, Clinton Township Corporate Limits

TABLE 5
North Branch Flood Elevation

Cross-Section	10-yr.	50-yr.	100-yr.	500-yr.
300	588.47	592.15	593.31	596.30
858	588.74	592.40	593.56	596.60
944	588.82	592.50	593.84	597.07
1,244	589.13	592.86	594.16	597.12
1,650	589.25	592.95	594.23	597.16
4,670	590.15	593.61	594.84	597.56
7,680	590.65	593.96	595.15	597.78
10,100	590.91	594.11	595.29	597.88
11,580	591.21	594.31	595.46	598.03
11,721	591.36	594.39	595.54	598.07
11,738	591.39	594.40	595.54	598.07
11,739	591.46	594.56	595.69	598.18
14,670	592.67	595.46	596.46	598.69
17,820	593.11	595.86	596.85	599.02
19,270	593.39	596.07	597.04	599.18
19,360	593.48	596.17	597.14	599.29
19,401	593.54	596.22	597.21	599.63

Table 6 presents a cross-section reference between cross-section designations for the HEC-2 model, the land survey, and mapping in the FIS distances between cross-sections and structures for both the channel and overbank areas were obtained from the work map that was generated from the aerial survey.

Manning's Equation coefficients utilized in the computer model ranged from 0.02 to 0.07 for the stream channel and ranged from 0.04 to 0.09 in the stream overbank areas. Contraction and expansion coefficients *(Reference 3)* were established as 0.1 and 0.3 for smooth transitions, and 0.3 and 0.5 for abrupt transitions.

2.5.1 Results

Table 7 presents the floodplain elevations for the 10, 50, 100, and 500 year floods. Due to the backwater effect of the North Branch, flood elevations would be controlled by the North Branch. Re-evaluated flood elevations compared to the 1979 model did not change significantly. Vertical profiles of the Middle Branch flood elevations are presented in Appendix A.

2.6 Floodway Calculation

The floodway for the three branches were calculated with HEC-2 encroachment method 1 and encroachment method 4. The floodways were determined by calculating a maximum increase in the base flood (100-year flood) water surface elevation of 0.1 feet increase. HEC-2 encroachment method 1 involves inputted encroachment stations in the right and left channels until a rise of 0.1 feet occurs in the floodway. HEC-2 encroachment method 4 computes encroachment stations based on the desired change in water surface elevation of 0.1 feet. Table 8 presents the floodway results for the North Branch, Middle Branch, and Miller Drain.

TABLE 6

Middle Branch Cross-Section Locations

HEC-2 Designation	FIS Map Designation	Description
450.0	A	450′ upstream of confluence with North Branch of Clinton River.
1,420.0		1,420′ upstream of confluence with North Branch of Clinton River.
2,350.0		Downstream of Miller Drain confluence.
3,220.0	B	48′ downstream of Heydenreich Road Bridge.
3,268.0		1′ downstream of Heydenreich Road Bridge.
3,296.0		Downstream face of Heydenreich Road Bridge.
3,304.0		Upstream face of Heydenreich Road Bridge.
3,305.0	C	1′ upstream of Heydenreich Road Bridge.
5,050.0	D	1,745′ upstream of Heydenreich Road Bridge.
6,120.0		Downstream face of Private Bridge.
6,134.0	E	Upstream face of Private Bridge.
8,150.0	F	2,016′ upstream of Private Bridge.
8,700.0		2,566′ upstream of Private Bridge.
9,350.0		3,216′ upstream of Private Bridge.
10,180.0	G	700′ downstream of confluence with Groth Drain.
10,880.0		Confluence of Groth Drain, downstream face of Private Bridge.
10,895.0	H	Upstream face of Private Bridge.
10,965.0		70′ upstream of Private Bridge.
11,275.0		1′ downstream of Private Bridge.
11,276.0		Downstream face of Private Bridge.
11,290.0	I	Upstream face of Private Bridge.
11,291.0		1′ upstream face of Private Bridge.
11,700.0	J	490′ upstream of Private Bridge.
12,750.0		Upstream of confluence with un-named tributary.
14,540.0	K	14,540′ upstream of confluence with North Branch.
15,330.0		15,330′ upstream of confluence with North Branch.
16,690.0	L	40′ downstream of Hall Road Bridge.
16,730.0		Downstream face of Hall Road Bridge, Clinton Township.
16,771.0	M	Upstream face of Hall Road Bridge, Clinton Township, corporate limits.

TABLE 7
Middle Branch Flood Elevation

Cross-Section	10-yr.	50-yr.	100-yr.	500-yr.
450	588.16	591.89	593.11	595.83
1,420	588.19	591.91	593.13	595.84
2,350	588.21	591.92	593.14	595.85
3,220	588.25	591.94	593.15	595.87
3,268	588.23	591.93	593.15	595.87
3,269	588.21	591.94	593.15	595.87
3,304	588.22	591.94	593.16	595.87
3,305	588.28	591.94	593.16	595.87
5,050	588.51	592.03	593.24	595.92
6,120	588.58	592.08	593.28	595.97
6,134	588.59	592.09	593.29	595.97
8,150	588.75	592.16	593.36	596.03
8,700	588.81	592.18	593.37	596.07
9,350	589.04	592.26	593.43	596.07
10,180	589.24	592.35	593.51	596.13
10,880	589.60	592.53	593.66	596.22
10,895	589.61	592.82	593.73	596.22
10,965	590.06	592.88	593.78	596.24
11,275	590.10	592.91	593.82	596.27
11,276	590.10	592.91	593.82	596.27
11,290	590.10	592.91	593.82	596.27
11,291	590.10	592.91	593.82	596.28
11,700	590.16	592.94	593.84	596.29
12,750	590.30	593.01	593.91	596.35
14,540	590.98	593.32	594.19	596.53
15,330	591.38	593.51	594.36	596.63
16,690	591.91	593.80	594.60	596.73
16,730	592.14	593.98	594.77	596.86
16,771	592.15	593.99	594.79	596.99

TABLE 8
FLOODWAY DATA

Flooding Source			Floodway			Base Flood Water Surface Elevation		
X-Sec.	Distance	Width	Section Area (sq ft)	Mean Velocity (ft/sec)	Regul. (NGVD)	W/O Floodway (NGVD)	With Floodway (NGVD)	Increase (feet)
CLINTON R. - NORTH BR.								
A	300	520	5,244	2.2	593.3	593.3	593.4	0.1
B	944	276	3,377	3.4	593.8	593.8	593.9	0.1
C	1,650	1,206	7,692	1.2	594.2	594.2	594.3	0.1
D	4,670	1,083	7,143	1.3	594.7	594.7	594.8	0.1
E	7,680	969	10,063	1.0	595.0	595.0	595.1	0.1
F	10,100	845	7,764	1.2	595.2	595.2	595.3	0.1
G	11,580	609	3,962	2.4	595.4	595.4	595.5	0.1
H	11,738	601	3,776	2.5	595.4	595.4	595.5	0.1
I	14,670	633	6,703	1.4	596.4	596.4	596.5	0.1
J	17,820	1,106	10,020	1.0	596.7	596.7	596.8	0.1
K	19,270	252	2,995	4.0	596.8	596.8	596.9	0.1
L	19,401	227	2,351	4.1	596.9	596.9	597.0	0.1
CLINTON R. - MIDDLE BR.								
A	1,420	1,087	11,134	0.4	594.1	593.1	593.2	0.1
B	3,220	850	5,724	0.7	594.1	593.2	593.3	0.1
C	3,305	922	5,496	0.7	594.1	593.2	593.3	0.1
D	5,050	327	4,140	0.9	594.1	593.2	593.3	0.1
E	6,134	647	5,556	0.7	594.1	593.3	593.4	0.1
F	8,150	541	4,383	0.9	594.1	593.3	593.4	0.1
G	10,180	450	3,160	1.2	594.1	593.5	593.6	0.1
H	10,895	435	3,318	1.2	594.1	593.7	593.8	0.1
I	11,290	642	4,590	0.9	594.1	593.8	593.9	0.1
J	11,700	563	4,512	0.9	594.1	593.8	593.9	0.1
K	14,540	403	2,440	1.1	594.1	594.1	594.2	0.1
L	16,690	141	924	3.0	594.6	594.6	594.7	0.1
M	16,771	130	1,091	2.5	594.7	594.7	594.8	0.1
CLINTON R. - MILLER DRN.								
A	850	58	135	3.2	594.1	584.6	584.7	0.1
B	1,010	28	156	2.8	594.1	585.0	585.1	0.1
C	2,270	82	128	3.4	594.1	587.5	587.5	0.0
D	3,200	126	307	1.4	594.1	589.6	589.7	0.1
E	4,800	91	227	1.9	594.1	591.1	591.2	0.1
F	4,926	22	109	3.8	594.1	591.2	591.3	0.1
G	6,610	41	192	2.1	594.1	592.5	592.6	0.1
H	8,510	81	316	0.9	594.1	593.1	593.2	0.1
I	10,220	62	276	1.1	594.1	593.3	593.4	0.1

Note: Middle Branch and Miller Drain have backwater effect from the Clinton River.

3.0 COMPARISON OF RESULTS

The hydraulic profile of the Miller Drain, determined for the 1979 FIS has been changed. The floodway for Miller Drain, Middle Branch and North Branch have also recalculated from the 1979 study due to the updating of the HEC-2 code. The HEC-2 model has calculated the new floodways and are redrawn on 1979 FIRM map presented in Appendix C.

The floodplain and floodway for the North Branch of the Clinton River did not change significantly from the previous study. The position of the North Branch was better defined from Abrams Aerial Survey. Because of the reposition of the North Branch, the location of the floodway and floodplain did change from the 1979 FIS and are redrawn on the 1979 FIRM map.

The floodplain and floodway of the Miller Drain did change downstream of the corporate limits due to the rechannelization of the river. Further downstream of the Miller Drain, the floodplain and floodway did not change significantly.

The floodplain and floodway of the Middle Branch of the Clinton River did not change significantly from the previous study except at areas where the river location has changed based on the Abrams Aerial Survey.

4.0 CONCLUSIONS

STS has perform this hydraulic analysis report for the Clinton Township Flood Insurance Study. Specifically, the North Branch of the Clinton River, Middle Branch of the Clinton River, and the Miller Drain. This report was generated for the Federal Emergency Management Agency as part of the National Flood Insurance Program (contract no. EMW-91-C-3361).

The flood insurance study for the three branches of the Clinton River were initially performed in 1979. A new insurance study was performed due to the reconstruction of the Heydenreich Road Bridge over the Miller Drain and the Middle Branch, and a new channel configuration on the upstream portion of the Miller Drain.

The hydraulic analysis has shown that there has not been a significant change in the floodway and floodplain of the three branches of the Clinton River since the 1979 report, due to the reconstruction of the Heydenreich Road Bridge over the Miller Drain and the Middle Branch of the Clinton River. The floodway and floodplain location did change, however, due to the new channel configuration on the upstream portion of the Miller Drain.

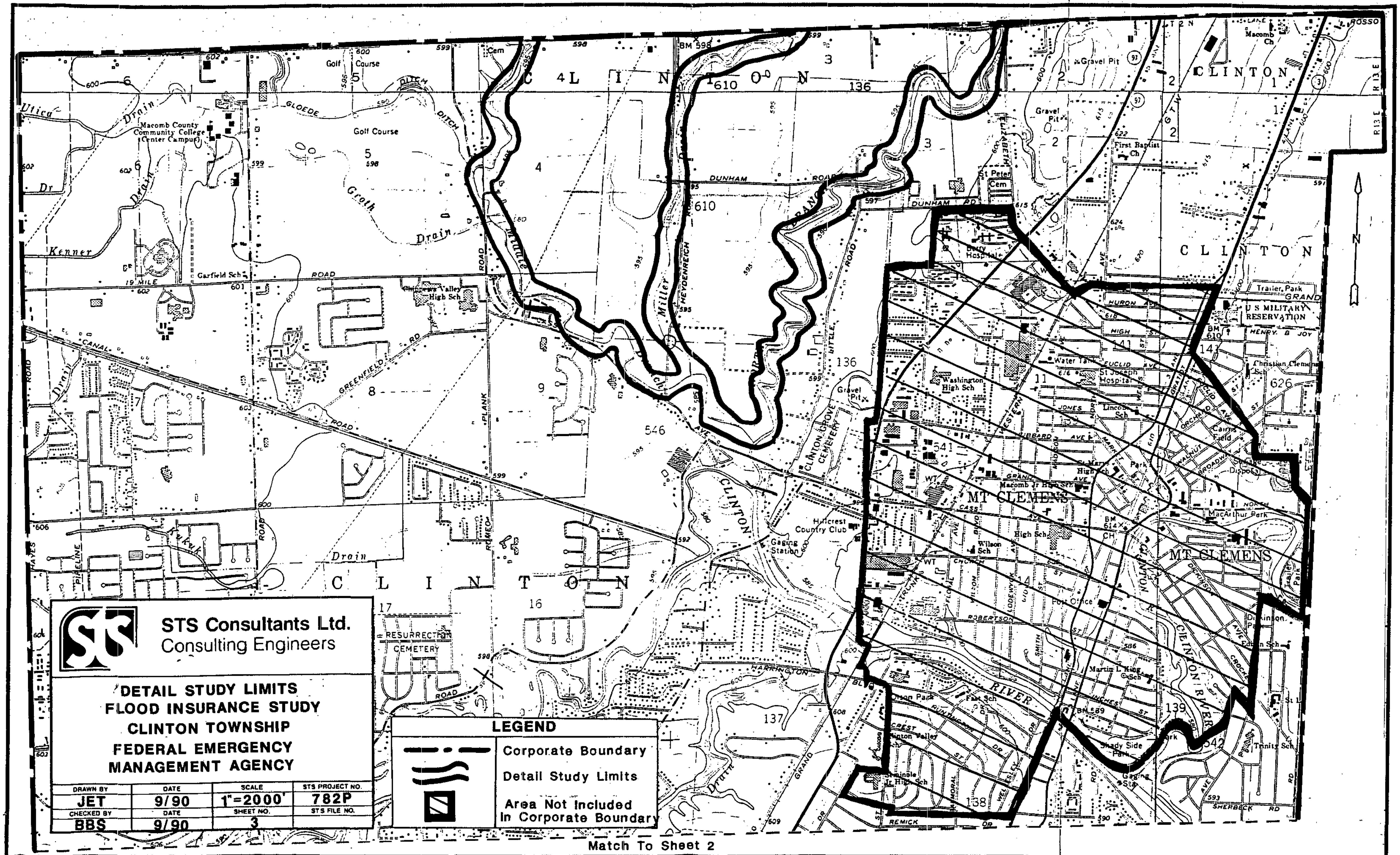
5.0 REFERENCES

1. U.S. Army Corps of Engineers, Hydrologic Engineering Center, Computer Program HEC-2, Water Surface Profiles; Davis, California, September 1990.

2. Chow, Ven Te, Open Channel Hydraulics, McGraw Hill, New York, 1959.

3. Brater & King, Handbook of Hydraulics, McGraw Hill, New York, 1982.

4. STS Consultants, Ltd., Clinton Township Flood Insurance Study - Final Hydrologic Analyses Report; Lansing, Michigan; April 1993



STS Consultants Ltd.
Consulting Engineers

DETAIL STUDY LIMITS
FLOOD INSURANCE STUDY
CLINTON TOWNSHIP
FEDERAL EMERGENCY
MANAGEMENT AGENCY

DRAWN BY	DATE	SCALE	STS PROJECT NO.
JET	9/90	1"=2000'	782P
CHECKED BY	DATE	SHEET NO.	STS FILE NO.
BBS	9/90	3	

LEGEND

- Corporate Boundary
- Detail Study Limits
- Area Not Included In Corporate Boundary

Match To Sheet 2

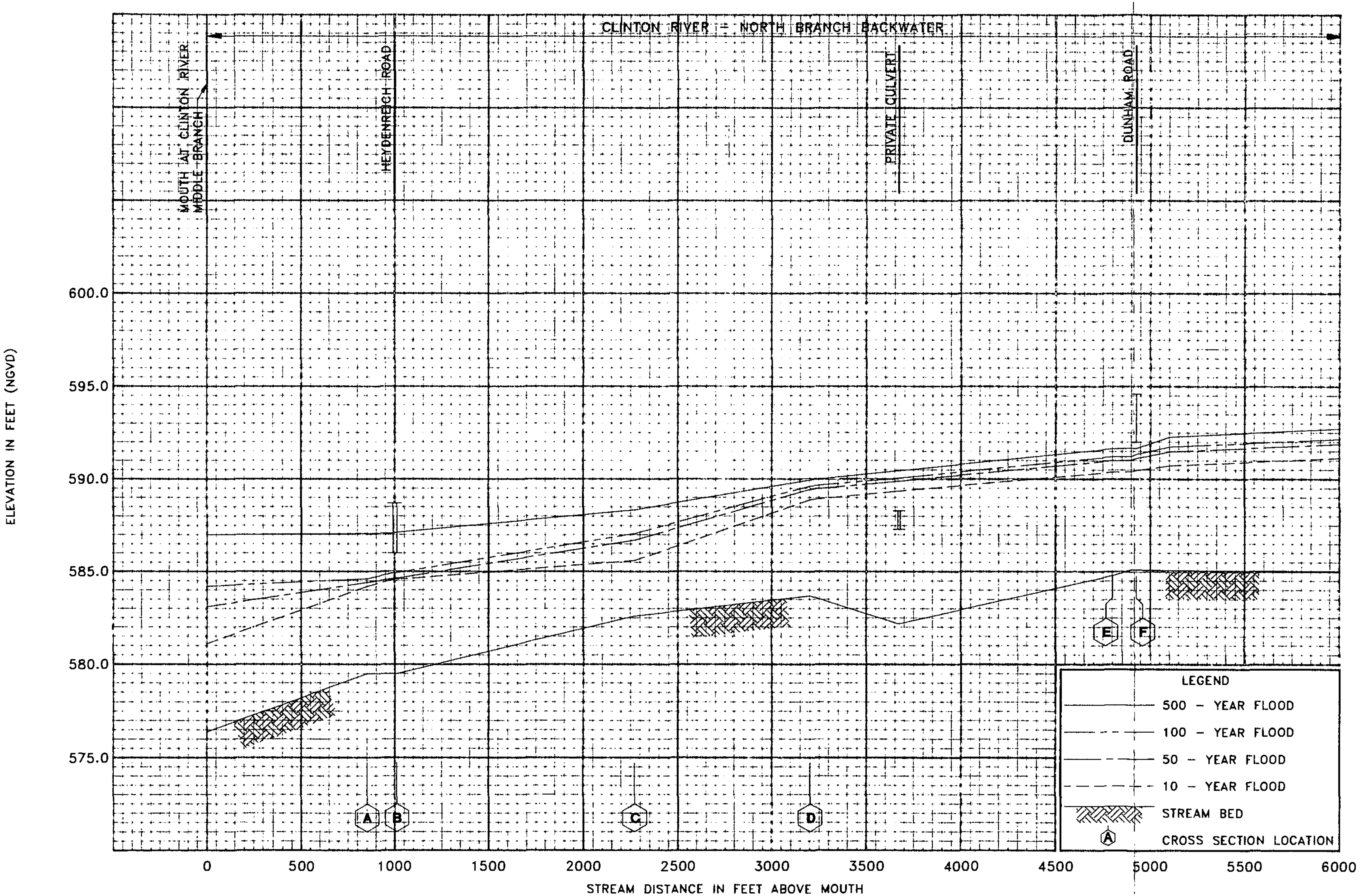
FEDERAL EMERGENCY MANAGEMENT AGENCY

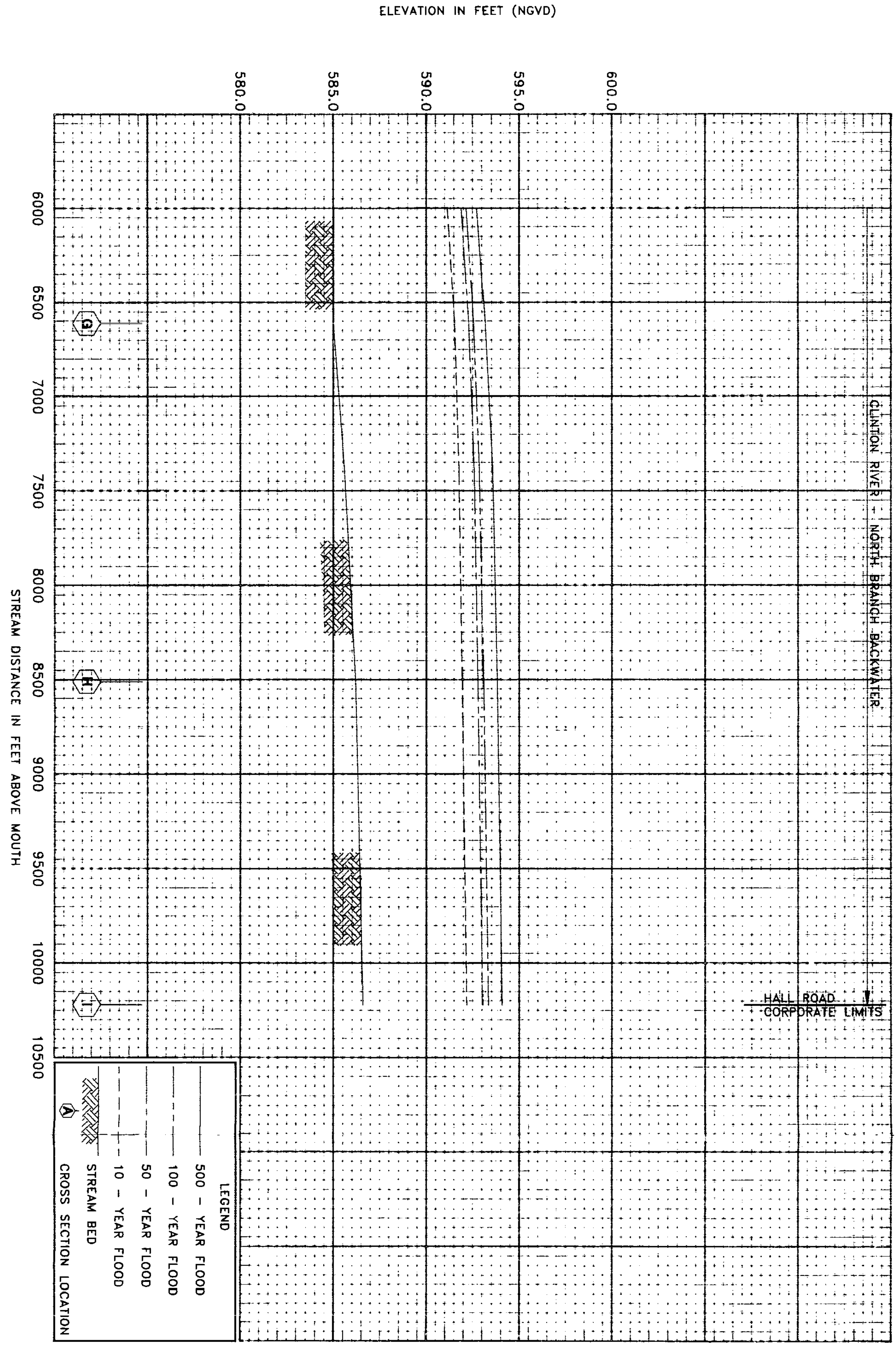
TOWNSHIP OF CLINTON, MI

(MACOMB CO.)

FLOOD PROFILES

CLINTON RIVER - MILLER BRANCH





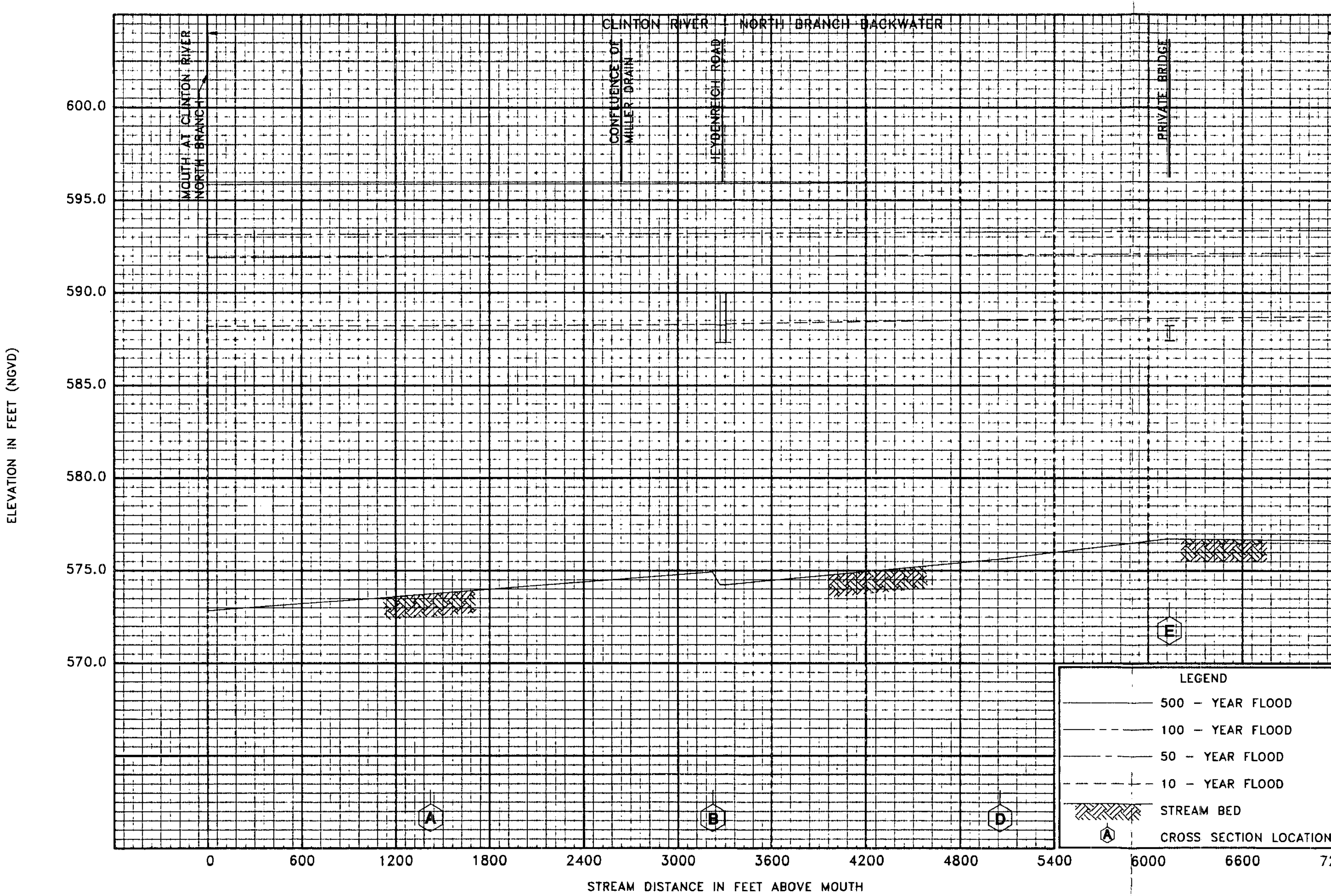
FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWNSHIP OF CLINTON, MI

(MACOMB CO.)

FLOOD PROFILES

CLINTON RIVER - MILLER BRANCH

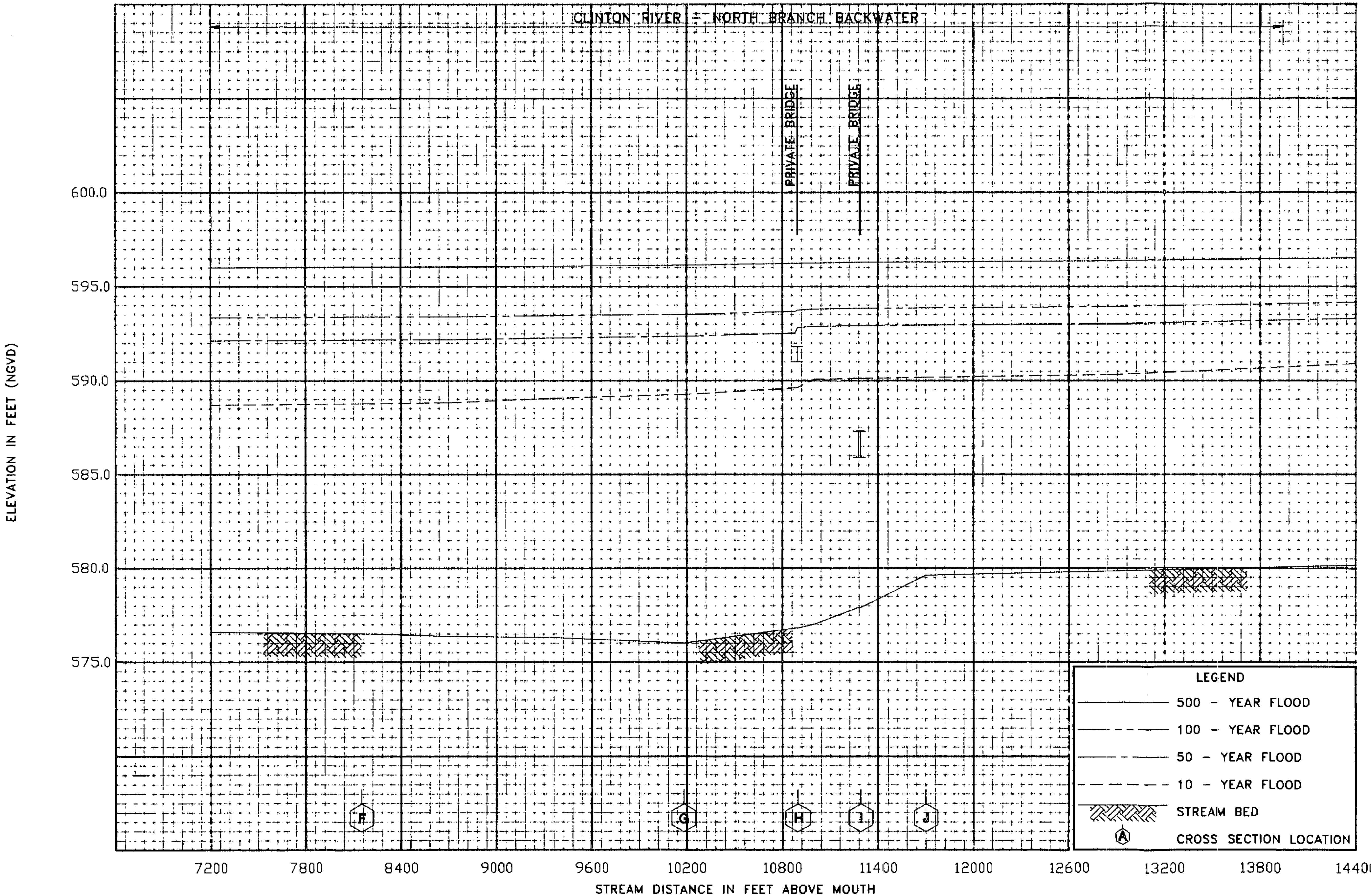


FLOOD PROFILES

CLINTON RIVER - MIDDLE BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWNSHIP OF CLINTON, MI
(MACOMB CO.)



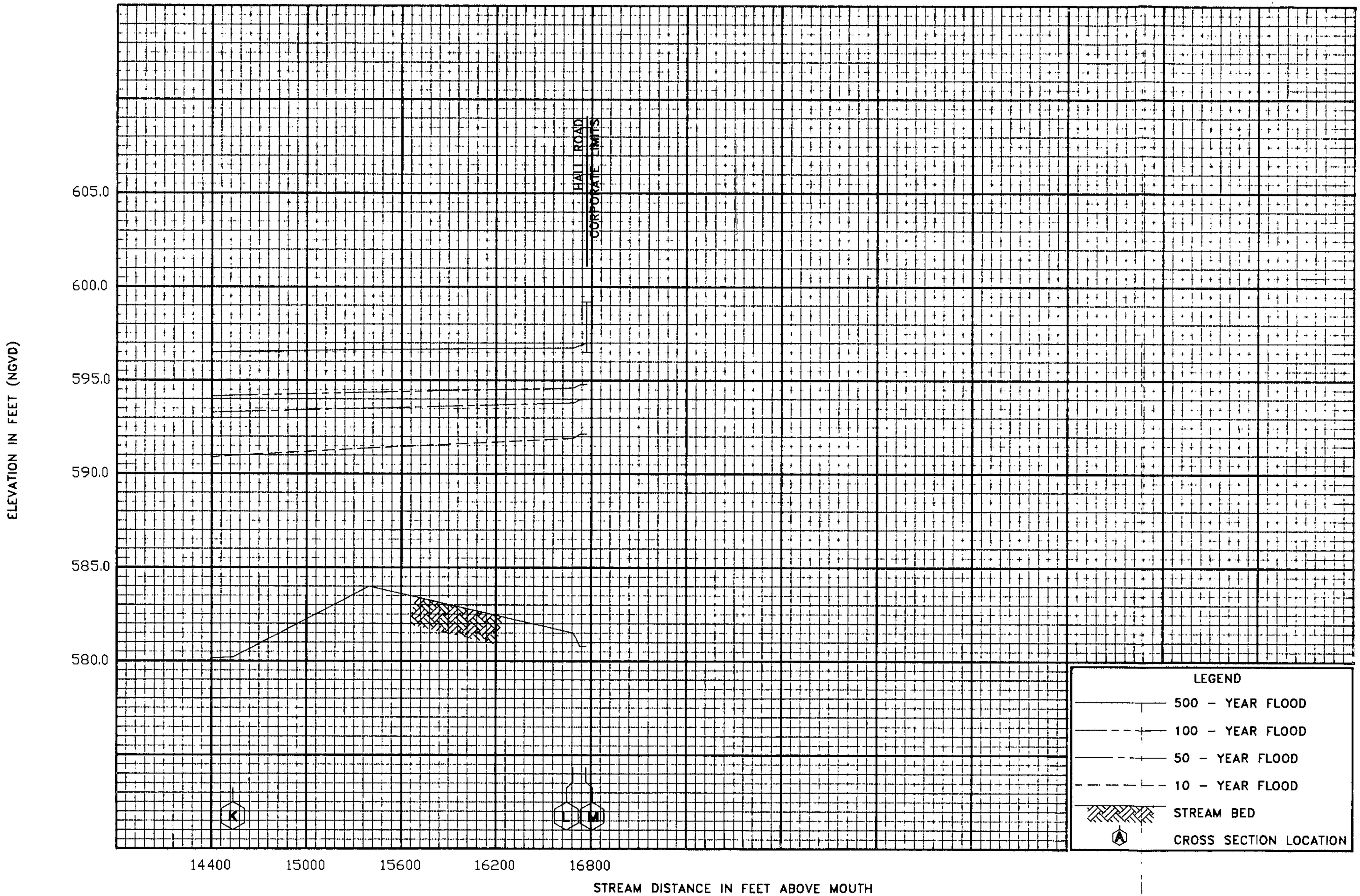
FLOOD PROFILES

CLINTON RIVER - MIDDLE BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWNSHIP OF CLINTON, MI

(MACOMB CO.)



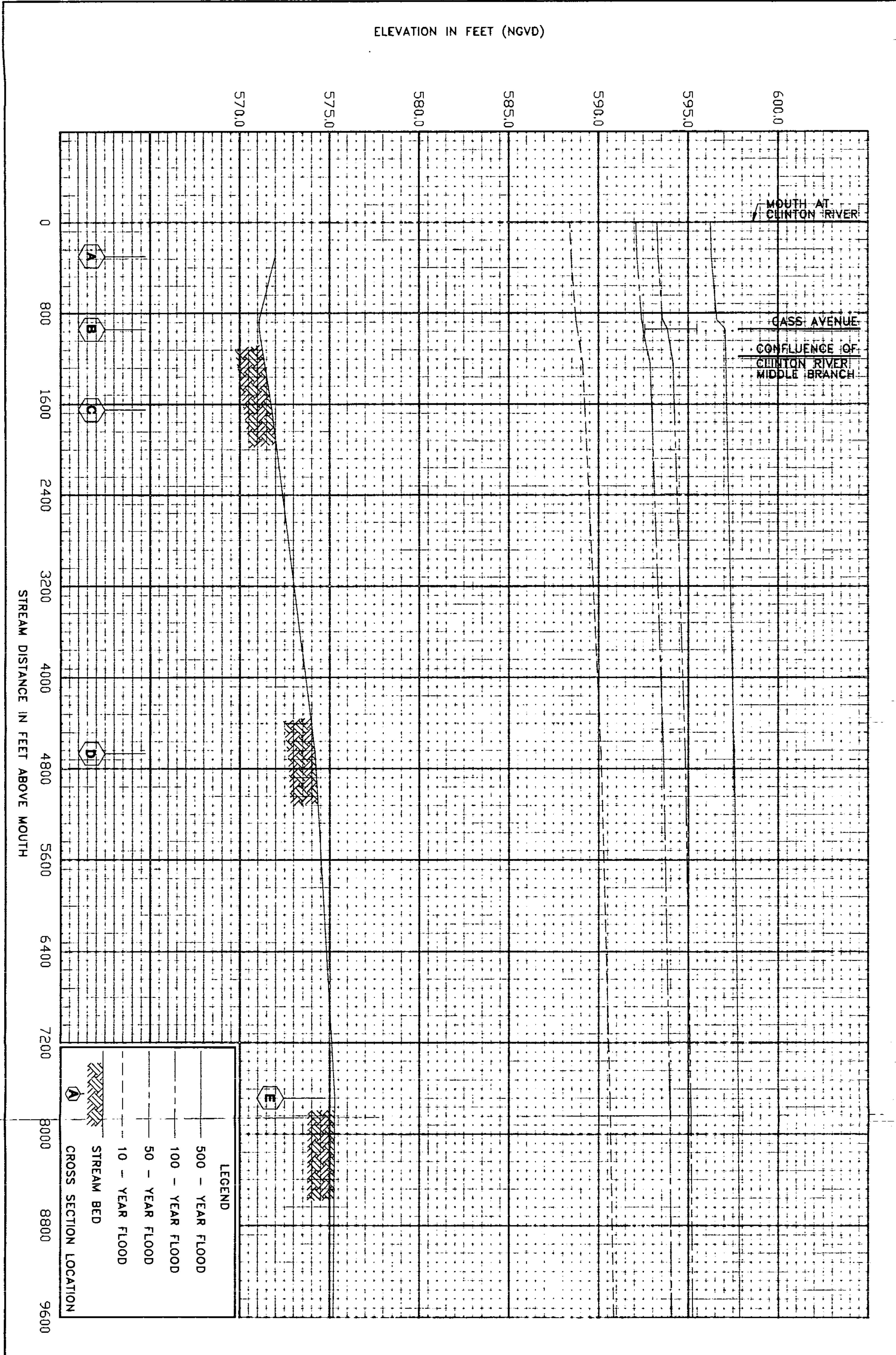
FLOOD PROFILES

CLINTON RIVER - MIDDLE BRANCH

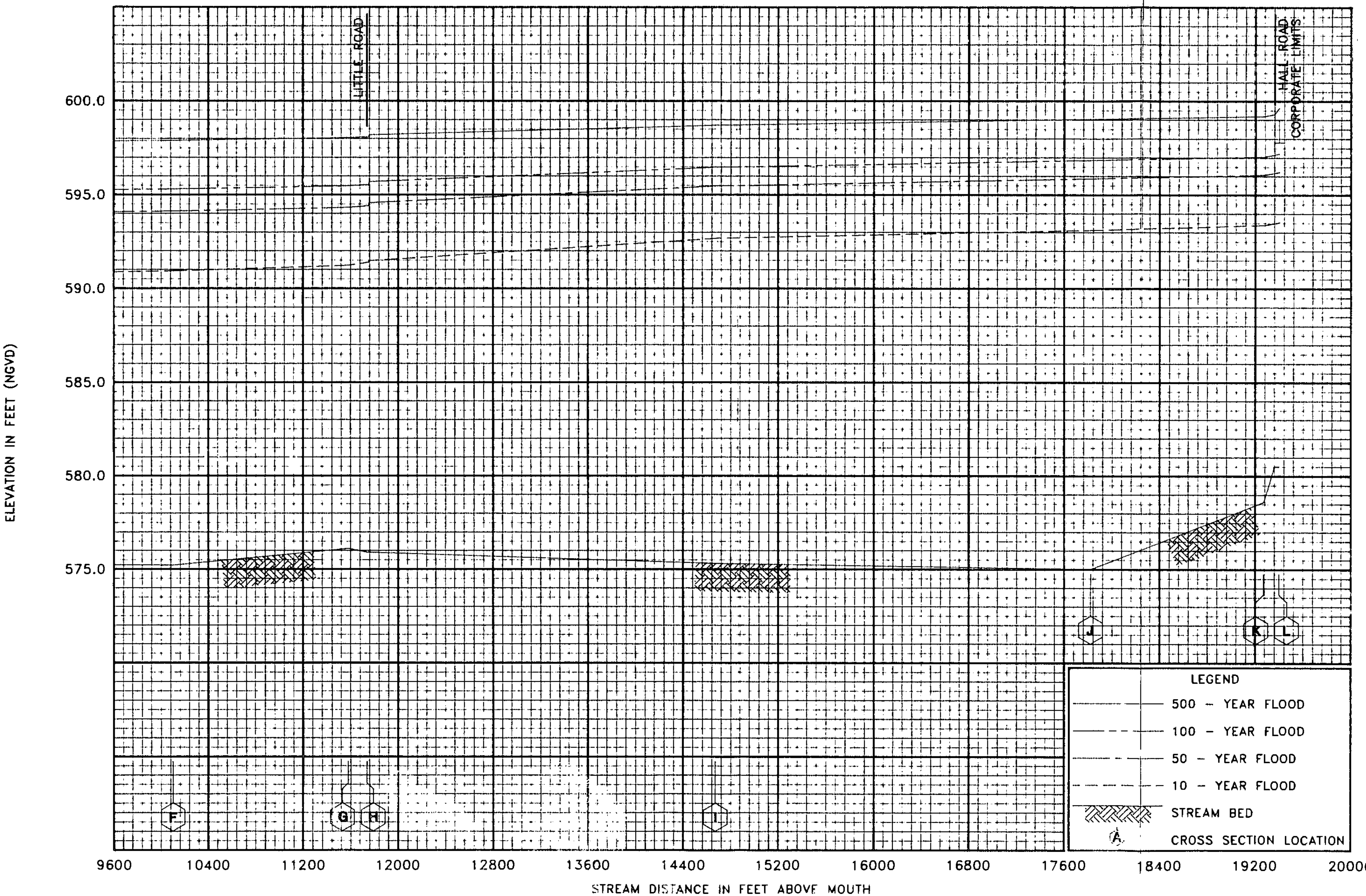
FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWNSHIP OF CLINTON, MI

(MACOMB CO.)



FEDERAL EMERGENCY MANAGEMENT AGENCY **TOWNSHIP OF CLINTON, MI** (MACOMB CO.)	**FLOOD PROFILES** **CLINTON RIVER - NORTH BRANCH**



FLOOD PROFILES

CLINTON RIVER - NORTH BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWNSHIP OF CLINTON, MI

(MACOMB CO.)

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Clinton Twp

3) WATERCOURSE: Middle Br Clinton Riv.
N. Branch Clinton River
Miller drain

4) DOCUMENT TYPE: Analysis FIS

00BREAK00

Federal Emergency Management Agency

Washington, D.C. 20472

JUL 22 1997

RECEIVED
JUL 28 1997
ENVIRONMENTAL QUALITY
LAND & WATER MANAGEMENT

(100)

Mr. James Sinnamon
Clinton Township Supervisor
Macomb County
40700 Romeo Plank Road
Clinton Township, Michigan 48038

Dear Mr. Sinnamon:

Please find enclosed two preliminary copies of the revised areas of the Flood Insurance Study (FIS) and Flood Insurance Rate Map (FIRM) for the Township of Clinton, Macomb County, Michigan. We have completed our technical evaluation of the available data and have incorporated the appropriate changes into the enclosed copies. A description of the changes with the corresponding affected portions of the FIS and FIRM is attached for your information and review.

Users of this FIRM should be aware that these maps have been computer generated. Once the FIS and FIRM are published in final format, the digital files containing the flood hazard data can be provided to your community for use in a computer mapping system. These files can be used in conjunction with other thematic data for floodplain management purposes, insurance determinations, and many other planning applications. In addition, your community may be eligible for additional credits under the Community Rating System if you implement your activities using digital mapping files.

The digital files containing the roads, road names, and corporate limits for Township of Clinton were obtained from STS Consultants, Ltd.

If you have any comments that might justify modifying our results, please use one copy of the enclosed map(s) to identify the area of concern and return it to us within 30 calendar days from the date of this letter. If you are in agreement with our findings, please respond with a letter stating that you have reviewed the accompanying material. If we do not receive any comments within 30 days, we will continue processing.

Following the 30-day review period, we will publish a notice of proposed Base (1% annual chance) Flood Elevation (BFE) determinations in your local newspaper. This notice will initiate a 90-day period during which your community may submit appeals or comments on the proposed BFEs reflected in the revised FIS and FIRM for your community. Following the 90-day appeal period and the resolution of any appeals, we will finalize the proposed BFEs and establish an effective date for the revised study.

If you have any questions, please contact the Director, Mitigation Division of the Federal Emergency Management Agency in Chicago, Illinois at (312) 408-5548.

Sincerely,

Frederick H. Sharrocks Jr., Chief
Hazard Identification Branch
Mitigation Directorate

Enclosures

cc: FEMA, Mitigation Division, Region V
State Coordinating Agency
Mr. Steve Cassin, Township of Clinton Director of Planning and Community Development
Mr. Bernard B. Sheff, STS Consultants, Ltd.

TOWNSHIP OF CLINTON, MACOMB COUNTY, MICHIGAN

The Flood Insurance Study (FIS) and Flood Insurance Rate Map (FIRM) for the Township of Clinton have been revised to incorporate updated hydrologic and hydraulic analyses of the Clinton River North Branch, the Clinton River Middle Branch, and the Miller Drain. These analyses were prepared for the Federal Emergency Management Agency (FEMA) by STS Consultants, Ltd.

In addition, a previously issued Letter of Map Revision dated March 20, 1995 and previously issued Letters of Map Revision Based on Fill dated April 20, 1993 and December 17, 1993 have been added to the FIS Report and FIRM in this revision.

The following is a summary of changes to the FIRM and FIS Report:

FIRM number 260121, panels 0005 and 0010

The 1% (100-year) annual chance floodplain and floodway and the 0.2% (500-year) annual chance floodplain have been revised to reflect the updated hydrologic and hydraulic analyses along the Clinton River North Branch, the Clinton River Middle Branch, and the Miller Drain for their entire lengths within the community. The Base (1% annual chance) Flood Elevations have increased along Clinton River Middle Branch to reflect these updated hydrologic and hydraulic analyses.

FIS Report

The FIS Report, including Table 2 (Floodway Data) and Flood Profiles 07P through 13P, has been revised to reflect the aforementioned updated analyses.

PRELIMINARY
SUMMARY OF MAP ACTIONS

Community:	Township of Clinton, Michigan
Community No.:	260121
Revised Map Panels:	0005
Date Issued:	July 22, 1997
Page No.:	1 of 2

To assist your community in maintaining the Flood Insurance Rate Map (FIRM), we have summarized below the previous Letter of Map Change (LOMC) actions (i.e., Letters of Map Revision (LOMRs) and Letters of Map Amendment (LOMAs)) that will be affected by the preparation of the enclosed revised FIRM panels.

1. LOMRs and LOMAs Incorporated

The LOMRs and LOMAs listed below have been incorporated into and are reflected on the preliminary FIRM. However, until the revised FIRM becomes effective, the LOMRs and LOMAs will remain in effect.

LOMC	Case No.	Date Issued	Project Identifier	New Panel	New Zone
LOMR-F	93-05-664A	April 20, 1993	Knollwood Pointe Condos	0005	
LOMR	95-05-252P	March 20, 1995	Diamond Pointe Condos	0005	
LOMR-F	93-05-108A	December 17, 1993	Part of the NE 1/2 of Section 8, Town 2 North, Range 13 East - Hidden Brook Farm	0005	

2. LOMRs and LOMAs Not Incorporated

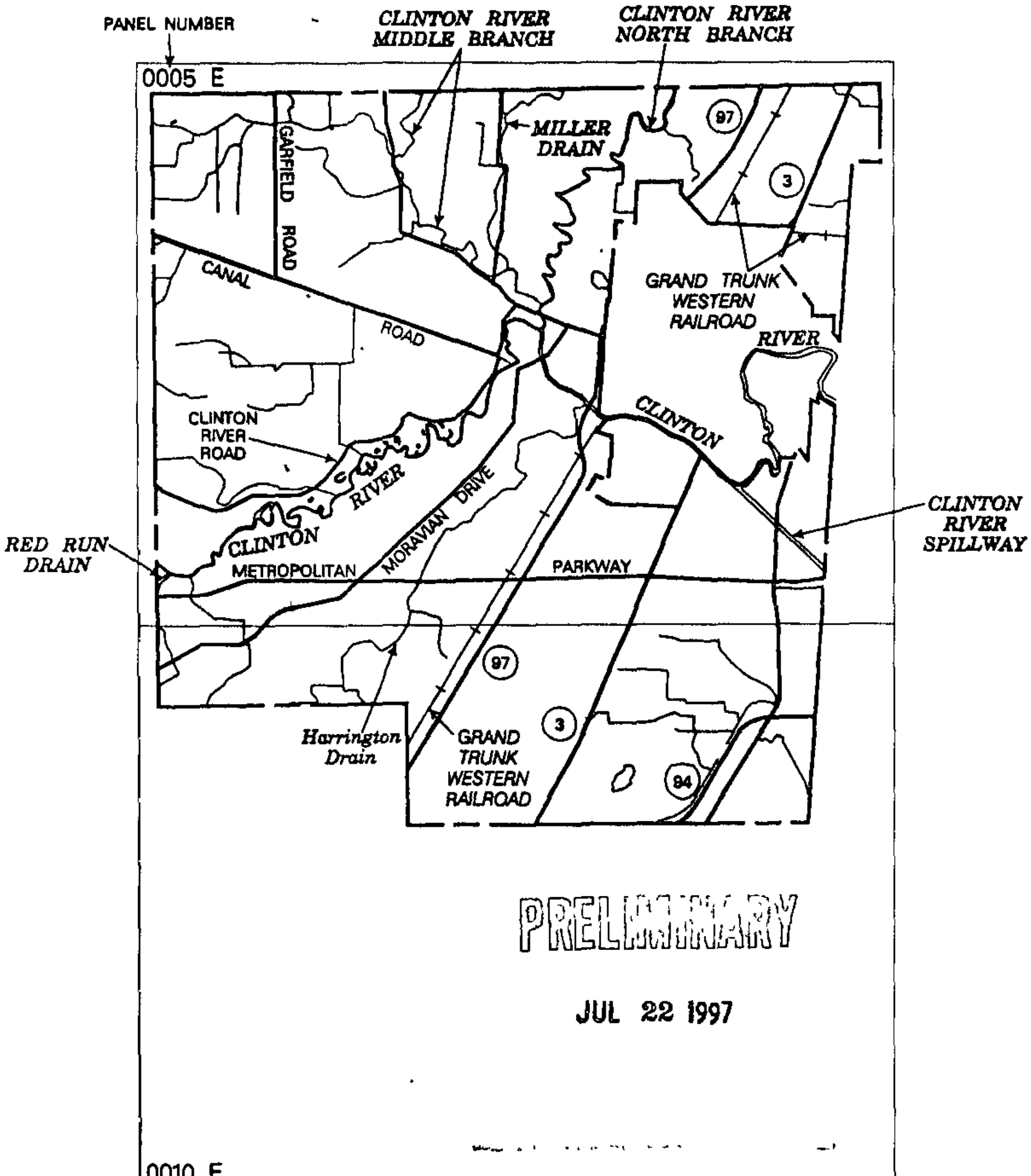
The LOMRs and LOMAs listed below have not been reflected on the preliminary FIRM. This is either due to scale limitations of the FIRM, or because the LOMR or LOMA issued determined that the lots or structures involved are out of the Special Flood Hazard Area, as shown on the FIRM. These LOMRs and LOMAs will be revalidated free of charge the day after the revised map panels become effective.

LOMC	Case No.	Date Issued	Project Identifier	New Panel	New Zone
LOMR-F	97-05-1936A	May 15, 1997	Pebble Point Condominiums Parcel SW 1/4, Section 19	0005	
LOMA	97-05-2120A	March 14, 1997	Steeplechase Condos No. 2 - Lot 80 - 15911 Arabian Court	0005	
BADL	93-05-077P	January 9, 1993	Groth Drain - Knollwood Pointe Condos	0005	
LOMA	94-05-0142W	April 28, 1994	Lot 16, Shangri-La subdivision - 35600 Shangri-La	0010	

3. LOMRs and LOMAs Superseded

The LOMRs and LOMAs listed below have not been reflected on the preliminary FIRM because they have been superseded by new detailed flooding data. When the revised FIRM becomes effective, these LOMRs and LOMAs will no longer be in force.

LOMC	Case No.	Date Issued	Project Identifier	New Panel	New Zone
LOMR-F	96-05-2730A	August 23, 1996	Lot 397 - North Branch Valley subdivision No. 6 - 42916 Biland Drive	0005	
LOMA	97-05-088A	November 12, 1996	Lot 559 - North Branch Valley subdivision No. 8 - 20864 Moyer Drive	0005	
LOMA	96-05-3438A	December 5, 1996	Rivergate Farms subdivision	0005	
LOMA	96-05-1984A	April 15, 1996	20140 Cass Avenue	0005	
LOMA	96-05-3004A	October 3, 1996	43269 Brooks Drive	0005	
LOMA	97-05-2410A	June 12, 1997	Lot 143 - Rivergate subdivision 44373 Thunder Bay	0005	
LOMA	96-05-3440A	November 8, 1996	Lots 28-32, portions of Lots 1-21 Rivergate Woods subdivision	0005	
LOMA	93-05-0194W	August 25, 1993	42733 Heydenreich Road	0005	



NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

TOWNSHIP OF
CLINTON,
MICHIGAN
MACOMB COUNTY

MAP INDEX

PANELS PRINTED: 5, 10

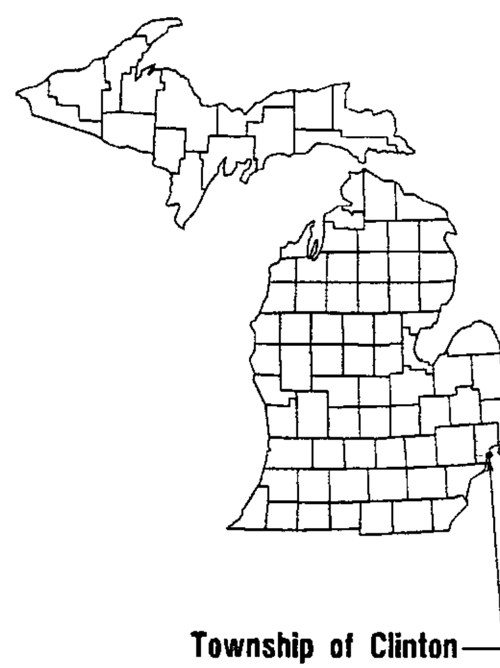
COMMUNITY - PANEL NUMBERS
260121 0005 - 0010

MAP REVISED:

Federal Emergency Management Agency

FLOOD INSURANCE STUDY

TOWNSHIP OF CLINTON, MICHIGAN
MACOMB COUNTY



PRELIMINARY

JUL 22 1997

REVISED:

Federal Emergency Management Agency

COMMUNITY NUMBER - 260121

NOTICE TO
FLOOD INSURANCE STUDY USERS

Communities participating in the National Flood Insurance Program have established repositories of flood hazard data for floodplain management and flood insurance purposes. This Flood Insurance Study (FIS) may not contain all data available within the repository. It is advisable to contact the community repository for any additional data.

Part or all of this FIS may be revised and republished at any time. In addition, part of this FIS may be revised by the Letter of Map Revision process, which does not involve republication or redistribution of the FIS. It is, therefore, the responsibility of the user to consult with community officials and to check the community repository to obtain the most current FIS components.

FIS Effective Date:

Revised FIS Dates:

This preliminary FIS report does not include unrevised Floodway Data Tables or unrevised Flood Profiles. These Floodway Data Tables and Flood Profiles will appear in the final FIS report.

TABLE OF CONTENTS

1 0 INTRODUCTION

1 1 Purpose of Study

This Flood Insurance Study (FIS) revises and updates a previous FIS/Flood Insurance Rate Map (FIRM) for the Township of Clinton, Macomb County, Michigan This information will be used by the Township of Clinton to update existing floodplain regulations as part of the Regular Phase of the National Flood Insurance Program (NFIP). The information will also be used by local and regional planners to further promote sound land use and floodplain development

In some States or communities, floodplain management criteria or regulations may exist that are more restrictive or comprehensive than the minimum Federal requirements In such cases, the more restrictive criteria take precedence and the State (or other jurisdictional agency) will be able to explain them.

1 2 Authority and Acknowledgments

The sources of authority for this FIS are the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973

For the original, February 1979 FIS, and the August 1, 1979, FIRM (hereinafter referred to as the 1979 FIS), the hydrologic and hydraulic analyses were prepared by Johnson and Anderson, Inc., for the Federal Insurance Administration (FIA), under Contract No H-3969 This work was completed in November 1977

For the January 2, 1992, FIS, the hydrologic and hydraulic analyses were prepared by the U S. Army Corps of Engineers (USACE), Detroit District, for the Federal Emergency Management Agency (FEMA), under Inter-Agency Agreement No EMW-89-E-2994, Project Order No. 4

For this revision, the hydrologic and hydraulic analyses for the township were prepared by STS Consultants, Ltd., for FEMA, under Contract No EMW-91-C-3361 This work was completed in July 1994

The digital base map files were provided by the State of Michigan, Department of Natural Resources, P O Box 30028, Lansing, Michigan 48909 These files were compiled by the Department of Natural Resources at a scale of 1 24,000 from U.S Geological Survey (USGS) 7 5 Minute Topographic Maps on a stable base and updated using aerial photographs Additional information was added in and around the floodplains from the previously compiled FIS for the Township of Clinton. The digital FIRM was produced in Universal Transverse Mercator coordinates referenced to the North American Datum of 1927 and the Clarke 1866 spheroid

1.3 Coordination

The purpose of an initial Consultation Coordination Officer's (CCO) meeting is to discuss the scope of the FIS. A final CCO meeting is held to review the results of the study.

For the 1979 FIS, an initial CCO meeting was held in March 1976, and a final CCO meeting was held on September 20, 1978. Both of these meetings were attended by representatives of the township, the Michigan Department of Natural Resources, Johnson and Anderson, Inc., and the FIA.

For this revision, the Township of Clinton was notified by FEMA in a letter dated January 9, 1997, that its FIS would be revised using the analyses prepared by STS Consultants, Ltd.

2.0 AREA STUDIED

2.1 Scope of Study

This FIS covers the incorporated area of the Township of Clinton, Macomb County, Michigan. The area of study is shown on the Vicinity Map (Figure 1).

For the 1979 FIS, the following streams were studied by detailed methods: the Clinton River, the Clinton River Spillway, Clinton River North Branch, Clinton River Middle Branch, Miller Drain, Harrington Drain, and Red Run Drain.

For the January 2, 1992, FIS, the Clinton River and Red Run Drain were restudied in detail.

For this revision, the following streams were restudied by detailed methods: Miller Drain, Clinton River Middle Branch, and Clinton River North Branch for their entire lengths within the community.

All or portions of the following flooding sources were studied by approximate methods: Crooked Brook Drain, Daus Drain, Groth Drain, Kenner Drain, Teak Drain, Utica Drain, and several unnamed tributaries. Approximate analyses were used to study those areas having a low development potential or minimal flood hazards. The scope and methods of study were proposed to, and agreed upon by, FEMA and the Township of Clinton.

This revision incorporates the determination of a Letter of Map Revision (LOMR) issued by FEMA, dated March 20, 1995, to reflect the existance of an 84-inch culvert and placement of fill along Crooked Brook Drain in the vicinity of Diamond Pointe Cluster Homes.

This revision also incorporates the determinations of LOMRs based on fill issued by FEMA, dated April 20, 1993, to reflect the increased elevation by placement of fill of property along Groth Drain on Pointe Drive, Pointe Circle, and Pointe Court, known as Knollwood Condominiums; and dated December 17, 1993, to reflect the elevation by placement of fill of property along an unnamed tributary to the Clinton River Middle Branch, described as "Part of the NE ½ of Section 8, Town 2 North, Range 13 East."

2.2 Community Description

The Township of Clinton is located in southern Macomb County, which is in the southeastern portion of Michigan's lower peninsula. The communities of Fraser, Roseville, and St. Clair Shores bound Clinton on the south. On the west, north, and east, Clinton is bounded by the City of Sterling Heights, the Township of Macomb, and the Township of Harrison, respectively. Clinton is also bordered on the east by the City of Mount Clemens. Portions of Clinton are within six miles northeast of the City of Detroit. The population of Clinton was 26,688 in 1960, increasing to 48,865 in 1970. The 1994 population was estimated at 63,000.

The development of Clinton consists primarily of medium density housing in the form of large subdivisions and apartment complexes. Commercial development is typically restricted to strip areas along major highways and regional shopping centers.

The climate of the township is affected by the proximity of the Great Lakes, which act to modify temperature extremes throughout the year. The maximum monthly average of 72 degrees Fahrenheit (°F) occurs in July, and the minimum monthly average of 24°F occurs in January. The average annual precipitation of 28 inches includes approximately 30 inches of snow.

Clinton is located in an area of fairly level topography, consisting primarily of post-glacial lake beds and glacial moraines. The soils of the Clinton River basin are generally clays, mixed with varying amounts of sand and gravel.

Except for the limited areas on the southeast and extreme northeast side of Clinton, all streams within the township are part of the Clinton River basin. The Clinton River flows from the western township boundary in a northeasterly direction to a place known as the Forks Area (the point where the Clinton River, Middle Branch, and North Branch come together within a short distance), located less than a mile west of the Mount Clemens city limits. It then flows in a southeasterly direction through portions of both Clinton and Mount Clemens. Near the boundary between south-central Mount Clemens and Clinton, the Clinton River turns north for about a mile then east, flowing through another part of the City of Mount Clemens, then again through Clinton to its point of exit from the township. The Clinton River Spillway flows in a southeasterly direction from the point where the Clinton River turns north to its point of exit from Clinton. In a west to east order, Clinton River Middle Branch, Miller Drain, and Clinton River North Branch enter Clinton from the north flowing to the Forks Areas in a southeasterly, southerly, and south-southeasterly direction, respectively. Harrington Drain flows from the City of Fraser on the southwest side of Clinton in a northeasterly direction to its confluence with the Clinton River, near the city limits of Mount Clemens. The Red Run Drain flows for only a limited distance in the Township of Clinton from the corporate boundary on the west to its confluence with the Clinton River.

With the exception of the Clinton River Spillway, floodplain development has occurred to a minor extent along all of the streams studied in detail. Some flooding from a 100-year event is projected for scattered residential areas throughout the township. In a number of areas, the flooding will be confined to the yards of residential areas. The three most developed areas expected to flood include areas adjacent to the south and east sides of the Forks Area, downstream of Garfield Road for approximately 2,000 feet along the north bank of the Clinton River and downstream of Hayes Road for approximately 4,000 feet along the north bank of the Clinton River.

The increased runoff and, therefore, peak flows, for the Clinton River Middle Branch, specifically in Shelby and Washington Townships, is probably a result of a population increase of 71-percent for the watershed.

2.3 Principal Flood Problems

Some local flooding has occurred in areas within the Clinton River basin due to inadequate storm drainage. This type of flooding is usually experienced during the late winter and early spring, primarily due to snowmelt or rainfall on frozen or saturated ground. On the other hand, some floods have been a result of localized, intense rainfall during the summer.

Large magnitude floods have occurred within the Clinton River basin several times since the beginning of this century. Although the greatest observed flood occurred in 1902, the greatest flood of record occurred in April 1947. Other significant floods of less magnitude occurred in June 1905, August 1914, February 1922, February 1938, May 1943, May 1948, April 1956, and June 1968. The major floods of record are tabulated below and compared with the 10- and 100-year floods in this report. Photographs of the July 1967 flood and the June 1968 flood are shown in Figures 2 and 3.

Year	Flow at Mount Clemens Gage Located at Moravian Drive cubic feet per second (cfs)	Observed Gage Height feet
1947	21,200	23.55
1943	17,700	21.89
1968	14,600	18.30
1938	13,900	20.70
1948	13,500	19.89
1956	13,400	17.74
100-Year	21,300	21.71
10-Year	12,600	17.23

2.4 Flood Protection Measures

The principal flood protection measure has been the construction of the Clinton River Spillway. During flood flow, it is estimated that better than 65 percent of the Clinton River discharge passes down the Clinton River Spillway instead of following the original channel. The spillway, 2.1 miles long, bypasses the last 8.7 miles of the river during high river stages and empties directly into Lake St. Clair.

On Red Run Drain, a number of changes have been made outside the study limits which would affect flood flows. A discussion of these changes can be found in the Flood Insurance Study for the City of Warren (Reference 1). The most substantial change near and in Clinton is the improvement of the channel hydraulic characteristics of Red Run Drain. Near Clinton, the improvements completed in 1954 included a trapezoidal channel with one vertical and two horizontal side slopes and a bottom width of 100 to 125 feet.

For Harrington Drain, outside of the study limits, several measures have been taken to reduce flood hazards. These include a reduction in drainage area, the addition of a lift station at a reservoir in the City of Fraser, and a new pressure main to the Sweeney Drain

3.0 ENGINEERING METHODS

For the flooding sources studied in detail in the community, standard hydrologic and hydraulic study methods were used to determine the flood hazard data required for this study. Flood events of a magnitude which are expected to be equaled or exceeded once on the average during any 10-, 50-, 100-, or 500-year period (recurrence interval) have been selected as having special significance for floodplain management and for flood insurance rates. These events, commonly termed the 10-, 50-, 100-, and 500-year floods, have a 10, 2, 1, and 0.2 percent chance, respectively, of being equaled or exceeded during any year. Although the recurrence interval represents the long term average period between floods of a specific magnitude, rare floods could occur at short intervals or even within the same year. The risk of experiencing a rare flood increases when periods greater than 1 year are considered. For example, the risk of having a flood which equals or exceeds the 100-year flood (1 percent chance of annual exceedence) in any 50-year period is approximately 40 percent (4 in 10), and, for any 90-year period, the risk increases to approximately 60 percent (6 in 10). The analyses reported herein reflect flooding potentials based on conditions existing in the community at the time of completion of this study. Maps and flood elevations will be amended periodically to reflect future changes.

3.1 Hydrologic Analyses

Hydrologic analyses were carried out to establish the peak discharge-frequency relationships for floods of the selected recurrence intervals for each stream studied in detail in the community.

For the 1979 FIS, the frequency discharge data were computed using the Unit Hydrograph Infiltrating Capacity Method developed by Dr. Ernest F. Brater (Reference 2). This method utilizes relationships of streamflow, drainage area, and population density. Urbanization and channel conditions were considered for 1976 conditions. As urbanization affects imperviousness and channel conditions, flows can be expected to increase. Two other methods, a log-Pearson Type III gage analysis and the Soil Conservation Service (SCS) flood routing techniques, were used in conjunction with the Brater method (References 3 and 4).

The following gages were used for the log-Pearson Type III analysis: The Fraser Gage on the Clinton River 800 feet downstream of Garfield Road, from 1947 to present; the Mount Clemens Gage on the Clinton River 20 feet downstream of Moravian Drive, from 1934 to present; the gage near Mount Clemens on the Clinton River North Branch 30 feet upstream from Michigan Highway 59 (M-59), from 1947 to present; and the gage at Macomb on the Clinton River Middle Branch just downstream of Romeo Plank Road, 1959 to present.

For the January 2, 1992, revision, gage analyses of the Clinton River were performed using the USACE HEC-WRC computer program (Reference 5). Peak discharges along Red Run Drain were obtained from the FIS for the City of Sterling Heights, Michigan (Reference 6).

For this revision of Miller Drain and the Middle and North Branches of the Clinton River, the 10-, 50-, 100-, and 500-year flood events were simulated using the HEC-2 computer model. The existing North Branch gage No. 04164500 (approximately 30 feet upstream of the upstream study limit) data was extended using flows at the downstream gage No. 04165500 in the City of Mt. Clemens.

A summary of the drainage area-peak discharge relationships for the streams studied by detailed methods is shown in Table 1, "Summary of Discharges."

TABLE 1 - SUMMARY OF DISCHARGES

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs)			
		10-YEAR	50-YEAR	100-YEAR	500-YEAR
CLINTON RIVER					
Just downstream of Clinton River Spillway	N/A	3,600	5,900	6,800	10,000
Moravian Drive	743	12,600	19,000	21,300	28,900
Just upstream of Clinton River North Branch	465	8,580*	13,300*	15,000*	19,800*
At Kukuk Drain	461	8,730*	13,500*	15,200*	20,000*
At Cranberry Marsh Drain	459	8,700*	13,400*	15,200*	19,900*
At Fraser Gage	458	8,830	13,600	15,400	20,200
Just upstream of Red Run Drain	318	4,720	7,280	8,220	11,300
RED RUN DRAIN					
At mouth	140.2	11,200	17,200	19,100	25,700
CLINTON RIVER SPILLWAY					
Just downstream of Clinton River	**	9,000	13,100	14,500	18,900
CLINTON RIVER NORTH BRANCH					
Downstream of confluence of Clinton River Middle Branch	278	6,710	10,200	11,600	15,500
Upstream of confluence of Clinton River Middle Branch	201	5,250	8,260	9,590	13,000
Downstream of State Route 59	199	5,440	8,410	9,720	13,100
Upstream of State Route 59	**	5,440	8,970	10,700	15,300

* Decrease in discharge is due to storage effect of floodplain
**Data not available

TABLE 1 - SUMMARY OF DISCHARGES - continued

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs) 10-YEAR	50-YEAR	100-YEAR	500-YEAR
CLINTON RIVER MIDDLE BRANCH					
At mouth	71.21	2,190	3,540	4,240	5,900
Upstream of confluence with Clinton River North Branch	39.11	2,000	3,250	3,900	5,430
MILLER DRAIN					
At mouth	4.94	260	380	430	590
HARRINGTON DRAIN					
At mouth	5.95	930	1,320	1,520	2,140
Approximately 9,300 feet upstream of mouth	5.18	830	1,180	1,360	1,910
Just upstream of Vermander Drive	4.35	720	1,120	1,180	1,660
Just upstream of Teske Drive	3.18	560	800	920	1,300
Just upstream of Sweeney Drain	1.40	380	540	620	870

3.2 Hydraulic Analyses

Analyses of the hydraulic characteristics of flooding from the sources studied were carried out to provide estimates of the elevations of floods of the selected recurrence intervals.

Two detailed cross sections of Miller Drain, Middle and North Branches of the Clinton River utilized topographic aerial maps at a scale of 1"=400', with a contour interval of 2 feet (Reference 7). All other cross sections for the flooding sources studied by detailed methods were obtained from field surveys. All bridges, dams, and culverts were field surveyed to obtain elevation data and structural geometry.

Locations of selected cross sections used in the hydraulic analyses are shown on the Flood Profiles (Exhibit 1). For stream segments for which a floodway was computed (Section 4.2), selected cross-section locations are also shown on the FIRM (Exhibit 2).

Water-surface elevations of floods of the selected recurrence intervals were computed using the USACE HEC-2 step-backwater computer program (Reference 8). Starting water-surface elevations were calculated using the backwater curves started at Lake St. Clair and carried on up to the mouth of each stream. From the profiles, stage discharge curves were established at the mouth of each stream. Flood profiles were drawn showing computed water-surface elevations for floods of the selected recurrence intervals.

Roughness factors (Manning's "n") used in the hydraulic computations were based on conditions in the watersheds typical of those for the projected flood season and were chosen by engineering judgment. The following tabulation shows the channel and overbank "n" values for the streams studied by detailed methods:

Stream	Channel "n"	Overbank "n"
Clinton River	0.025-0.055	0.020-0.120
Red Run Drain	0.025-0.055	0.020-0.120
Clinton River Spillway	0.025-0.055	0.020-0.120
Clinton River North Branch	0.030-0.080	0.040-0.100
Clinton River Middle Branch	0.020-0.070	0.040-0.090
Miller Drain	0.045-0.068	0.040-0.100
Harrington Drain	0.025-0.055	0 020-0.120

The hydraulic analyses for this study were based on unobstructed flow The flood elevations shown on the profiles are thus considered valid only if hydraulic structures remain unobstructed, operate properly, and do not fail.

In areas studied by approximate methods, the 100-year flood was determined by either extending the flow-stream depth relationship determined in the detailed study area: relating flow, area, and depth to a similar one studied by detailed methods: or by using a Map of Flood Prone Areas (Reference 9).

All elevations are referenced to the National Geodetic Vertical Datum of 1929 (NGVD). Elevation reference marks used in this study, and their descriptions, are shown on the FIRMs.

4.0 FLOODPLAIN MANAGEMENT APPLICATIONS

The NFIP encourages State and local governments to adopt sound floodplain management programs. Therefore, each FIS generally provides 100-year flood elevations and delineations of the 100- and 500-year floodplain boundaries and 100-year floodway to assist in developing floodplain management measures.

4.1 Floodplain Boundaries

To provide a national standard without regional discrimination, the 1-percent annual chance (100-year) flood has been adopted by FEMA as the base flood for floodplain management purposes. The 0.2-percent annual chance (500-year) flood is employed to indicate additional areas of flood risk in the community. For the streams studied in detail, the 100- and 500-year floodplains have been delineated using the flood elevations determined at each cross section.

In the 1979 FIS, and for the January 2, 1992, revision, the boundaries were interpolated between cross sections using photogrammetric methods and topographic maps at scales of 1:9,600 and 1:24,000 with contour intervals of 2 feet and 5 feet, respectively (References 7 and 9).

For this revision, the boundaries were interpolated between cross sections, using topographic maps at a scale of 1:9,600 with a contour interval of 2 feet (Reference 7).

For the streams studied by approximate methods, the 100-year floodplain boundaries were taken from the previously printed FIS/FIRM for the Township of Clinton (Reference 10).

The 100- and 500-year floodplain boundaries are shown on the FIRM (Exhibit 2). On this map, the 100-year floodplain boundary corresponds to the boundary of the areas of special flood hazards (Zones A and AE), and the 500-year floodplain boundary corresponds to the boundary of areas of moderate flood hazards. In cases where the 100- and 500-year floodplain boundaries are close together, only the 100-year floodplain boundary has been shown. Small areas within the floodplain boundaries may lie above the flood elevations but cannot be shown due to limitations of the map scale and/or lack of detailed topographic data.

For the streams studied by approximate methods, only the 100-year floodplain boundary is shown on the FIRM (Exhibit 2).

4.2 Floodways

Encroachment on floodplains, such as structures and fill, reduces flood-carrying capacity, increases flood heights and velocities, and increases flood hazards in areas beyond the encroachment itself. One aspect of floodplain management involves balancing the economic gain from floodplain development against the resulting increase in flood hazard. For purposes of the NFIP, a floodway is used as a tool to assist local communities in this aspect of floodplain management. Under this concept, the area of the 100-year floodplain is divided into a floodway and a floodway fringe. The floodway is the channel of a stream, plus any adjacent floodplain areas, that must be kept free of encroachment so that the 100-year flood can be carried without substantial increases in flood heights. Minimum Federal standards limit such increases to 1.0 foot, provided that hazardous velocities are not produced. The floodways in this study are presented to local agencies as a minimum standard that can be adopted directly or that can be used as a basis for additional floodway studies.

The floodways presented in this study were computed for certain stream segments on the basis of equal conveyance reduction from each side of the floodplain. Floodway widths were computed at cross sections. Between cross sections, the floodway boundaries were interpolated. The results of the floodway computations are tabulated for selected cross sections (Table 2) The computed floodway is shown on the FIRM (Exhibit 2). In cases where the floodway and 100-year floodplain boundaries are either close together or collinear, only the floodway boundary is shown. Portions of the floodway for the Clinton River, the Clinton River Spillway, and Red Run Drain extend beyond the corporate limits.

Encroachment into areas subject to inundation by floodwaters having hazardous velocities aggravates the risk of flood damage, and heightens potential flood hazards by

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION (FEET NGVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Clinton River North Branch								
A	300[1]	520	5,244	2.2	593.3	593.3	593.4	0.1
B	944[1]	276	3,377	3.4	593.8	593.8	593.9	0.1
C	1,650[1]	1,206	7,692	1.2	594.2	594.2	594.3	0.1
D	4,670[1]	1,083	7,143	1.3	594.7	594.7	594.8	0.1
E	7,680[1]	969	10,063	1.0	595.0	595.0	595.1	0.1
F	10,100[1]	845	7,764	1.2	595.2	595.2	595.3	0.1
G	11,580[1]	609	3,962	2.4	595.4	595.4	595.5	0.1
H	14,670[1]	633	6,703	1.4	596.4	596.4	596.5	0.1
I	17,820[1]	1,106	10,020	1.0	596.7	596.7	596.8	0.1
J	19,270[1]	252	2,995	4.0	596.8	596.8	596.9	0.1
K	19,401[1]	227	2,351	4.1	596.9	596.9	597.0	0.1
Clinton River Middle Branch								
A	1,420[2]	1,087	11,134	0.4	594.0	593.1[3]	593.2	0.1
B	3,220[2]	850	5,724	0.7	594.0	593.2[3]	593.3	0.1
C	5,050[2]	327	4,140	0.9	594.0	593.2[3]	593.3	0.1
D	6,134[2]	647	5,556	0.7	594.0	593.3[3]	593.4	0.1
E	8,150[2]	541	4,383	0.9	594.0	593.3[3]	593.4	0.1
F	10,180[2]	450	3,160	1.2	594.0	593.5[3]	593.6	0.1
G	10,895[2]	435	3,318	1.2	594.0	593.7[3]	593.8	0.1
H	11,390[2]	652	4,590	0.9	594.0	593.8[3]	593.9	0.1
I	11,800[2]	563	4,512	0.9	594.0	593.8[3]	593.9	0.1
J	14,640[2]	403	2,440	1.1	594.0	594.1	594.2	0.1
K	16,790[2]	141	924	3.0	594.6	594.6	594.7	0.1

[1]Feet above confluence with Clinton River
[2]Feet above confluence with Clinton River North Branch
[3]Elevation computed without consideration of backwater effects from Clinton River North Branch

TABLE 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWNSHIP OF CLINTON, MI
(MACOMB CO.)

FLOODWAY DATA

CLINTON RIVER NORTH BRANCH - CLINTON RIVER MIDDLE BRANCH

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION (FEET NGVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Harrington Drain (continued)								
AA	23,177[1]	71	426	1.5	606.0	606.0	606.0	0.0
AB	23,385[1]	189	590	1.1	606.7	606.7	606.7	0.0
AC	23,735[1]	165	598	1.0	606.8	606.8	606.8	0.0
AD	24,050[1]	232	873	0.7	606.9	606.9	606.9	0.0
Miller Drain								
A	850[2]	58	135	3.2	594.0	584.6[3]	584.7	0.1
B	1,095[2]	28	156	2.8	594.0	585.0[3]	585.1	0.1
C	2,435[2]	82	128	3.4	594.0	587.5[3]	587.5	0.0
D	3,385[2]	126	307	1.4	594.0	589.6[3]	589.7	0.1
E	4,985[2]	91	227	1.9	594.0	591.1[3]	591.2	0.1
F	6,739[2]	41	192	2.1	594.0	592.5[3]	592.6	0.1
G	8,639[2]	81	316	0.9	594.0	593.1[3]	593.2	0.1
H	10,349[2]	62	276	1.1	594.0	593.3[3]	593.4	0.1

[1]Feet above confluence with Clinton River
[2]Feet above confluence with Clinton River Middle Branch
[3]Elevation computed without consideration of backwater effects from Clinton River North Branch

TABLE 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWNSHIP OF CLINTON, MI
(MACOMB CO.)

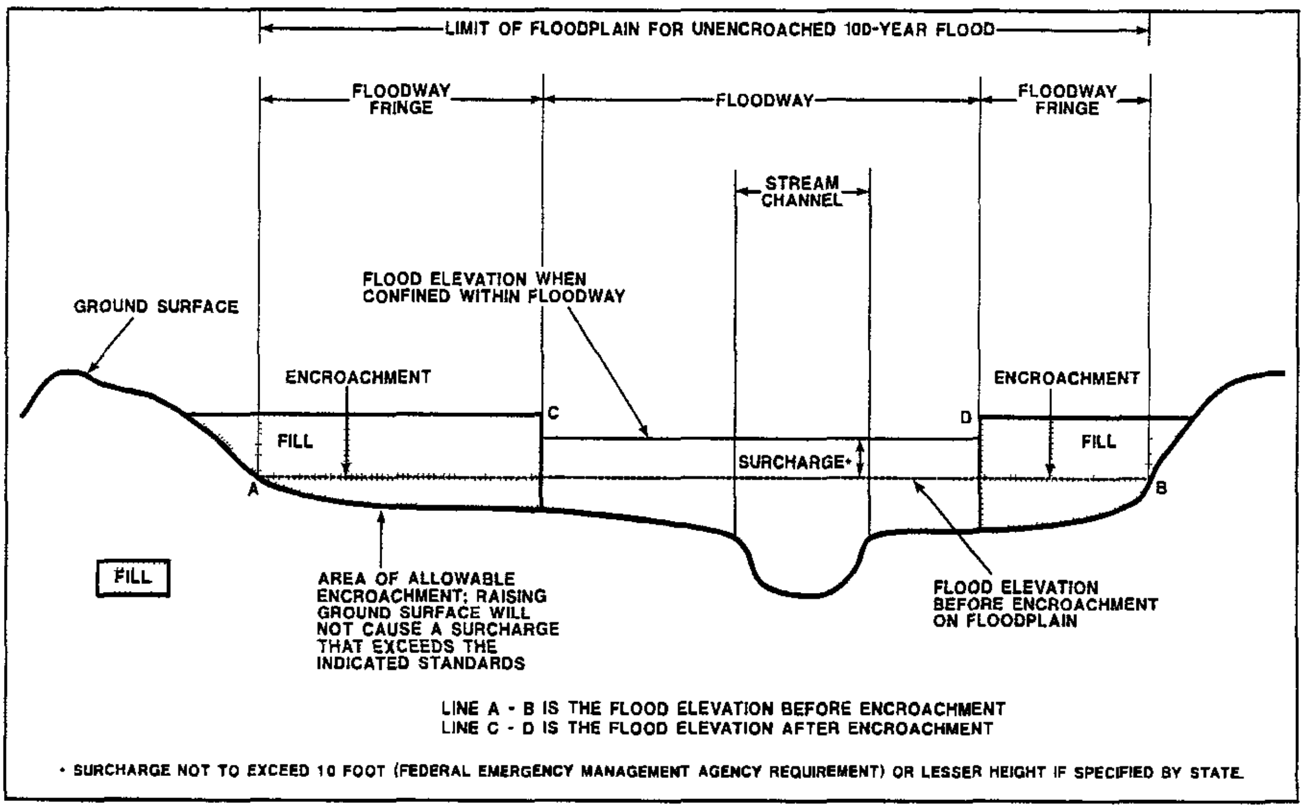
FLOODWAY DATA

HARRINGTON DRAIN - MILLER DRAIN

further increasing velocities. A listing of stream velocities at selected cross sections is provided in Table 2, "Floodway Data." To reduce the risk of property damage in areas where the stream velocities are high, the community may wish to restrict development in areas outside the floodway.

Near the mouths of streams studied in detail, floodway computations are made without regard to flood elevations on the receiving water body. Therefore, "Without Floodway" elevations presented in Table 2 for certain downstream cross sections of the Clinton River Middle Branch, Harrington Drain, and Miller Drain are lower than the regulatory flood elevations in that area, which must take into account the 100-year flooding due to backwater from other sources.

The area between the floodway and 100-year floodplain boundaries is termed the floodway fringe. The floodway fringe encompasses the portion of the floodplain that could be completely obstructed without increasing the water-surface elevation of the 100-year flood by more than 1.0 foot at any point. Typical relationships between the floodway and the floodway fringe and their significance to floodplain development are shown in Figure 4.



FLOODWAY SCHEMATIC Figure 4

5.0 INSURANCE APPLICATIONS

For flood insurance rating purposes, flood insurance zone designations are assigned to a community based on the results of the engineering analyses. The zones are as follows:

Zone A

Zone A is the flood insurance rate zone that corresponds to the 100-year floodplains that are determined in the FIS by approximate methods. Because detailed hydraulic analyses are not performed for such areas, no base flood elevations or depths are shown within this zone.

Zone AE

Zone AE is the flood insurance rate zone that corresponds to the 100-year floodplains that are determined in the FIS by detailed methods. In most instances, whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone AH

Zone AH is the flood insurance rate zone that corresponds to the areas of 100-year shallow flooding (usually areas of ponding) where average depths are between 1 and 3 feet. Whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone AO

Zone AO is the flood insurance rate zone that corresponds to the areas of 100-year shallow flooding (usually sheet flow on sloping terrain) where average depths are between 1 and 3 feet. Average whole-depths derived from the detailed hydraulic analyses are shown within this zone.

Zone A99

Zone A99 is the flood insurance rate zone that corresponds to areas of the 100-year floodplain that will be protected by a Federal flood protection system where construction has reached specified statutory milestones. No base flood elevations or depths are shown within this zone.

Zone V

Zone V is the flood insurance rate zone that corresponds to the 100-year coastal floodplains that have additional hazards associated with storm waves. Because approximate hydraulic analyses are performed for such areas, no base flood elevations are shown within this zone.

Zone VE

Zone VE is the flood insurance rate zone that corresponds to the 100-year coastal floodplains that have additional hazards associated with storm waves. Whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone X

Zone X is the flood insurance rate zone that corresponds to areas outside the 500-year floodplain, areas within the 500-year floodplain, and to areas of 100-year flooding where average depths are less than 1 foot, areas of 100-year flooding where the contributing drainage area is less than 1 square mile, and areas protected from the 100-year flood by levees. No base flood elevations or depths are shown within this zone.

Zone D

Zone D is the flood insurance rate zone that corresponds to unstudied areas where flood hazards are undetermined, but possible.

6.0 FLOOD INSURANCE RATE MAP

The FIRM is designed for flood insurance and floodplain management applications.

For flood insurance applications, the map designates flood insurance rate zones as described in Section 5.0 and, in the 100-year floodplains that were studied by detailed methods, shows selected whole-foot base flood elevations or average depths. Insurance agents use the zones and base flood elevations in conjunction with information on structures and their contents to assign premium rates for flood insurance policies.

For floodplain management applications, the map shows by tints, screens, and symbols, the 100- and 500-year floodplains. Floodways and the locations of selected cross sections used in the hydraulic analyses and floodway computations are shown where applicable.

7.0 OTHER STUDIES

FISs have been prepared for the Cities of Fraser, Mt. Clemens, Roseville, St. Clair Shores, Sterling Heights, Warren, and the Townships of Harrison and Macomb (References 11, 12, 13, 14, 6, 1, 15, and 16).

Because it is based on more up-to-date analyses, this FIS supersedes the previously printed FIS for the Township of Clinton (Reference 10).

8.0 LOCATION OF DATA

Information concerning the pertinent data used in the preparation of this study can be obtained by contacting FEMA, Mitigation Division, 175 West Jackson Boulevard, Fourth Floor, Chicago, Illinois 60604.

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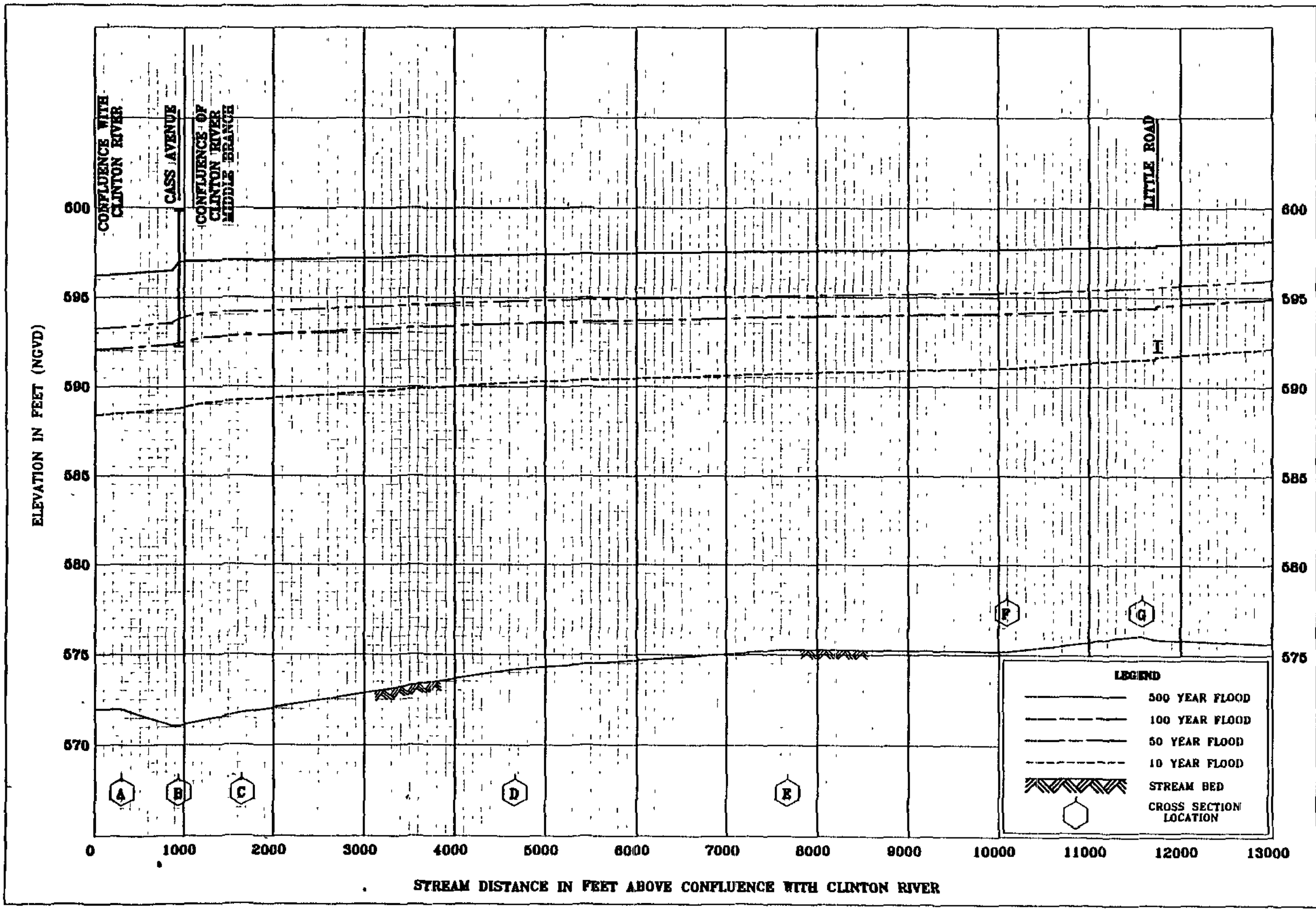

FLOOD PROFILES

CLINTON RIVER NORTH BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWNSHIP OF CLINTON, MI (MACOMB COUNTY)

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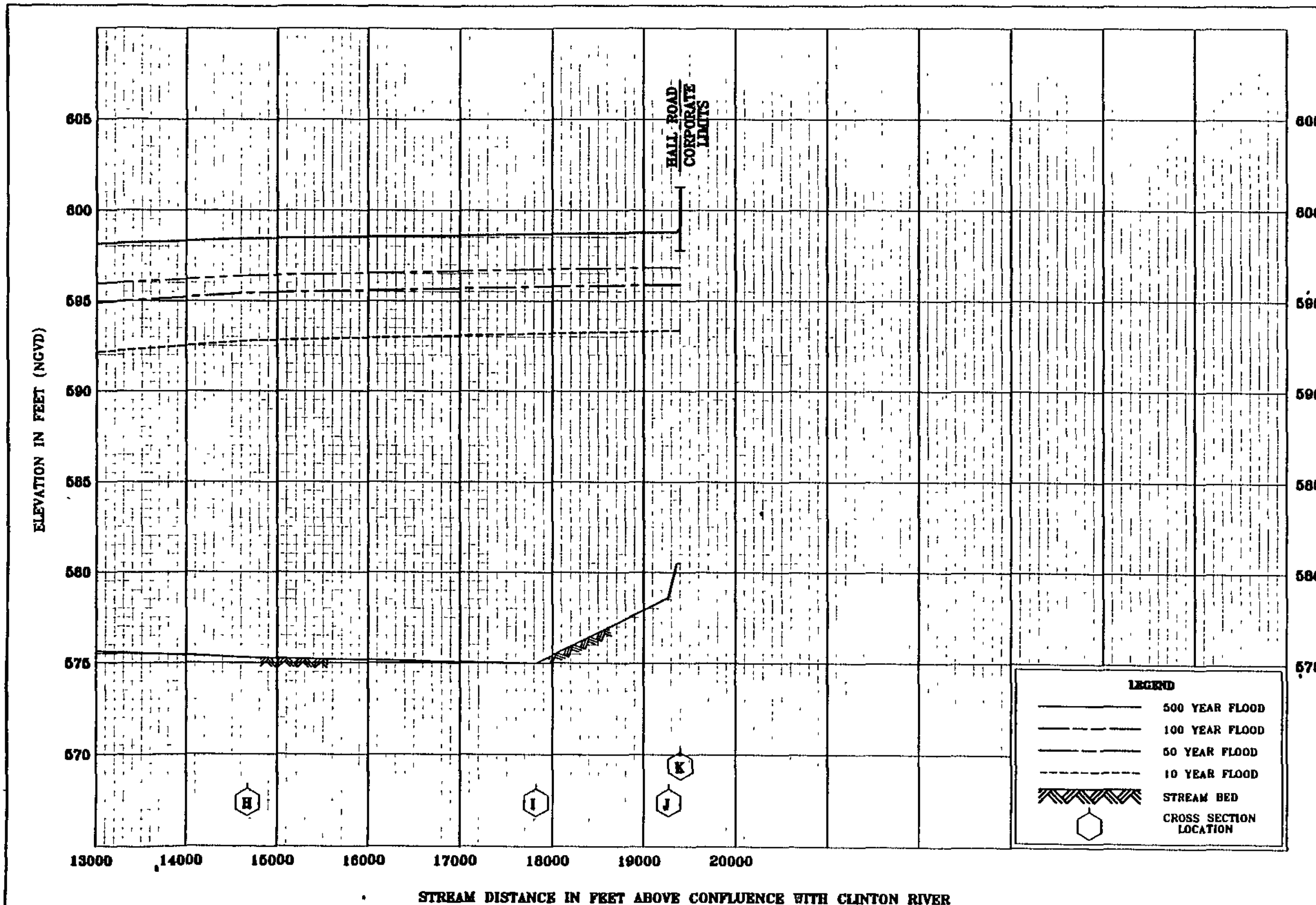


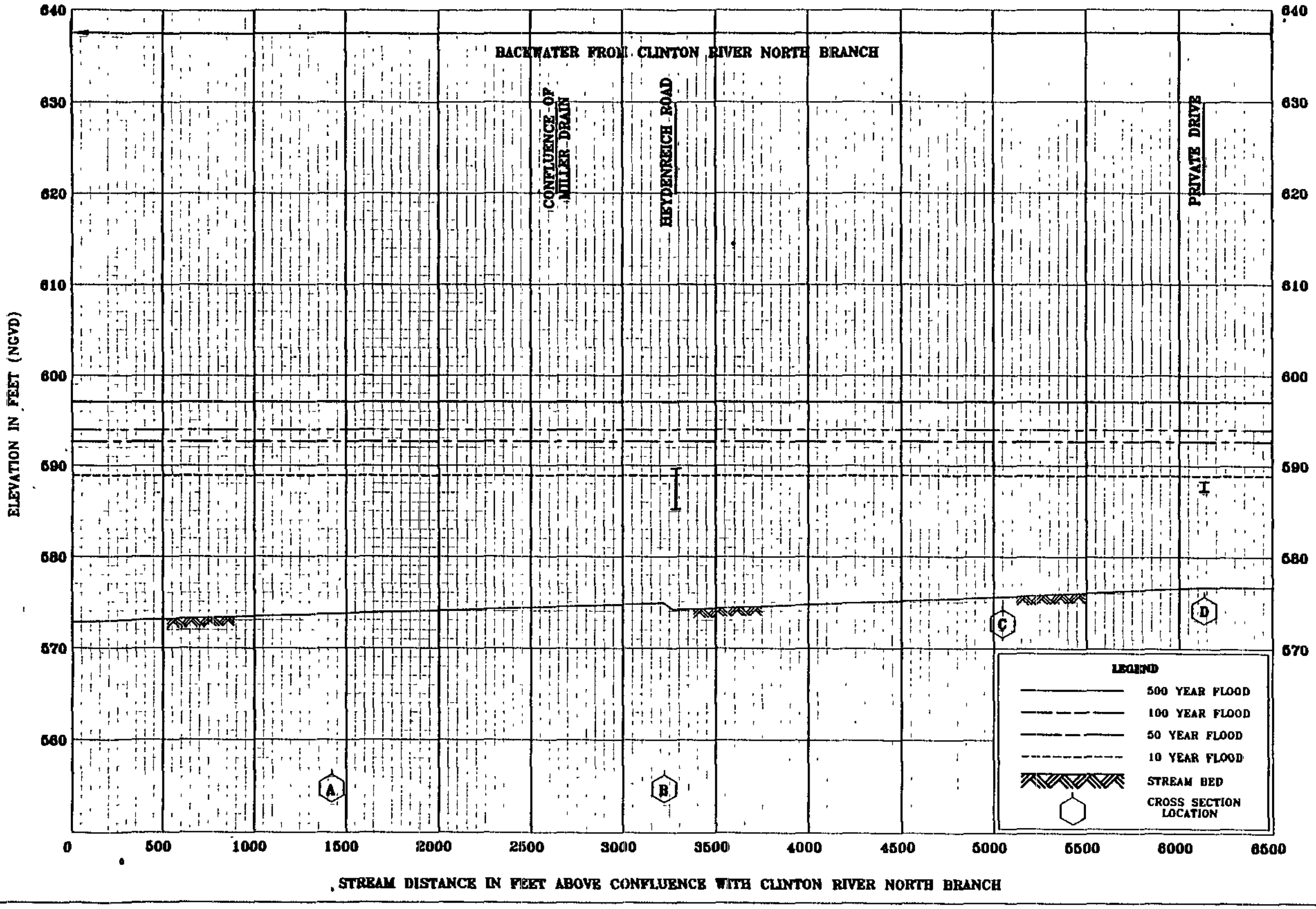
FLOOD PROFILES

CLINTON RIVER NORTH BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWNSHIP OF CLINTON, MI
(MACOMB COUNTY)

08P



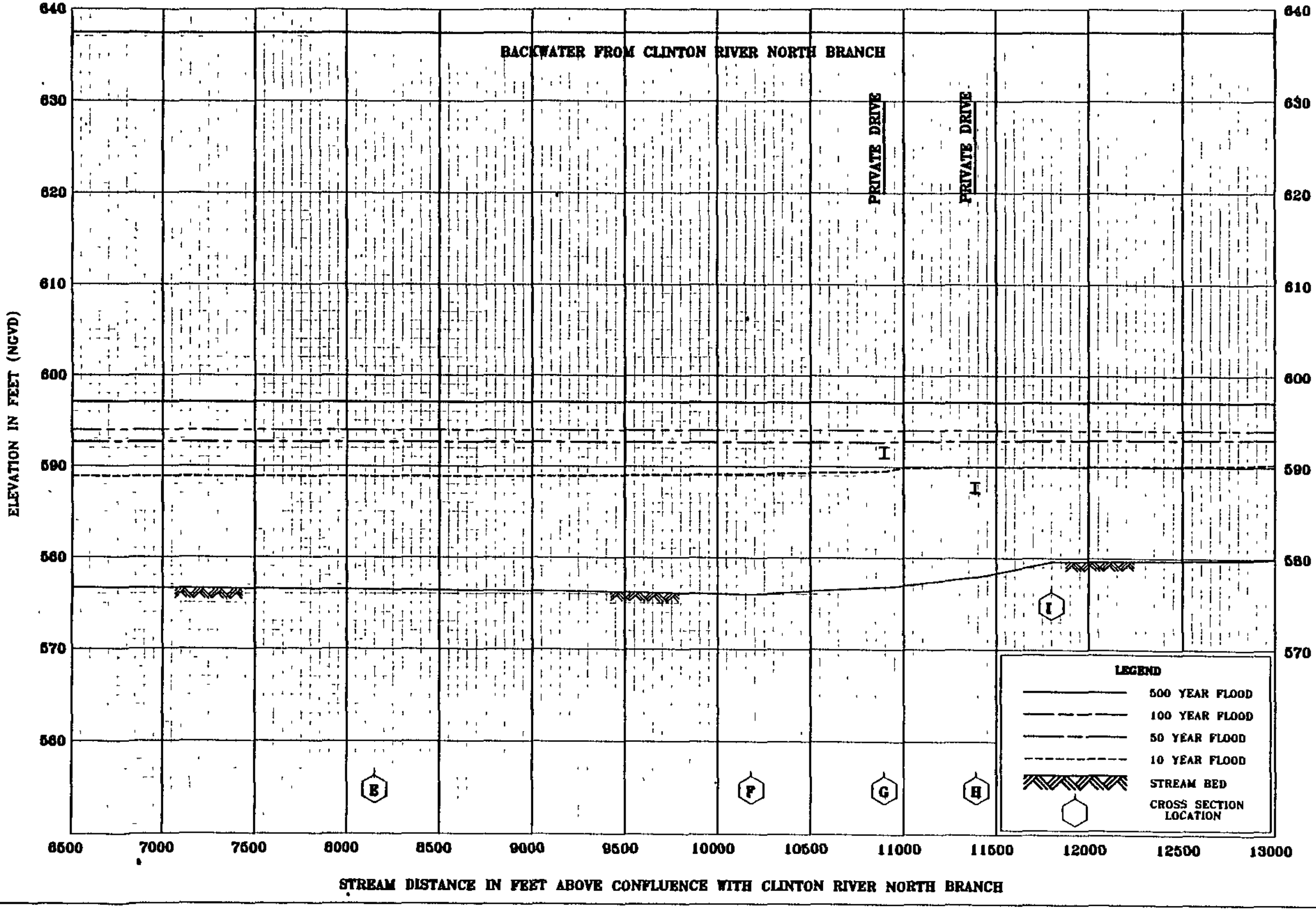
FLOOD PROFILES

CLINTON RIVER MIDDLE BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWNSHIP OF CLINTON, MI (MACOMB COUNTY)

09P



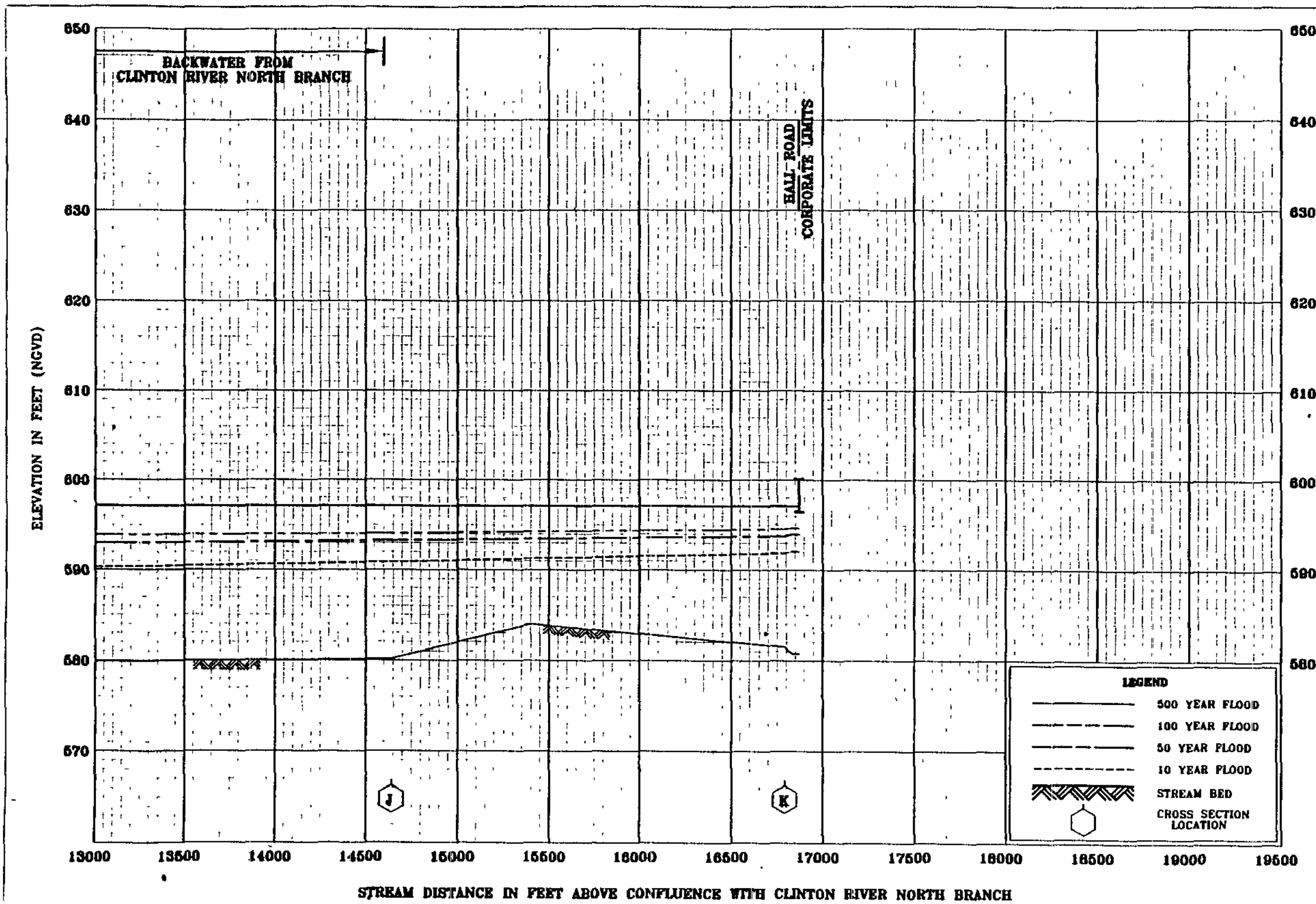
FLOOD PROFILES

CLINTON RIVER MIDDLE BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWNSHIP OF CLINTON, MI
(MACOMB COUNTY)

10P

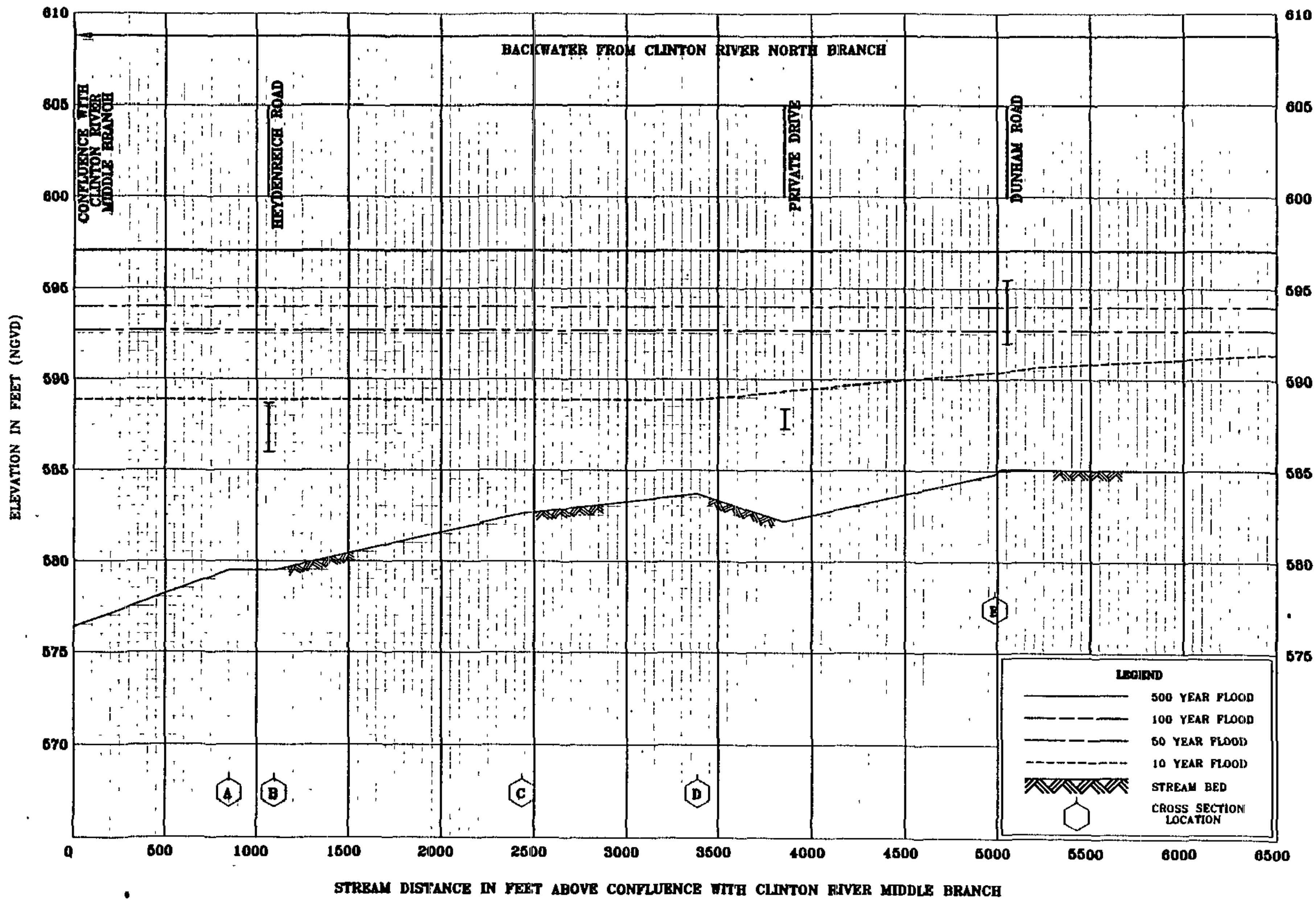


FLOOD PROFILES

CLINTON RIVER MIDDLE BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWNSHIP OF CLINTON, MI
(MACOMB COUNTY)



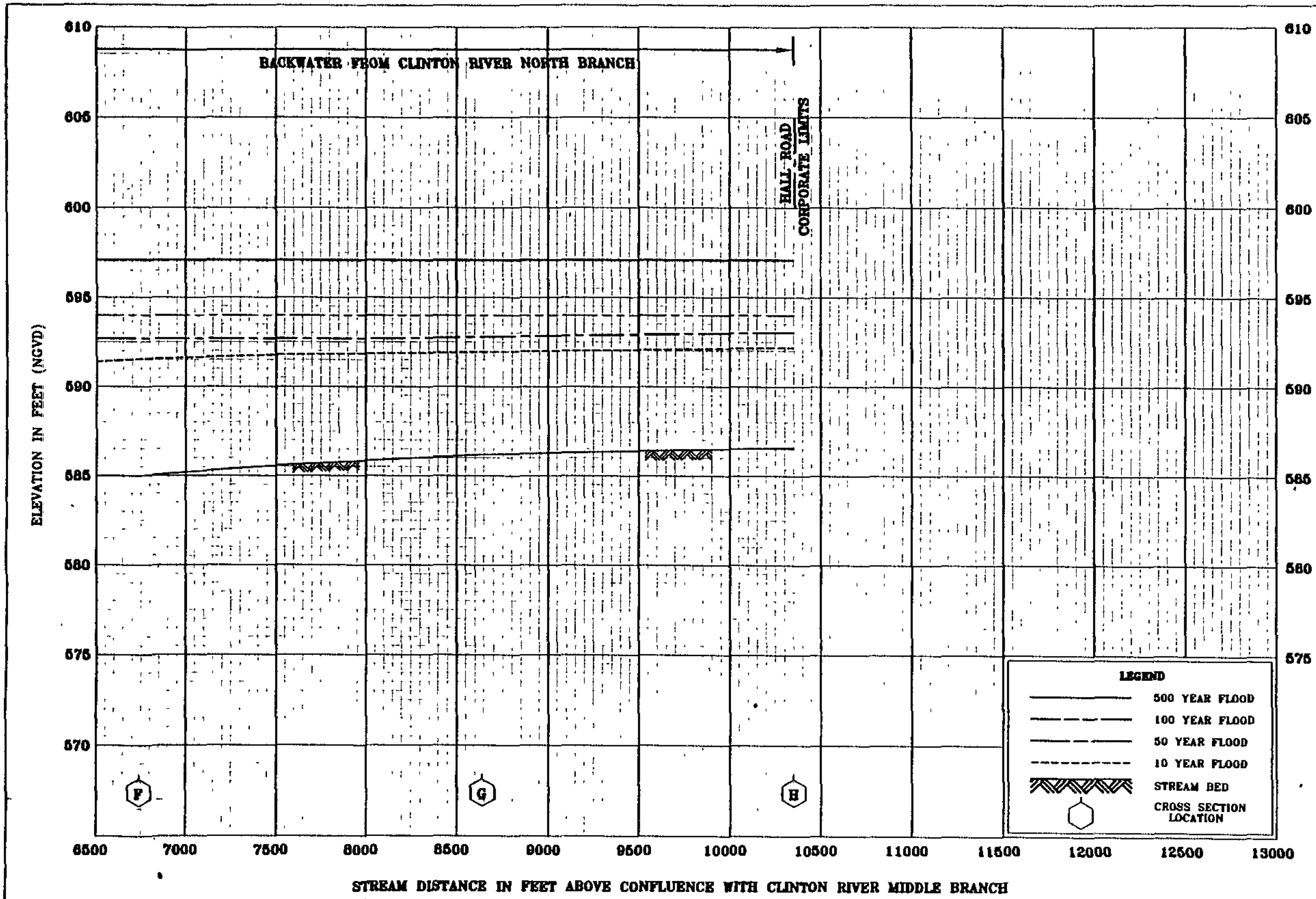
FLOOD PROFILES

MILLER DRAIN

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWNSHIP OF CLINTON, MI
(MACOMB COUNTY)

12P



FLOOD PROFILES

MILLER DRAIN

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWNSHIP OF CLINTON, MI
(MACOMB COUNTY)

13P

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Clinton Twp.

3) WATERCOURSE: Middle Branch Clinton River

4) DOCUMENT TYPE: 100year encroached

00BREAK00

THIS RUN EXECUTED 11JAN94 12:10:21

****
HEC-2 WATER SURFACE PROFILES

Version 4.6.0; February 1991
****

T1 CLINTON TOWNSHIP FLOOD INSURANCE STUDY
T2 UPDATED 10-YEAR FLOOD STS CONSULTANTS LTD 12/93 MMW
T3 MIDDLE BRANCH OF THE CLINTON RIVER

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-1.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	588.15	0.0

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	1.0	0.0	-1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

J3 VARIABLE CODES FOR SUMMARY PRINTOUT

150.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

QT	4.0	2190.0	3540.0	4240.0	5900.0	0.0	0.0	0.0	0.0	0.0
NC	.07	.07	.03	.10	.30	0.0	0.0	0.0	0.0	0.0
NH	3.0	.07	380.0	.04	410.0	.05	815.0	0.0	0.0	0.0
X1	0.0	21.0	380.0	410.0	0.0	0.0	0.0	0.0	-.30	0.0
GR	592.0	0.0	590.0	205.0	588.0	245.0	586.0	270.0	584.0	278.0
GR	582.0	285.0	580.0	300.0	578.0	360.0	576.0	370.0	574.0	380.0
GR	573.1	395.0	574.0	410.0	576.0	415.0	578.0	425.0	580.0	430.0
GR	582.0	715.0	584.0	735.0	586.0	760.0	588.0	780.0	590.0	800.0
GR	592.0	815.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NH	3.0	.07	380.0	.04	410.0	.05	815.0	0.0	0.0	0.0
X1	450.0	0.0	0.0	0.0	450.0	450.0	450.0	0.0	.30	0.0
NH	4.0	.07	758.0	.04	792.0	.07	1153.0	.04	1700.0	0.0
ET	0.0	6.1	8.1	8.1	8.1	80.0	1060.0	1.0	1700.0	0.0
X1	1420.0	30.0	750.0	800.0	970.0	970.0	970.0	0.0	0.0	0.0
GR	588.6	0.0	587.4	100.0	587.8	300.0	588.5	360.0	579.7	382.0
GR	579.7	400.0	581.7	500.0	582.5	600.0	579.6	700.0	582.1	750.0
GR	577.3	758.0	575.9	762.0	574.0	768.0	573.7	774.0	573.8	780.0
GR	573.9	786.0	575.0	792.0	582.8	800.0	582.3	900.0	579.4	1000.0
GR	579.5	1085.0	582.5	1100.0	591.8	1153.0	593.2	1200.0	595.0	1260.0
GR	594.5	1300.0	595.1	1400.0	595.4	1500.0	595.5	1600.0	595.2	1700.0
NH	5.0	.05	390.0	.07	400.0	.04	430.0	.07	462.0	.05
NH	1400.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
X1	2350.0	25.0	400.0	430.0	980.0	780.0	930.0	0.0	0.0	0.0
GR	594.0	0.0	592.0	275.0	590.0	295.0	588.0	300.0	586.0	305.0
GR	584.0	310.0	582.0	315.0	580.0	325.0	580.0	390.0	578.0	393.0
GR	576.0	400.0	574.32	415.0	576.0	430.0	578.0	435.0	580.0	440.0
GR	582.0	452.0	584.0	462.0	584.0	830.0	586.0	845.0	588.0	890.0

GR	588.0	1060.0	590.0	1085.0	592.0	1110.0	594.0	1240.0	596.0	1400.0
QT	4.0	2000.0	3250.0	3900.0	5430.0	0.0	0.0	0.0	0.0	0.0
NH	5.0	.05	1900.0	.07	1905.0	.04	1978.0	.07	1981.0	.05
NH	2250.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ET	0.0	6.1	8.1	8.1	8.1	1500.0	2250.0	1200.0	2250.0	0.0
X1	3220.0	40.0	1900.0	1981.0	920.0	720.0	870.0	0.0	0.0	0.0
X3	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GR	596.0	0.0	595.5	100.0	595.1	200.0	594.9	300.0	594.8	400.0
GR	594.2	500.0	593.7	600.0	591.3	700.0	588.3	800.0	587.7	900.0
GR	587.8	942.5	587.7	967.0	588.1	1000.0	589.2	1100.0	591.0	1200.0
GR	590.9	1300.0	589.3	1400.0	589.3	1400.0	589.3	1400.0	589.3	1400.0
GR	588.0	1600.0	583.1	1700.0	583.2	1800.0	584.3	1880.0	581.9	1900.0
GR	577.2	1905.0	575.7	1910.0	575.2	1915.0	574.9	1920.0	575.0	1925.0
GR	575.4	1930.0	575.7	1935.0	576.9	1938.0	577.1	1978.0	580.0	1981.0
GR	592.0	2000.0	594.5	2100.0	595.3	2175.0	596.0	2230.0	596.5	2250.0
NC	.055	.055	.04	0.3	0.5	0.0	0.0	0.0	0.0	0.0
ET	0.0	6.1	8.1	8.1	6.1	1200.0	2400.0	1200.0	2072.0	0.0
X1	3268.0	38.0	1980.0	2060.1	48.0	48.0	48.0	0.0	0.0	0.0
X3	10.0	0.0	0.0	0.0	0.0	0.0	0.0	587.0	590.0	0.0
GR	596.0	0.0	595.5	100.0	595.1	200.0	594.9	300.0	594.8	400.0
GR	594.2	500.0	593.7	600.0	591.3	700.0	588.3	800.0	587.7	900.0
GR	588.7	942.0	588.9	967.0	589.2	1000.0	589.5	1100.0	589.7	1200.0
GR	589.0	1300.0	588.5	1400.0	587.3	1600.0	587.6	1800.0	588.0	1900.0
GR	588.7	1950.0	589.3	1980.0	579.3	1980.1	577.4	1992.0	576.8	1995.0
GR	577.4	2002.0	576.3	2008.0	574.8	2018.0	574.4	2027.0	574.2	2038.0
GR	576.5	2045.0	579.5	2060.0	590.0	2060.1	591.0	2102.0	593.3	2202.0
GR	596.2	2277.0	595.4	2300.0	596.7	2400.0	0.0	0.0	0.0	0.0
NC	.05	.05	.02	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ET	0.0	6.1	8.1	8.1	6.1	1200.0	2400.0	1200.0	2074.0	0.0
X1	3269.0	0.0	0.0	0.0	1.0	1.0	1.0	0.0	0.0	0.0
BT	18.0	900.0	587.7	587.7	942.0	588.7	588.7	967.0	588.9	588.9
BT	1000.0	589.2	589.2	1100.0	589.5	589.5	1200.0	589.7	589.7	1300.0
BT	589.0	589.0	1400.0	588.5	588.5	1600.0	587.3	587.3	1800.0	587.6
BT	587.6	1900.0	588.0	588.0	1950.0	588.7	588.7	1980.0	589.3	589.3
BT	1980.1	589.3	584.3	2060.0	590.0	586.2	2060.1	590.0	590.0	2102.0
BT	591.3	591.0	2202.0	595.0	593.3	0.0	0.0	0.0	0.0	0.0
ET	0.0	6.1	8.1	8.1	6.1	1200.0	2400.0	1200.0	2120.0	0.0
X1	3304.0	0.0	0.0	0.0	35.0	35.0	35.0			
X2							1.0			
NC	.055	.055	.04							
ET		6.1	8.1	8.1	6.1	1200.0	2400.0	1200.0	2122.0	
X1	3305.0	0.0	0.0	0.0	1.0	1.0	1.0			
X3	10.0	0.0	0.0	0.0	0.0	0.0	0.0	587.3	590.0	0.0

NC				0.2	0.4					
NH	6.0	.05	220.0	.075	500.0	.06	512.0	.045	536.0	.06
NH	544.0	.04	900.0							
X1	5050.0	19.0	500.0	544.0	1450.0	1745.0	1745.0			
X3				200.0						
GR	594.5	0.0	594.5	100.0	594.0	200.0	586.0	220.0	580.4	303.0
GR	580.4	400.0	580.3	500.0	577.1	507.0	576.0	512.0	575.6	517.0
GR	575.6	522.0	575.7	527.0	575.9	532.0	576.8	536.0	582.1	544.0
GR	592.0	550.0	594.0	600.0	596.0	800.0	599.0	900.0	0.0	0.0
NH	5.0	.05	500.0	.06	515.0	.045	534.5	.06	538.0	.04
NH	1572.0									
X1	6120.0	36.0	515.0	534.5	950.0	600.0	1070.0			
X3				200.0		700.0				
GR	594.5	0.0	593.7	100.0	594.5	200.0	593.2	265.0	584.0	294.0
GR	581.1	303.0	581.4	315.0	582.9	400.0	582.9	415.0	583.0	500.0
GR	583.0	515.0	579.1	515.1	577.4	518.0	576.8	523.0	576.7	528.0
GR	576.8	532.0	578.8	534.4	581.8	534.5	581.9	538.0	582.5	560.0
GR	583.5	595.0	583.6	600.0	584.5	660.0	584.6	670.0	585.1	700.0
GR	588.3	800.0	590.1	900.0	592.1	1000.0	595.9	1100.0	596.7	1132.0
GR	596.3	1200.0	597.8	1300.0	597.0	1400.0	596.5	1500.0	596.1	1515.0
GR	598.1	1572.0								
SB	0.0	1.53	3.04	0.0	19.5	0.0	197.8	0.0	576.7	576.7
X1	6134.0	0.0	0.0	0.0	14.0	14.0	14.0			
X2	0.0	0.0	1.0	587.4	588.2					
X3				200.0		700.0				
BT	22.0	0.0	594.5	560.0	100.0	594.5	560.0	200.0	594.5	560.0
BT	265.0	593.2	560.0	294.0	584.0	560.0	315.0	583.3	560.0	415.0
BT	584.2	560.0	515.0	588.2	583.0	515.1	588.2	587.4	534.4	588.3
BT	587.3	534.5	588.3	581.8	538.0	588.3	560.0	560.0	588.9	560.0
BT	595.0	589.4	560.0	660.0	597.4	560.0	670.0	597.3	560.0	1132.0
BT	596.7	560.0	1300.0	597.8	560.0	1400.0	597.0	560.0	1500.0	596.5
BT	560.0	1515.0	596.1	560.0	1572.0	598.1	560.0			
NH	7.0	.05	800.0	.095	960.0	.045	1400.0	.07	1413.0	.05
NH	1440.0	.07	1448.0	.03	2600.0					
X1	8150.0	42.0	1400.0	1448.0	1500.0	2016.0	2016.0			
X3				900.0		1650.0				
GR	595.5		595.5	100.0	595.5	200.0	595.5	300.0	595.4	400.0
GR	595.1	500.0	595.3	600.0	595.9	700.0	596.8	800.0	596.8	900.0
GR	596.8	960.0	589.9	988.0	589.2	1000.0	587.2	1100.0	585.1	1200.0
GR	584.0	1300.0	583.4	1380.0	585.2	1400.0	576.7	1413.0	576.5	1420.0
GR	577.4	1430.0	577.0	1435.0	578.1	1440.0	585.2	1448.0	587.1	1500.0
GR	592.2	1570.0	592.5	1600.0	593.3	1633.0	596.6	1653.0	597.3	1700.0
GR	596.2	1800.0	594.5	1842.0	596.2	1868.0	596.1	2000.0	597.8	2020.0
GR	598.0	2100.0	598.5	2186.0	598.3	2230.0	597.7	2300.0	596.9	2400.0
GR	596.5	2500.0	596.5	2600.0						

NC				.10	.30					
NH	5.0	.05	660.0	.07	680.0	.05	705.0	.07	730.0	.05
NH	752.0									
X1	8700.0	19.0	680.0	705.0	170.0	550.0	550.0			
GR	596.0		594.0	15.0	592.0	60.0	590.3	135.0	592.0	210.0
GR	592.0	275.0	590.0	340.0	588.0	390.0	586.0	460.0	586.0	660.0
GR	584.0	670.0	582.0	673.0	580.0	680.0	576.36	692.0	580.0	705.0
GR	590.0	730.0	592.0	740.0	594.0	750.0	596.0	752.0		
NH	5.0	.05	285.0	.07	300.0	.045	320.0	.07	340.0	.05
NH	620.0									
X1	9350.0	20.0	300.0	320.0	500.0	650.0	650.0			
GR	596.0		594.0	20.0	592.0	70.0	590.0	185.0	588.0	195.0
GR	586.0	200.0	584.0	205.0	584.0	285.0	582.0	292.0	580.0	300.0
GR	576.3	310.0	580.0	320.0	582.0	330.0	584.0	340.0	586.0	505.0
GR	588.0	550.0	590.0	580.0	592.0	590.0	594.0	610.0	596.0	620.0
NH	8.0	.05	1700.0	.09	1769.0	.07	1777.0	.045	1795.0	.07
NH	1800.0	.05	1964.0	.035	2300.0	.04	2500.0			
X1	10180.	36.0	1765.0	1800.0	830.0	830.0	830.0			
X3				1200.0		2100.0				
GR	597.1	0.0	596.6	100.0	596.4	200.0	596.4	300.0	596.1	400.0
GR	596.0	500.0	595.3	600.0	596.1	700.0	596.4	800.0	596.3	900.0
GR	597.3	1000.0	597.4	1100.0	597.4	1200.0	597.1	1300.0	594.9	1400.0
GR	591.9	1500.0	590.2	1600.0	586.3	1700.0	584.3	1765.0	580.4	1769.0
GR	578.3	1777.0	577.6	1780.0	576.0	1785.0	577.1	1790.0	578.6	1795.0
GR	584.2	1800.0	584.5	1900.0	585.1	1935.0	591.7	1964.0	594.2	2000.0
GR	597.6	2100.0	597.1	2200.0	597.6	2232.0	596.1	2300.0	595.9	2400.0
GR	596.1	2500.0								
QT	4.0	2010.0	3261.0	3923.0	5475.0					
NC				.50	1.0					
NH	6.0	.045	1600.0	.085	1765.0	.085	1769.0	.040	1800.0	.07
NH	1803.0	.05	2500.0							
X1	10880.	42.0	1765.0	1803.1	750.0	700.0	700.0			
X3				1025.0		1803.1	590.0			
GR	597.1	0.0	596.6	100.0	596.4	200.0	596.4	300.0	596.1	400.0
GR	596.0	500.0	595.3	600.0	596.1	700.0	596.4	800.0	596.3	900.0
GR	597.3	1000.0	597.4	1100.0	597.4	1200.0	597.1	1300.0	594.9	1400.0
GR	591.8	1500.0	590.2	1600.0	586.3	1700.0	584.3	1765.0	580.2	1765.1
GR	577.6	1769.0	577.6	1777.0	576.8	1785.0	577.1	1793.0	578.3	1800.0
GR	580.5	1803.0	584.2	1803.1	584.3	1822.0	584.4	1854.0	584.4	1865.0
GR	584.4	1883.0	584.5	1900.0	585.1	1935.0	591.7	1964.0	594.2	2000.0
GR	595.9	2050.0	597.6	2100.0	597.1	2200.0	597.6	2232.0	596.1	2300.0
GR	595.9	2400.0	596.1	2500.0						
SB		1.53	3.09		38.0		504.3		576.8	576.8
NC	.045	.05	.04							
X1	10895.	0.0	0.0	0.0	15.0	15.0	15.0			
X2			1.0	591.0	591.8					
X3				1025.0		1803.0	590.0			
BT	34.0	0.0	597.1	587.1	100.0	596.6	596.6	200.0	596.4	596.4
BT	300.0	596.4	596.4	400.0	596.1	596.1	500.0	596.0	596.0	600.0

BT	595.3	595.3	700.0	596.1	596.1	800.0	596.4	596.4	900.0	596.3
BT	596.3	1000.0	597.3	597.3	1100.0	597.4	597.4	1200.0	597.4	597.4
BT	1300.0	597.1	597.1	1400.0	594.9	594.9	1500.0	591.8	591.8	1600.0
BT	591.4	590.2	1700.0	591.5	586.3	1765.0	592.1	584.3	1765.1	592.1
BT	590.9	1803.0	592.2	591.0	1803.1	592.2	584.2	1822.0	592.0	584.3
BT	1854.0	593.8	584.4	1865.0	593.5	584.4	1883.0	593.5	584.4	1900.0
BT	595.9	584.5	2050.0	595.9		2100.0	597.6		2200.0	597.1
BT		2232.0	597.6		2300.0	596.1		2400.0	595.9	
BT	2500.0	596.1								
ET		6.1	8.1	8.1	8.1	320.0	1160.0	90.0	1160.0	
X1	10965.	23.0	653.0	700.0	120.0	90.0	100.0	0.0	0.0	0.0
GR	597.3	0.0	596.2	100.0	596.0	200.0	594.0	300.0	587.0	400.0
GR	585.0	500.0	584.0	600.0	585.2	653.0	577.8	662.0	577.0	670.0
GR	577.0	682.0	577.0	689.0	577.8	694.0	583.7	700.0	588.0	744.0
GR	593.7	773.0	595.0	787.0	595.1	800.0	596.0	820.0	595.0	1000.0
GR	594.9	1100.0	594.9	1200.0	596.5	1201.0				
X1	11275.	32.0	561.9	584.5	380.0	380.0	380.0			
GR	597.3	0.0	596.1	115.5	588.4	230.9	586.5	346.4	585.9	461.9
GR	586.4	511.9	587.6	548.9	588.0	557.9	584.2	561.9	581.9	562.0
GR	580.6	563.9	580.1	566.9	579.0	569.9	577.9	573.9	578.7	578.9
GR	578.8	581.9	579.9	584.4	584.7	584.5	588.1	586.9	587.9	588.9
GR	587.5	599.9	586.6	661.9	587.8	754.0	586.3	808.3	587.0	859.1
GR	596.3	892.6	597.8	908.7	597.5	923.8	598.2	1039.2	597.5	1154.7
GR	597.4	1270.2	597.2	1385.6						
NC	.04	.02	.04							
X1	11276.	0.0	0.0	0.0	1.0	1.0	1.0			
BT	26.0	0.0	597.3	597.3	115.5	596.1	596.1	230.9	588.4	588.4
BT	346.4	586.5	586.5	461.9	585.9	585.9	511.9	586.4	586.4	548.9
BT	587.6	587.6	557.9	588.0	588.0	561.9	588.2	584.2	562.0	588.2
BT	587.2	584.4	588.3	587.3	584.5	588.3	584.7	586.9	588.1	588.1
BT	588.9	587.9	587.9	599.9	587.5	587.5	661.9	586.6	586.6	754.0
BT	587.8	587.8	808.3	586.3	586.3	859.1	587.0	587.0	892.6	596.3
BT	596.3	908.7	597.8	597.8	923.8	597.5	597.5	1039.2	598.2	598.2
BT	1154.7	597.5	597.5	1270.2	597.4	597.4	1385.6	597.2	597.2	0.0
X1	11290.	0.0	0.0	0.0	14.0	14.0	14.0			
X2							1.0			
NH	3.0	.09	561.9	.045	584.4	.09	1385.6			
X1	11291.				1.0	1.0	1.0			
NH	7.0	.04	500.0	.09	653.0	.05	662.0	.045	689.0	.05
NH	700.0	.08	773.0	.05	1200.0					
X1	11700.	22.0	653.0	700.0	100.0	350.0	409.0			
GR	597.3		596.1	100.0	588.4	200.0	586.5	300.0	585.9	400.0
GR	584.2	500.0	586.6	600.0	587.8	653.0	580.4	662.0	579.6	670.0
GR	579.6	682.0	579.6	689.0	580.4	694.0	586.3	700.0	587.0	744.0
GR	596.3	773.0	597.8	787.0	597.5	800.0	598.2	900.0	597.5	1000.0
GR	597.4	1100.0	597.2	1200.0						

QT	4.0	1405.0	2264.0	2714.0	3773.0					
NC					.10	.30				
NH	7.0	.04	250.0	.09	308.0	.05	320.0	.045	342.0	.05
NH	355.0	.08	400.0	.05	640.0					
X1	12750.	20.0	320.0	342.0	1050.0	1600.0	1050.0			
GR	596.5	0.0	594.0	230.0	592.0	250.0	590.0	260.0	588.0	275.0
GR	586.0	308.0	584.0	310.0	582.0	320.0	579.82	331.0	582.0	342.0
GR	584.0	350.0	586.0	355.0	588.0	360.0	589.4	370.0	588.0	400.0
GR	588.0	535.0	590.0	555.0	592.0	565.0	594.0	585.0	597.0	640.0
NH	7.0	.05	1000.0	.09	1268.0	.05	1277.0	.04	1293.0	.05
NH	1300.0	.07	1340.0	.05	2000.0					
X1	14540.	29.0	1268.0	1293.0	1350.0	1200.0	1790.0			
X3				400.0		1400.0				
GR	598.1	0.0	597.2	100.0	596.1	200.0	596.3	300.0	596.9	400.0
GR	596.8	500.0	596.3	600.0	596.3	700.0	596.1	800.0	591.6	900.0
GR	588.6	1000.0	587.7	1100.0	587.4	1200.0	589.5	1255.0	588.0	1268.0
GR	582.3	1277.0	580.9	1281.0	580.2	1284.0	581.1	1289.0	582.7	1293.0
GR	589.8	1300.0	597.3	1340.0	597.6	1400.0	596.5	1500.0	597.1	1600.0
GR	598.1	1700.0	598.5	1800.0	596.6	1900.0	597.2	2000.0		
NH	6.0	.09	240.0	.05	260.0	.04	280.0	.05	290.0	.07
NH	355.0	.05	800.0							
X1	15330.	17.0	260.0	280.0	650.0	760.0	760.0			
GR	596.6	0.0	594.0	30.0	592.0	50.0	590.0	75.0	588.0	105.0
GR	588.0	240.0	586.0	250.0	584.0	260.0	588.66	270.0	584.0	280.0
GR	586.0	290.0	588.0	355.0	590.0	420.0	592.0	455.0	594.0	485.0
GR	596.0	680.0	597.0	800.0	0.0	0.0	0.0	0.0	0.0	0.0
QT	4.0	1415.0	2286.0	2749.0	3820.0					
NH	8.0	.03	200.0	.05	769.0	.06	778.0	.04	795.0	.06
NH	800.0	.04	1200.0	.03	1400.0	.05	2000.0			
X1	16690.	27.0	778.0	795.0	1350.0	1040.0	1390.0			
X3				714.0		855.0				
GR	597.2		596.5	100.0	592.3	200.0	590.5	300.0	588.7	400.0
GR	589.7	500.0	588.8	600.0	589.5	700.0	589.5	769.0	584.2	778.0
GR	583.2	781.0	581.5	789.0	583.2	795.0	589.8	800.0	588.0	850.0
GR	588.2	900.0	588.4	1000.0	589.3	1100.0	596.2	1200.0	598.7	1300.0
GR	597.5	1400.0	598.6	1500.0	598.9	1600.0	597.5	1700.0	598.0	1800.0
GR	598.6	1900.0	599.6	2000.0						
NC				.50	1.0					
NH	5.0	.04	830.0	.06	1400.0	.04	1530.0	.06	1830.0	.04
NH	2630.0									
X1	16730.	48.0	1400.0	1530.0	40.0	40.0	40.0			
X3				1400.0		1530.0				
X4	4.0	589.5	1397.6	589.5	1400.1	588.2	1530.1	588.2	1532.6	
GR	599.2	0.0	599.4	200.0	599.4	400.0	599.4	600.0	597.2	630.0
GR	596.5	730.0	592.3	830.0	590.3	930.0	588.7	1030.0	589.7	1130.0
GR	588.9	1230.0	589.5	1330.0	589.5	1397.5	589.5	1400.0	589.5	1422.0
GR	586.0	1430.0	585.5	1440.0	585.8	1444.4	596.5	1444.4	596.5	1445.6
GR	585.8	1445.6	586.4	1450.0	588.0	1455.0	583.9	1458.0	582.0	1460.0
GR	580.8	1470.0	583.1	1480.0	583.9	1483.0	585.2	1489.4	596.5	1489.4

GR	596.5	1490.6	585.2	1490.6	587.1	1500.0	587.0	1510.0	588.1	1513.0
GR	588.2	1530.0	588.2	1532.5	588.4	1630.0	589.3	1730.0	596.2	1830.0
GR	598.7	1930.0	597.5	2030.0	598.6	2130.0	598.9	2230.0	597.5	2330.0
GR	598.0	2430.0	598.6	2530.0	599.2	2630.0				
SB		1.86	3.04		130.0		1302.7		580.8	580.8
X1	16771	0.0	0.0	0.0	41.0	41.0	41.0			
X2			1.0	596.5	599.2					
X3				1400.0		1530.0				
BT	27.0	0.0	599.2	599.2	200.0	599.4	599.4	400.0	599.4	599.4
BT	600.0	599.4	599.4	630.0	599.4	597.2	730.0	599.5	596.5	830.0
BT	599.5	592.3	930.0	599.4	590.5	1030.0	599.3	588.7	1130.0	599.3
BT	589.7	1230.0	599.3	588.8	1330.0	599.4	589.5	1397.5	599.4	589.5
BT	1397.6	600.2	589.5	1400.0	600.2	589.5	1400.1	600.2	596.5	1444.4
BT	600.2	596.5	1445.6	600.2	596.5	1489.4	600.2	596.6	1490.6	600.2
BT	596.5	1530.0	600.2	596.5	1530.1	600.2	588.2	1532.5	600.2	588.2
BT	1532.6	599.6	588.2	2230.0	599.6	0.0	2430.0	599.3	0.0	2630.0
BT	599.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

```
SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 1


CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 0.000
    0.000    15.35    588.15      0.00    588.15    588.16      0.01      0.00      0.00    573.70
   2190.0    429.7     451.1    1309.2    1031.8     447.0    2577.5       0.0       0.0    573.70
     0.00     0.42      1.01      0.51     0.070     0.040     0.050     0.000    572.80    236.00
 0.000020       0.        0.        0.         0         0         0      0.00    548.50    784.50

1490 NH CARD USED
*SECNO 450.000
  450.000    15.06    588.16      0.00      0.00    588.17      0.01      0.01      0.00    574.00
   2190.0    430.8     462.4    1296.8     990.7     438.3    2469.0      41.1       5.6    574.00
     0.20     0.43      1.06      0.53     0.070     0.040     0.050     0.000    573.10    241.82
 0.000023     450.      450.      450.         0         0         0      0.00    539.77    781.59

1490 NH CARD USED
*SECNO 1420.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=       80.0    1060.0  TYPE=      1  TARGET=      980.000
 1420.000    14.49    588.19      0.00      0.00    588.19      0.00      0.02      0.00    582.10
   2190.0   1053.7     432.9     703.4    2813.4     608.7    1820.7     142.9      22.2    582.80
     0.81     0.37      0.71      0.39     0.070     0.052     0.070     0.000    573.70     80.00
 0.000025     970.      970.      970.         0         0         0      0.00    951.76   1060.00

1490 NH CARD USED
*SECNO 2350.000
 2350.000    13.89    588.21      0.00      0.00    588.22      0.01      0.03      0.00    576.00
   2190.0    606.0     564.2    1019.7     759.8     391.4    1927.1     227.3      39.4    576.00
     1.10     0.80      1.44      0.53     0.052     0.040     0.053     0.000    574.32    299.48
 0.000049     980.      930.      780.         0         0         0      0.00    763.11   1062.60
```

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

1490 NH CARD USED
*SECNO 3220.000

3470 ENCROACHMENT STATIONS= 1500.0 2250.0 TYPE= 1 TARGET= 750.000

3220.000	13.35	588.25	0.00	0.00	588.27	0.02	0.05	0.00	581.90
2000.0	760.0	1211.6	28.4	1246.8	942.4	53.8	278.2	50.5	580.00
1.33	0.61	1.29	0.53	0.050	0.044	0.050	0.000	574.90	1562.02
0.000059	920.	870.	720.	1	0	0	0.00	432.04	1994.06

CCHV= 0.300 CEHV= 0.500
*SECNO 3268.000

3265 DIVIDED FLOW

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.63

3470 ENCROACHMENT STATIONS= 1200.0 2400.0 TYPE= 1 TARGET= 1200.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 587.00 ELREA= 590.00

3268.000	14.03	588.23	0.00	0.00	588.30	0.06	0.00	0.02	589.30
2000.0	66.9	1933.1	0.0	274.9	944.6	0.0	280.1	51.0	590.00
1.34	0.24	2.05	0.00	0.055	0.040	0.000	0.000	574.20	1444.30
0.000149	48.	48.	48.	2	0	0	0.00	552.50	2060.08

*SECNO 3269.000

3265 DIVIDED FLOW

3370 NORMAL BRIDGE, NRD= 18 MIN ELTRD= 587.30 MAX ELLC= 590.00

3470 ENCROACHMENT STATIONS= 1200.0 2400.0 TYPE= 1 TARGET= 1200.000

3269.000	14.01	588.21	0.00	0.00	588.32	0.11	0.00	0.02	589.30
2000.0	84.7	1915.3	0.0	264.1	705.9	0.0	280.1	51.1	590.00
1.34	0.32	2.71	0.00	0.050	0.020	0.000	0.000	574.20	1448.15
0.000223	1.	1.	1.	2	0	0	-236.80	547.01	2060.08

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     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*SECNO 3304.000

3265 DIVIDED FLOW

3370 NORMAL BRIDGE, NRD=  18 MIN ELTRD=   587.30 MAX ELLC=   590.00

3470 ENCROACHMENT STATIONS=     1200.0    2400.0  TYPE=       1  TARGET=     1200.000
  3304.000      14.02     588.22       0.00       0.00     588.33       0.11       0.01       0.00     589.30
    2000.0       86.1     1913.9        0.0      267.1      705.9        0.0      280.9       51.5     590.00
      1.34       0.32       2.71       0.00      0.050      0.020      0.000      0.000     574.20    1447.07
  0.000223        35.        35.        35.          0          0          0    -237.32     548.55    2060.08

*SECNO 3305.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=     1200.0    2400.0  TYPE=       1  TARGET=     1200.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       587.30 ELREA=       590.00

  3305.000      14.08     588.28       0.00       0.00     588.34       0.06       0.00       0.01     589.30
    2000.0       74.3     1925.7        0.0      297.5      948.3        0.0      280.9       51.5     590.00
      1.35       0.25       2.03       0.00      0.055      0.040      0.000      0.000     574.20    1436.45
  0.000146         1.         1.         1.          2          0          0       0.00     563.72    2060.08

CCHV=     0.200 CEHV=     0.400
1490 NH CARD USED
*SECNO 5050.000

3470 ENCROACHMENT STATIONS=      200.0     900.0  TYPE=       1  TARGET=     -200.000
  5050.000      12.91     588.51       0.00       0.00     588.52       0.01       0.17       0.01     580.30
    2000.0     1373.3      620.9        5.7     2051.8      505.6       12.5      349.4       66.9     582.10
      1.89       0.67       1.23       0.46      0.075      0.052      0.040      0.000     575.60     213.72
  0.000078      1450.      1745.      1745.          2          0          0       0.00     334.17     547.89

1490 NH CARD USED
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 SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
 Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
 TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
 SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*SECNO 6120.000

3470 ENCROACHMENT STATIONS=       200.0      700.0  TYPE=      1  TARGET=      500.000
  6120.000      11.88     588.58       0.00       0.00     588.59       0.01       0.07       0.00     583.00
    2000.0     1067.5      237.0      695.5     1368.8      221.2      808.0      401.3       74.5     581.80
      2.19       0.78       1.07       0.86      0.050      0.045      0.040      0.000     576.70     279.57
  0.000065       950.      1070.       600.          2          0          0       0.00     420.43     700.00


SPECIAL BRIDGE

SB  XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
     0.00       1.53       3.04       0.00      19.50       0.00     197.80       0.00     576.70     576.70

*SECNO 6134.000
PRESSURE AND WEIR FLOW,  Weir Submergence Based on TRAPEZOIDAL Shape

  EGPRS      EGLWC        H3        QWEIR       QPR        BAREA    TRAPEZOID      ELLC       ELTRD      WEIRLN
                                                                       AREA
    591.01     588.59       0.00      1809.       193.       198.       209.     587.40     588.20       269.


3470 ENCROACHMENT STATIONS=       200.0      700.0  TYPE=      1  TARGET=      500.000
  6134.000      11.69     588.59       0.00       0.00     588.60       0.01       0.01       0.00     583.00
    2000.0     1067.4      236.4      696.1     1372.9      221.6      810.9      402.0       74.7     581.80
      2.19       0.78       1.07       0.86      0.050      0.045      0.040      0.000     576.70     279.52
  0.000064        14.        14.        14.          1          0         12       0.00     420.48     700.00

1490 NH CARD USED
*SECNO 8150.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  0.66

3470 ENCROACHMENT STATIONS=       900.0     1650.0  TYPE=      1  TARGET=      750.000
  8150.000      12.25     588.75       0.00       0.00     588.76       0.02       0.16       0.00     585.20
    2000.0     1226.6      610.4      163.0     1231.4      474.8      153.5      485.3       92.3     585.20
      2.63       1.00       1.29       1.06      0.045      0.060      0.030      0.000     576.50    1022.72
  0.000147      1500.      2016.      2016.          2          0          0       0.00     499.86    1522.59
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 SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
 Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
 TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
 SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


CCHV=    0.100 CEHV=     0.300
1490 NH CARD USED
*SECNO 8700.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  0.54

  8700.000     12.45    588.81      0.00      0.00    588.89      0.08      0.11      0.02    580.00
    2000.0    1044.3     837.1     118.6     805.9     265.7      96.9     500.2      96.3    580.00
      2.69      1.30      3.15      1.22     0.053     0.050     0.070     0.000    576.36    369.85
  0.000508      370.      550.      550.         1         0         0      0.00    357.17    727.02


1490 NH CARD USED
*SECNO 9350.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.64

  9350.000     12.74    589.04      0.00      0.00    589.07      0.03      0.17      0.00    580.00
    2000.0     626.7     466.7     906.5     543.0     217.8     907.5     519.0     101.1    580.00
      2.81      1.15      2.14      1.00     0.054     0.045     0.053     0.000    576.30    189.80
  0.000190      500.      650.      650.         2         0         0      0.00    375.82    565.61


1490 NH CARD USED
*SECNO 10180.000

3470 ENCROACHMENT STATIONS=      1200.0     2100.0  TYPE=       1  TARGET=       900.000
 10180.000     13.24    589.24      0.00      0.00    589.28      0.04      0.21      0.00    584.30
    2000.0     272.8     692.7    1034.5     367.0     362.4     682.2     548.4     107.8    584.20
      2.96      0.74      1.91      1.52     0.078     0.062     0.050     0.000    576.00   1624.60
  0.000339      830.      830.      830.         2         0         0      0.00    328.60   1953.19


CCHV=    0.500 CEHV=     1.000
1490 NH CARD USED
*SECNO 10880.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  0.64


3470 ENCROACHMENT STATIONS=      1025.0     1803.1  TYPE=       1  TARGET=       778.100
 10880.000     12.80    589.60      0.00      0.00    589.74      0.14      0.36      0.10    584.30
    2010.0     468.2    1541.8       0.0     418.8     453.4       0.0     567.2     112.1    590.00
      3.03      1.12      3.40      0.00     0.085     0.053     0.000     0.000    576.80   1615.43
  0.000824      750.      700.      700.         2         0         0      0.00    187.67   1803.10
```

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

SPECIAL BRIDGE

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
0.00	1.53	3.09	0.00	38.00	0.00	504.30	0.00	576.80	576.80

*SECNO 10895.000

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS= 0.000 EGLWC= 589.741 ELLC= 591.000 PCWSE= 589.598 ELTRD= 591.800

3370 NORMAL BRIDGE, NRD= 34 MIN ELTRD= 591.80 MAX ELLC= 591.00

3470 ENCROACHMENT STATIONS= 1025.0 1803.0 TYPE= 1 TARGET= 778.000

10895.000	12.81	589.61	0.00	0.00	589.92	0.31	0.01	0.16	584.30
2010.0	0.0	2010.0	0.0	0.0	452.7	0.0	567.4	112.1	590.00
3.03	0.00	4.44	0.00	0.000	0.040	0.000	0.000	576.80	1615.26
0.000924	15.	15.	15.	1	0	0	-420.07	187.74	1803.00

*SECNO 10965.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 3.57

3470 ENCROACHMENT STATIONS= 320.0 1160.0 TYPE= 1 TARGET= 840.000

10965.000	13.06	590.06	0.00	0.00	590.08	0.02	0.02	0.14	585.20
2010.0	1059.1	826.2	124.7	1317.9	545.6	196.0	570.6	112.9	583.70
3.06	0.80	1.51	0.64	0.045	0.040	0.050	0.000	577.00	356.30
0.000073	120.	100.	90.	2	0	0	0.00	398.17	754.48

*SECNO 11275.000

11275.000	12.20	590.10	0.00	0.00	590.12	0.02	0.04	0.00	584.20
2010.0	969.6	425.5	614.8	1126.8	245.7	853.6	589.3	117.6	584.70
3.16	0.86	1.73	0.72	0.045	0.040	0.050	0.000	577.90	205.43
0.000135	380.	380.	380.	2	0	0	0.00	664.83	870.26

*SECNO 11276.000

3370 NORMAL BRIDGE, NRD= 26 MIN ELTRD= 585.90 MAX ELLC= 587.30

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
11276.000	12.20	590.10	0.00	0.00	590.12	0.02	0.00	0.00	584.20
2010.0	776.6	135.3	1098.1	1118.8	222.8	849.3	589.3	117.6	584.70
3.17	0.69	0.61	1.29	0.040	0.040	0.020	0.000	577.90	205.43
0.000070	1.	1.	1.	0	0	0	-35.20	664.83	870.26

*SECNO 11290.000

3370 NORMAL BRIDGE, NRD= 26 MIN ELTRD= 585.90 MAX ELLC= 587.30

11290.000	12.20	590.10	0.00	0.00	590.12	0.02	0.00	0.00	584.20
2010.0	776.6	135.2	1098.2	1119.5	222.9	849.9	590.0	117.8	584.70
3.17	0.69	0.61	1.29	0.040	0.040	0.020	0.000	577.90	205.40
0.000069	14.	14.	14.	0	0	0	-35.20	664.87	870.27

1490 NH CARD USED
*SECNO 11291.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.41

11291.000	12.20	590.10	0.00	0.00	590.13	0.03	0.00	0.01	584.20
2010.0	850.4	560.4	599.2	1127.4	245.7	854.1	590.1	117.8	584.70
3.17	0.75	2.28	0.70	0.090	0.053	0.090	0.000	577.90	205.41
0.000415	1.	1.	1.	0	0	0	0.00	664.86	870.27

1490 NH CARD USED
*SECNO 11700.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.06

11700.000	10.56	590.16	0.00	0.00	590.18	0.01	0.04	0.01	587.80
2010.0	1399.8	540.6	69.6	1835.9	428.6	170.6	600.8	120.4	586.30
3.24	0.76	1.26	0.41	0.050	0.047	0.080	0.000	579.60	177.01
0.000098	100.	409.	350.	0	0	0	0.00	576.88	753.89

CCHV= 0.500 CEHV= 0.100
1490 NH CARD USED
*SECNO 12750.000

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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  0.35

 12750.000     10.48     590.30       0.00       0.00     590.36       0.07       0.18       0.01     582.00
    1405.0     260.5      592.5      552.0      212.1      206.5      501.7      645.5      132.7     582.00
      3.41      1.23       2.87       1.10      0.063      0.045      0.052      0.000     579.82     258.51
  0.000391     1050.      1050.      1600.          2          0          0       0.00     297.98     556.49

1490 NH CARD USED
*SECNO 14540.000

3470 ENCROACHMENT STATIONS=      400.0     1400.0  TYPE=       1  TARGET=      1000.000
 14540.000     10.78     590.98       0.00       0.00     591.06       0.07       0.69       0.00     588.00
    1405.0     712.3      640.2       52.5      889.8      209.3       36.9      678.5      143.1     582.70
      3.64      0.80       3.06       1.42      0.086      0.044      0.050      0.000     580.20     920.54
  0.000545     1350.      1790.      1200.          2          0          0       0.00     385.77    1306.31

1490 NH CARD USED
*SECNO 15330.000
 15330.000      7.38     591.38       0.00       0.00     591.41       0.02       0.33       0.02     584.00
    1405.0     578.8      205.7      620.5      647.8      101.1      520.4      697.5      149.2     584.00
      3.81      0.89       2.04       1.19      0.076      0.040      0.060      0.000     584.00      57.71
  0.000395      650.       760.       760.          2          0          0       0.00     386.49     444.20

1490 NH CARD USED
*SECNO 16690.000

3470 ENCROACHMENT STATIONS=      714.0      855.0  TYPE=       1  TARGET=       141.000
 16690.000     10.41     591.91       0.00       0.00     592.11       0.19       0.68       0.02     584.20
    1415.0     281.7      724.8      408.5      178.4      158.6      197.3      723.0      156.6     583.20
      3.91      1.58       4.57       2.07      0.053      0.040      0.042      0.000     581.50     714.00
  0.000806     1350.      1390.      1040.          2          0          0       0.00     141.00     855.00

CCHV=    0.500 CEHV=     1.000
1490 NH CARD USED
*SECNO 16730.000

3265 DIVIDED FLOW
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.58

3470 ENCROACHMENT STATIONS=     1400.0    1530.0  TYPE=      1  TARGET=       130.000
 16730.000     11.34    592.14      0.00      0.00    592.20      0.06      0.02      0.07    589.50
    1415.0       0.0    1415.0       0.0       0.0     746.5       0.0     723.6     156.7 100000.00
      3.92      0.00      1.90      0.00     0.000     0.038     0.000     0.000    580.80   1400.00
  0.000322       40.       40.       40.         2         0         0      0.00    127.60   1530.00


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
      0.00      1.86      3.04      0.00    130.00      0.00   1302.70      0.00    580.80    580.80

*SECNO 16771.000

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS=      0.000  EGLWC=     592.196  ELLC=     596.500  PCWSE=     592.140  ELTRD=     599.200

3265 DIVIDED FLOW

3370 NORMAL BRIDGE, NRD=  27 MIN ELTRD=   599.20 MAX ELLC=   596.50

3470 ENCROACHMENT STATIONS=     1400.0    1530.0  TYPE=      1  TARGET=       130.000
 16771.000     11.35    592.15      0.00      0.00    592.21      0.06      0.01      0.00    589.50
    1415.0       0.0    1415.0       0.0       0.0     747.3       0.0     724.3     156.8 100000.00
      3.92      0.00      1.89      0.00     0.000     0.038     0.000     0.000    580.80   1400.00
  0.000321       41.       41.       41.         1         0         0     -0.05    127.60   1530.00
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T1 CLINTON TOWNSHIP FLOOD INSURANCE STUDY
T2 UPDATED 50-YEAR FLOOD STS CONSULTANTS LTD 12/93 MMW
T3 MIDDLE BRANCH OF THE CLINTON RIVER

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-1.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	591.88	0.0

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	2.0	0.0	-1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

```
 SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
 Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
 TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
 SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*PROF 2


CCHV=    0.100 CEHV=     0.300
1490 NH CARD USED
*SECNO 0.000
3280 CROSS SECTION       0.00 EXTENDED       0.18 FEET

    0.000      19.08     591.88       0.00     591.88     591.89       0.01       0.00       0.00     573.70
   3540.0      714.8      563.6     2261.6     1902.4      558.9     4037.9        0.0        0.0     573.70
     0.00       0.38       1.01       0.56      0.070      0.040      0.050      0.000     572.80       0.00
 0.000015         0.         0.         0.          0          0          0       0.00     815.00     815.00


1490 NH CARD USED
*SECNO 450.000
  450.000      18.79     591.89       0.00       0.00     591.89       0.01       0.01       0.00     574.00
   3540.0      708.1      574.0     2258.0     1791.6      550.1     3919.2       65.9        8.4     574.00
     0.20       0.40       1.04       0.58      0.070      0.040      0.050      0.000     573.10      11.61
 0.000016       450.       450.       450.          0          0          0       0.00     802.54     814.15


1490 NH CARD USED
*SECNO 1420.000

3470 ENCROACHMENT STATIONS=        1.0    1700.0  TYPE=       1  TARGET=      1699.000
 1420.000      18.21     591.91       0.00     588.19     591.91       0.00       0.01       0.00     582.10
   3540.0     1792.0      477.3     1270.6     5601.8      794.8     3514.3      246.0       30.2     582.80
     0.93       0.32       0.60       0.36      0.070      0.052      0.070      0.000     573.70       1.00
 0.000013       970.       970.       970.          0          0          0       0.00    1155.42    1156.42


1490 NH CARD USED
*SECNO 2350.000
 2350.000      17.60     591.92       0.00     588.21     591.92       0.01       0.01       0.00     576.00
   3540.0      776.8      572.2     2191.0     1163.8      502.7     4360.5      406.4       50.1     576.00
     1.30       0.67       1.14       0.50      0.052      0.040      0.052      0.000     574.32     275.82
 0.000022       980.       930.       780.          0          0          0       0.00     833.16    1108.98


1490 NH CARD USED
*SECNO 3220.000
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 SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
 Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
 TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
 SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3470 ENCROACHMENT STATIONS=     1200.0     2250.0  TYPE=      1  TARGET=     1050.000
  3220.000     17.04     591.94      0.00     588.25     591.95      0.01      0.02      0.00    581.90
    3250.0    1826.3     1369.5      54.2     3284.5     1240.8     112.7     507.8      65.7    580.00
      1.60      0.56       1.10      0.48      0.050      0.044     0.050     0.000    574.90   1200.00
  0.000030      920.       870.      720.          0          0         0      0.00    799.89   1999.89

CCHV=     0.300 CEHV=     0.500
*SECNO 3268.000

3470 ENCROACHMENT STATIONS=     1200.0     2072.0  TYPE=      1  TARGET=      872.000
  3268.000     17.73     591.93      0.00     588.23     591.95      0.02      0.00      0.00    589.30
    3250.0    1450.6     1793.7       5.7     2962.9     1241.1      21.4     512.7      66.6    590.00
      1.62      0.49       1.45      0.27      0.055      0.040     0.055     0.000    574.20   1200.00
  0.000054       48.        48.       48.          0          0         0      0.00    872.00   2072.00

*SECNO 3269.000

3370 NORMAL BRIDGE, NRD=  18 MIN ELTRD=   587.30 MAX ELLC=   590.00

3470 ENCROACHMENT STATIONS=     1200.0     2074.0  TYPE=      1  TARGET=      874.000
  3269.000     17.74     591.94      0.00     588.21     591.95      0.02      0.00      0.00    589.30
    3250.0    1938.9     1302.6       8.5     2960.0      888.8      23.9     512.8      66.6    590.00
      1.62      0.66       1.47      0.35      0.050      0.020     0.050     0.000    574.20   1200.00
  0.000080        1.         1.        1.          0          0         0   -352.69    874.00   2074.00

*SECNO 3304.000

3370 NORMAL BRIDGE, NRD=  18 MIN ELTRD=   587.30 MAX ELLC=   590.00

3470 ENCROACHMENT STATIONS=     1200.0     2120.0  TYPE=      1  TARGET=      920.000
  3304.000     17.74     591.94      0.00     588.22     591.96      0.02      0.00      0.00    589.30
    3250.0    1934.6     1297.8      17.5     2964.1      889.2      59.5     515.9      67.3    590.00
      1.63      0.65       1.46      0.29      0.050      0.020     0.050     0.000    574.20   1200.00
  0.000079       35.        35.       35.          0          0         0   -365.94    920.00   2120.00
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 SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
 Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
 TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
 SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*SECNO 3305.000

3470 ENCROACHMENT STATIONS=    1200.0    2122.0  TYPE=      1  TARGET=      922.000
  3305.000     17.74     591.94      0.00     588.28     591.96      0.02      0.00      0.00     589.30
    3250.0    1446.0     1786.7      17.3     2964.6     1241.3      74.5     516.0      67.4     590.00
      1.63      0.49       1.44      0.23      0.055      0.040     0.055     0.000    574.20    1200.00
  0.000053        1.         1.        1.          0          0         0      0.00    922.00    2122.00

CCHV=     0.200 CEHV=     0.400
1490 NH CARD USED
*SECNO 5050.000

3470 ENCROACHMENT STATIONS=     200.0     900.0  TYPE=      1  TARGET=     -200.000
  5050.000     16.43     592.03      0.00     588.51     592.05      0.01      0.09      0.00     580.30
    3250.0    2365.4      868.1      16.6     3077.6      660.9      30.0     656.7      89.1     582.10
      2.10      0.77       1.31      0.55      0.075      0.052     0.040     0.000    575.60     204.90
  0.000063     1450.      1745.     1745.          1          0         0      0.00    346.12     551.01

1490 NH CARD USED
*SECNO 6120.000

3470 ENCROACHMENT STATIONS=     200.0     700.0  TYPE=      1  TARGET=      500.000
  6120.000     15.38     592.08      0.00     588.58     592.09      0.01      0.04      0.00     583.00
    3250.0    1723.2      276.4    1250.4     2214.0      289.6    1388.5     735.9      97.0     581.80
      2.40      0.78       0.95      0.90      0.051      0.045     0.040     0.000    576.70     268.51
  0.000036      950.      1070.      600.          0          0         0      0.00    431.49     700.00


SPECIAL BRIDGE

SB  XK        XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
     0.00       1.53       3.04       0.00      19.50       0.00     197.80       0.00     576.70     576.70

*SECNO 6134.000
PRESSURE AND WEIR FLOW,  Weir Submergence Based on TRAPEZOIDAL Shape

  EGPRS      EGLWC      H3         QWEIR      QPR        BAREA     TRAPEZOID     ELLC      ELTRD      WEIRLN
                                                                      AREA
     598.49     592.09     0.00      3072.       177.       198.       209.     587.40     588.20      348.
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3470 ENCROACHMENT STATIONS= 200.0 700.0 TYPE= 1 TARGET= 500.000

6134.000	15.39	592.09	0.00	588.59	592.10	0.01	0.01	0.00	583.00
3250.0	1723.2	276.2	1250.5	2216.0	289.8	1389.9	737.1	97.1	581.80
2.41	0.78	0.95	0.90	0.051	0.045	0.040	0.000	576.70	268.49
0.000036	14.	14.	14.	1	0	12	0.00	431.51	700.00

1490 NH CARD USED
*SECNO 8150.000

3470 ENCROACHMENT STATIONS= 900.0 1650.0 TYPE= 1 TARGET= 750.000

8150.000	15.66	592.16	0.00	588.75	592.17	0.01	0.07	0.00	585.20
3250.0	2194.2	581.5	474.3	2631.4	638.4	487.6	885.5	116.8	585.20
2.95	0.83	0.91	0.97	0.045	0.060	0.030	0.000	576.50	978.85
0.000050	1500.	2016.	2016.	0	0	0	0.00	590.52	1569.38

CCHV= 0.100 CEHV= 0.300
1490 NH CARD USED
*SECNO 8700.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.57

8700.000	15.82	592.18	0.00	588.81	592.21	0.03	0.03	0.01	580.00
3250.0	2348.9	729.0	172.1	2178.7	350.0	191.4	916.5	122.7	580.00
3.04	1.08	2.08	0.90	0.052	0.050	0.069	0.000	576.36	55.94
0.000154	370.	550.	550.	0	0	0	0.00	684.96	740.90

1490 NH CARD USED
*SECNO 9350.000

9350.000	15.96	592.26	0.00	589.04	592.28	0.02	0.07	0.00	580.00
3250.0	1031.0	494.7	1724.4	1054.4	282.0	1747.9	954.2	130.3	580.00
3.19	0.98	1.75	0.99	0.053	0.045	0.052	0.000	576.30	63.74
0.000090	500.	650.	650.	1	0	0	0.00	528.76	592.50

1490 NH CARD USED
*SECNO 10180.000

3470 ENCROACHMENT STATIONS= 1200.0 2100.0 TYPE= 1 TARGET= 900.000

10180.000	16.35	592.35	0.00	589.24	592.38	0.03	0.10	0.00	584.30
3250.0	813.4	738.6	1698.0	1010.6	471.5	1183.4	1009.0	140.0	584.20
3.37	0.80	1.57	1.43	0.067	0.062	0.050	0.000	576.00	1481.97
0.000161	830.	830.	830.	0	0	0	0.00	491.51	1973.49

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

CCHV= 0.500 CEHV= 1.000
1490 NH CARD USED
*SECNO 10880.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.60

3470 ENCROACHMENT STATIONS= 1025.0 1803.1 TYPE= 1 TARGET= 778.100

10880.000	15.73	592.53	0.00	589.60	592.60	0.07	0.18	0.05	584.30
3261.0	1205.4	1623.5	432.1	1059.3	565.1	387.2	1047.8	148.3	590.00
3.46	1.14	2.87	1.12	0.080	0.053	0.050	0.000	576.80	1476.48
0.000443	750.	700.	700.	2	0	0	0.00	499.46	1975.94

SPECIAL BRIDGE

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
0.00	1.53	3.09	0.00	38.00	0.00	504.30	0.00	576.80	576.80

*SECNO 10895.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.56

PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
593.52	592.60	0.00	1356.	1913.	504.	540.	591.00	591.80	372.

3470 ENCROACHMENT STATIONS= 1025.0 1803.0 TYPE= 1 TARGET= 778.000

10895.000	16.02	592.82	0.00	589.61	592.87	0.05	0.27	0.00	584.30
3261.0	1518.4	1407.5	335.1	1143.7	575.3	437.6	1048.5	148.5	590.00
3.47	1.33	2.45	0.77	0.045	0.040	0.050	0.000	576.80	1467.19
0.000182	15.	15.	15.	2	0	3	0.00	512.89	1980.09

*SECNO 10965.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.85

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3470 ENCROACHMENT STATIONS= 90.0 1160.0 TYPE= 1 TARGET= 1070.000

10965.000	15.88	592.88	0.00	590.06	592.90	0.02	0.01	0.02	585.20
3261.0	1980.2	1012.8	267.9	2211.5	678.1	369.8	1055.4	149.7	583.70
3.50	0.90	1.49	0.72	0.045	0.040	0.050	0.000	577.00	316.01
0.000053	120.	100.	90.	2	0	0	0.00	452.81	768.82

*SECNO 11275.000

11275.000	15.01	592.91	0.00	590.10	592.92	0.01	0.02	0.00	584.20
3261.0	1712.6	391.2	1157.2	2191.1	309.4	1673.4	1087.8	154.8	584.70
3.63	0.78	1.26	0.69	0.045	0.040	0.050	0.000	577.90	163.19
0.000053	380.	380.	380.	1	0	0	0.00	717.23	880.42

*SECNO 11276.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.53

3370 NORMAL BRIDGE, NRD= 26 MIN ELTRD= 585.90 MAX ELLC= 587.30

11276.000	15.01	592.91	0.00	590.10	592.93	0.01	0.00	0.00	584.20
3261.0	1255.0	117.4	1888.6	2180.7	286.4	1667.3	1087.9	154.8	584.70
3.63	0.58	0.41	1.13	0.040	0.040	0.020	0.000	577.90	163.28
0.000023	1.	1.	1.	0	0	0	-35.20	717.12	880.40

*SECNO 11290.000

3370 NORMAL BRIDGE, NRD= 26 MIN ELTRD= 585.90 MAX ELLC= 587.30

11290.000	15.01	592.91	0.00	590.10	592.93	0.01	0.00	0.00	584.20
3261.0	1255.0	117.4	1888.6	2180.9	286.4	1667.5	1089.2	155.1	584.70
3.63	0.58	0.41	1.13	0.040	0.040	0.020	0.000	577.90	163.27
0.000023	14.	14.	14.	0	0	0	-35.20	717.13	880.40

1490 NH CARD USED
*SECNO 11291.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.36

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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


 11291.000      15.01     592.91       0.00     590.10     592.93       0.01       0.00       0.00     584.20
    3261.0     1557.1      534.9     1169.0     2188.8      309.3     1671.7     1089.3      155.1     584.70
      3.63       0.71       1.73       0.70      0.090      0.053      0.090      0.000     577.90     163.28
  0.000176         1.         1.         1.          0          0          0       0.00     717.12     880.40


1490 NH CARD USED
*SECNO 11700.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.81

 11700.000      13.34     592.94       0.00     590.16     592.95       0.01       0.02       0.00     587.80
    3261.0     2496.4      621.7      143.0     3204.4      558.8      331.8     1107.6      157.9     586.30
      3.70       0.78       1.11       0.43      0.049      0.047      0.080      0.000     579.60     141.03
  0.000053       100.       409.       350.          0          0          0       0.00     621.49     762.52


CCHV=     0.500 CEHV=     0.100
1490 NH CARD USED
*SECNO 12750.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  0.37

 12750.000      13.19     593.01       0.00     590.30     593.05       0.04       0.10       0.00     582.00
    2264.0      396.1      622.6     1245.3      399.8      266.2     1104.4     1187.4      171.3     582.00
      3.93       0.99       2.34       1.13      0.069      0.045      0.053      0.000     579.82     239.90
  0.000185      1050.      1050.      1600.          2          0          0       0.00     335.21     575.10


1490 NH CARD USED
*SECNO 14540.000

3470 ENCROACHMENT STATIONS=      400.0     1400.0  TYPE=       1  TARGET=      1000.000
 14540.000      13.12     593.32       0.00     590.98     593.36       0.04       0.31       0.00     588.00
    2264.0     1509.8      668.6       85.6     1777.5      267.8       82.6     1248.5      183.4     582.70
      4.23       0.85       2.50       1.04      0.081      0.044      0.054      0.000     580.20     861.70
  0.000261      1350.      1790.      1200.          2          0          0       0.00     457.09    1318.79


1490 NH CARD USED
*SECNO 15330.000
 15330.000       9.51     593.51       0.00     591.38     593.53       0.02       0.17       0.01     584.00
    2264.0      941.0      275.4     1047.6     1104.3      143.7      907.1     1282.2      190.4     584.00
      4.40       0.85       1.92       1.15      0.079      0.040      0.059      0.000     584.00      34.86
  0.000219       650.       760.       760.          2          0          0       0.00     442.84     477.71
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SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

1490 NH CARD USED
*SECNO 16690.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO =  0.58

3470 ENCROACHMENT STATIONS=      714.0     855.0  TYPE=      1  TARGET=      141.000
 16690.000     12.30    593.80      0.00    591.91    593.99      0.19      0.44      0.02    584.20
    2286.0     590.8     897.8     797.3     299.7     190.8     311.0    1323.8     198.6    583.20
      4.51      1.97      4.71      2.56     0.052     0.040     0.042     0.000    581.50    714.00
  0.000668     1350.     1390.     1040.         1         0         0      0.00    141.00    855.00

CCHV=    0.500 CEHV=    1.000
1490 NH CARD USED
*SECNO 16730.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=     1400.0    1530.0  TYPE=      1  TARGET=      130.000
 16730.000     13.18    593.98      0.00    592.14    594.06      0.08      0.02      0.05    589.50
    2286.0       0.0    2286.0       0.0       0.0     980.8       0.0    1324.6     198.7 100000.00
      4.51      0.00      2.33      0.00     0.000     0.039     0.000     0.000    580.80   1400.00
  0.000383       40.       40.       40.         2         0         0      0.00    127.60   1530.00


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.00      1.86      3.04      0.00    130.00      0.00   1302.70      0.00    580.80    580.80

*SECNO 16771.000

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS=     0.000  EGLWC=    594.060  ELLC=     596.500  PCWSE=    593.976  ELTRD=    599.200

3265 DIVIDED FLOW

3370 NORMAL BRIDGE, NRD=  27 MIN ELTRD=   599.20 MAX ELLC=   596.50
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  SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
  Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
  TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
  SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3470 ENCROACHMENT STATIONS=      1400.0     1530.0  TYPE=       1  TARGET=       130.000
 16771.000      11.19     593.99       0.00     592.15     594.08       0.08       0.02       0.00     589.50
    2286.0        0.0     2286.0        0.0        0.0      981.6        0.0     1325.6      198.8  100000.00
      4.52       0.00       2.33       0.00      0.000      0.039      0.000      0.000     580.80    1400.00
  0.000382        41.        41.        41.          1          0          0      -0.14     127.60    1530.00
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T1 CLINTON TOWNSHIP FLOOD INSURANCE STUDY
T2 UPDATED 100-YEAR FLOOD STS CONSULTANTS LTD 12/93 MMW
T3 MIDDLE BRANCH OF THE CLINTON RIVER

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-1.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	593.10	0.0
J2	NPROF	IPLOT	PREVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	3.0	0.0	-1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


*PROF 3


CCHV=     0.100 CEHV=      0.300
1490 NH CARD USED
*SECNO 0.000
3280 CROSS SECTION       0.00 EXTENDED       1.40 FEET

     0.000      20.30     593.10       0.00     593.10     593.11       0.01       0.00       0.00     573.70
    4240.0      898.1      627.4     2714.5     2366.0      595.5     4532.0        0.0        0.0     573.70
      0.00       0.38       1.05       0.60      0.070      0.040      0.050      0.000     572.80       0.00
  0.000015         0.         0.         0.          0          0          0       0.00     815.00     815.00


1490 NH CARD USED
*SECNO 450.000
3280 CROSS SECTION     450.00 EXTENDED       1.11 FEET

   450.000      20.01     593.11       0.00       0.00     593.11       0.01       0.01       0.00     574.00
    4240.0      887.6      638.1     2714.3     2254.6      586.7     4413.2       76.2        8.4     574.00
      0.20       0.39       1.09       0.62      0.070      0.040      0.050      0.000     573.10       0.00
  0.000016       450.       450.       450.          0          0          0       0.00     815.00     815.00


1490 NH CARD USED
*SECNO 1420.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3470 ENCROACHMENT STATIONS=         1.0     1700.0  TYPE=      1   TARGET=      1699.000
  1420.000      19.43     593.13       0.00     588.19     593.13       0.00       0.01       0.00     582.10
    4240.0     2204.3      530.4     1505.3     6515.6      855.8     3974.2      283.3       30.8     582.80
      0.89       0.34       0.62       0.38      0.070      0.052      0.070      0.000     573.70       1.00
  0.000012       970.       970.       970.          0          0          0       0.00    1196.38    1197.38


1490 NH CARD USED
*SECNO 2350.000
  2350.000      18.82     593.14       0.00     588.21     593.14       0.01       0.01       0.00     576.00
    4240.0      891.0      611.9     2737.1     1405.3      539.3     5232.1      469.7       53.6     576.00
      1.27       0.63       1.13       0.52      0.052      0.040      0.051      0.000     574.32     118.50
  0.000020       980.       930.       780.          0          0          0       0.00    1065.48    1183.98
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      SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
      Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
      TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
      SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

1490 NH CARD USED
*SECNO 3220.000

3470 ENCROACHMENT STATIONS=      1200.0     2250.0  TYPE=      1  TARGET=      1050.000
    3220.000     18.25    593.15      0.00    588.25    593.16      0.01      0.02      0.00    581.90
      3900.0    2362.0    1465.7      72.3    4137.4    1339.5     162.2     591.6      71.8    580.00
        1.58      0.57      1.09      0.45     0.050     0.044     0.050     0.000    574.90   1200.00
    0.000027      920.      870.      720.         0         0         0      0.00    845.96   2045.96

CCHV=     0.300 CEHV=     0.500
*SECNO 3268.000

3470 ENCROACHMENT STATIONS=      1200.0     2072.0  TYPE=      1  TARGET=       872.000
    3268.000     18.95    593.15      0.00    588.23    593.17      0.02      0.00      0.00    589.30
      3900.0    2058.1    1830.4      11.5    3912.4    1338.6      35.8     597.6      72.8    590.00
        1.59      0.53      1.37      0.32     0.055     0.040     0.055     0.000    574.20   1200.00
    0.000043       48.       48.       48.         0         0         0      0.00    872.00   2072.00

*SECNO 3269.000

3370 NORMAL BRIDGE, NRD=  18 MIN ELTRD=    587.30 MAX ELLC=    590.00

3470 ENCROACHMENT STATIONS=      1200.0     2074.0  TYPE=      1  TARGET=       874.000
    3269.000     18.95    593.15      0.00    588.21    593.17      0.01      0.00      0.00    589.30
      3900.0    2578.0    1305.4      16.6    3910.7     986.4      40.8     597.7      72.8    590.00
        1.59      0.66      1.32      0.41     0.050     0.020     0.050     0.000    574.20   1200.00
    0.000056        1.        1.        1.         0         0         0   -352.69    874.00   2074.00

*SECNO 3304.000

3370 NORMAL BRIDGE, NRD=  18 MIN ELTRD=    587.30 MAX ELLC=    590.00

3470 ENCROACHMENT STATIONS=      1200.0     2120.0  TYPE=      1  TARGET=       920.000
    3304.000     18.96    593.16      0.00    588.22    593.17      0.01      0.00      0.00    589.30
      3900.0    2556.3    1293.2      50.5    3914.4     986.8     132.4     601.7      73.5    590.00
        1.60      0.65      1.31      0.38     0.050     0.020     0.050     0.000    574.20   1200.00
    0.000055       35.       35.       35.         0         0         0   -365.95    920.00   2120.00
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 3305.000

3470 ENCROACHMENT STATIONS= 1200.0 2122.0 TYPE= 1 TARGET= 922.000

3305.000	18.96	593.16	0.00	588.28	593.17	0.02	0.00	0.00	589.30
3900.0	2039.7	1812.7	47.6	3914.9	1338.9	149.9	601.8	73.5	590.00
1.60	0.52	1.35	0.32	0.055	0.040	0.055	0.000	574.20	1200.00
0.000043	1.	1.	1.	0	0	0	0.00	922.00	2122.00

CCHV= 0.200 CEHV= 0.400
1490 NH CARD USED
*SECNO 5050.000

3470 ENCROACHMENT STATIONS= 200.0 900.0 TYPE= 1 TARGET= -200.000

5050.000	17.64	593.24	0.00	588.51	593.25	0.02	0.08	0.00	580.30
3900.0	2868.9	1002.8	28.3	3432.3	713.5	56.2	769.4	95.9	582.10
2.05	0.84	1.41	0.50	0.075	0.052	0.040	0.000	575.60	201.91
0.000065	1450.	1745.	1745.	0	0	0	0.00	379.00	580.91

1490 NH CARD USED
*SECNO 6120.000

3470 ENCROACHMENT STATIONS= 200.0 700.0 TYPE= 1 TARGET= 500.000

6120.000	16.58	593.28	0.00	588.58	593.29	0.01	0.04	0.00	583.00
3900.0	2067.1	308.4	1524.5	2511.7	313.0	1586.8	858.1	104.1	581.80
2.33	0.82	0.99	0.96	0.051	0.045	0.040	0.000	576.70	260.83
0.000035	950.	1070.	600.	0	0	0	0.00	439.17	700.00

SPECIAL BRIDGE

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
0.00	1.53	3.04	0.00	19.50	0.00	197.80	0.00	576.70	576.70

*SECNO 6134.000
PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
602.52	593.29	0.00	3689.	182.	198.	209.	587.40	588.20	367.

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 SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
 Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
 TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
 SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3470 ENCROACHMENT STATIONS=      200.0      700.0  TYPE=       1  TARGET=       500.000
  6134.000     16.59     593.29      0.00     588.59     593.30      0.01      0.01      0.00     583.00
   3900.0     2067.1      308.2    1524.7     2515.0      313.2    1588.9     859.5     104.3     581.80
     2.33       0.82       0.98      0.96      0.051      0.045     0.040     0.000    576.70     260.18
  0.000035       14.        14.       14.         1          0        10      0.00    439.81     700.00


1490 NH CARD USED
*SECNO 8150.000

3470 ENCROACHMENT STATIONS=      900.0     1650.0  TYPE=       1  TARGET=       750.000
  8150.000     16.86     593.36      0.00     588.75     593.37      0.01      0.06      0.00     585.20
   3900.0     2634.3      611.2     654.5     3139.4      696.0     679.0    1032.7     125.7     585.20
     2.88       0.84       0.88      0.96      0.045      0.060     0.030     0.000    576.50     973.98
  0.000041      1500.      2016.     2016.         0          0         0      0.00    659.34    1633.33


CCHV=     0.100 CEHV=     0.300
1490 NH CARD USED
*SECNO 8700.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  0.60

  8700.000     17.01     593.37      0.00     588.81     593.40      0.02      0.03      0.00     580.00
   3900.0     2975.5      722.9     201.5     2939.5      379.8     237.8    1071.1     132.1     580.00
     2.98       1.01       1.90      0.85      0.051      0.050     0.069     0.000    576.36      29.09
  0.000115       370.       550.      550.         0          0         0      0.00    717.78     746.87


1490 NH CARD USED
*SECNO 9350.000
  9350.000     17.13     593.43      0.00     589.04     593.45      0.02      0.05      0.00     580.00
   3900.0     1282.6      524.8    2092.6     1349.6      305.5    2075.4    1118.1     140.2     580.00
     3.12       0.95       1.72      1.01      0.053      0.045     0.052     0.000    576.30      34.34
  0.000078       500.       650.      650.         1          0         0      0.00    569.93     604.27


1490 NH CARD USED
*SECNO 10180.000

3470 ENCROACHMENT STATIONS=     1200.0     2100.0  TYPE=       1  TARGET=       900.000
 10180.000     17.51     593.51      0.00     589.24     593.54      0.03      0.08      0.00     584.30
   3900.0     1138.4      774.9    1986.7     1358.4      511.9    1393.0    1184.7     150.8     584.20
     3.30       0.84       1.51      1.43      0.065      0.062     0.050     0.000    576.00    1444.78
  0.000134       830.       830.      830.         0          0         0      0.00    545.31    1990.09
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

CCHV= 0.500 CEHV= 1.000
1490 NH CARD USED
*SECNO 10880.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.63

3470 ENCROACHMENT STATIONS= 1025.0 1803.1 TYPE= 1 TARGET= 778.100

10880.000	16.86	593.66	0.00	589.60	593.71	0.06	0.15	0.03	584.30
3923.0	1593.9	1601.1	727.9	1404.7	608.0	591.0	1233.4	160.0	590.00
3.42	1.13	2.63	1.23	0.076	0.053	0.050	0.000	576.80	1440.15
0.000338	750.	700.	700.	2	0	0	0.00	552.01	1992.16

SPECIAL BRIDGE

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
0.00	1.53	3.09	0.00	38.00	0.00	504.30	0.00	576.80	576.80

*SECNO 10895.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.44

PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
595.09	593.71	0.00	2744.	1161.	504.	540.	591.00	591.80	448.

3470 ENCROACHMENT STATIONS= 1025.0 1803.0 TYPE= 1 TARGET= 778.000

10895.000	16.93	593.73	0.00	589.61	593.78	0.05	0.07	0.00	584.30
3923.0	1926.2	1471.5	525.3	1429.8	610.2	605.6	1234.3	160.2	590.00
3.42	1.35	2.41	0.87	0.045	0.040	0.050	0.000	576.80	1437.67
0.000163	15.	15.	15.	2	0	8	0.00	555.60	1993.27

*SECNO 10965.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.73

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 SECNO        DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
 Q            QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
 TIME         VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
 SLOPE        XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

3470 ENCROACHMENT STATIONS=      90.0     1160.0  TYPE=      1  TARGET=      1070.000
 10965.000     16.78     593.78      0.00     590.06     593.81      0.02       0.01       0.01     585.20
   3923.0     2444.5     1137.2     341.3     2522.4      720.7     434.2     1242.4      161.5     583.70
     3.45       0.97       1.58      0.79      0.045      0.040     0.050      0.000     577.00     303.08
 0.000054       120.       100.       90.          2          0         0       0.00     470.82     773.91

*SECNO 11275.000
 11275.000     15.92     593.82      0.00     590.10     593.83      0.01       0.02       0.00     584.20
   3923.0     2087.9      418.0    1417.1     2559.1      329.9    1943.5     1279.5      166.7     584.70
     3.57       0.82       1.27      0.73      0.045      0.040     0.050      0.000     577.90     149.59
 0.000049       380.       380.      380.          0          0         0       0.00     734.10     883.69

*SECNO 11276.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.55

3370 NORMAL BRIDGE, NRD=  26 MIN ELTRD=    585.90 MAX ELLC=    587.30

 11276.000     15.92     593.82      0.00     590.10     593.83      0.01       0.00       0.00     584.20
   3923.0     1512.4      125.0    2285.6     2548.3      306.9    1937.1     1279.6      166.7     584.70
     3.57       0.59       0.41      1.18      0.040      0.040     0.020      0.000     577.90     149.69
 0.000020         1.         1.        1.          0          0         0     -35.20     733.97     883.66

*SECNO 11290.000

3370 NORMAL BRIDGE, NRD=  26 MIN ELTRD=    585.90 MAX ELLC=    587.30

 11290.000     15.92     593.82      0.00     590.10     593.83      0.01       0.00       0.00     584.20
   3923.0     1512.4      125.0    2285.6     2548.5      306.9    1937.3     1281.2      167.0     584.70
     3.58       0.59       0.41      1.18      0.040      0.040     0.020      0.000     577.90     149.68
 0.000020        14.        14.       14.          0          0         0     -35.20     733.98     883.66

1490 NH CARD USED
*SECNO 11291.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  0.35
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

11291.000	15.92	593.82	0.00	590.10	593.83	0.01	0.00	0.00	584.20
3923.0	1908.9	574.7	1439.4	2556.5	329.8	1941.5	1281.3	167.0	584.70
3.58	0.75	1.74	0.74	0.090	0.053	0.090	0.000	577.90	149.68
0.000164	1.	1.	1.	0	0	0	0.00	733.98	883.66

1490 NH CARD USED
*SECNO 11700.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.78

11700.000	14.24	593.84	0.00	590.16	593.85	0.01	0.02	0.00	587.80
3923.0	3051.3	692.3	179.4	3673.3	601.4	389.7	1302.2	169.9	586.30
3.64	0.83	1.15	0.46	0.049	0.047	0.080	0.000	579.60	129.27
0.000052	100.	409.	350.	0	0	0	0.00	636.08	765.35

CCHV= 0.500 CEHV= 0.100
1490 NH CARD USED
*SECNO 12750.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.38

12750.000	14.09	593.91	0.00	590.30	593.95	0.04	0.09	0.00	582.00
2714.0	474.2	673.1	1566.6	476.2	286.1	1318.9	1394.2	183.7	582.00
3.88	1.00	2.35	1.19	0.070	0.045	0.053	0.000	579.82	230.87
0.000170	1050.	1050.	1600.	2	0	0	0.00	353.26	584.13

1490 NH CARD USED
*SECNO 14540.000

3470 ENCROACHMENT STATIONS= 400.0 1400.0 TYPE= 1 TARGET= 1000.000

14540.000	13.99	594.19	0.00	590.98	594.23	0.03	0.28	0.00	588.00
2714.0	1898.2	710.0	105.8	2140.0	289.6	107.1	1466.3	196.4	582.70
4.18	0.89	2.45	0.99	0.079	0.044	0.055	0.000	580.20	842.34
0.000227	1350.	1790.	1200.	2	0	0	0.00	481.10	1323.44

1490 NH CARD USED
*SECNO 15330.000

15330.000	10.36	594.36	0.00	591.38	594.38	0.02	0.15	0.01	584.00
2714.0	1125.2	312.1	1276.7	1298.2	160.6	1084.8	1506.2	204.1	584.00
4.35	0.87	1.94	1.18	0.080	0.040	0.058	0.000	584.00	25.86
0.000194	650.	760.	760.	2	0	0	0.00	494.11	519.97

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

1490 NH CARD USED
*SECNO 16690.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.55

3470 ENCROACHMENT STATIONS= 714.0 855.0 TYPE= 1 TARGET= 141.000

16690.000	13.10	594.60	0.00	591.91	594.80	0.20	0.40	0.02	584.20
2749.0	752.6	995.4	1001.0	350.4	204.2	358.6	1554.8	212.9	583.20
4.45	2.15	4.87	2.79	0.052	0.040	0.041	0.000	581.50	714.00
0.000654	1350.	1390.	1040.	2	0	0	0.00	141.00	855.00

CCHV= 0.500 CEHV= 1.000
1490 NH CARD USED
*SECNO 16730.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 1400.0 1530.0 TYPE= 1 TARGET= 130.000

16730.000	13.97	594.77	0.00	592.14	594.87	0.10	0.02	0.05	589.50
2749.0	0.0	2749.0	0.0	0.0	1081.9	0.0	1555.7	213.0	100000.00
4.46	0.00	2.54	0.00	0.000	0.039	0.000	0.000	580.80	1400.00
0.000417	40.	40.	40.	2	0	0	0.00	127.60	1530.00

SPECIAL BRIDGE

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
0.00	1.86	3.04	0.00	130.00	0.00	1302.70	0.00	580.80	580.80

*SECNO 16771.000

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS= 0.000 EGLWC= 594.869 ELLC= 596.500 PCWSE= 594.769 ELTRD= 599.200

3265 DIVIDED FLOW

3370 NORMAL BRIDGE, NRD= 27 MIN ELTRD= 599.20 MAX ELLC= 596.50

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 SECNO      DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
 Q          QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
 TIME       VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
 SLOPE      XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

3470 ENCROACHMENT STATIONS=     1400.0     1530.0  TYPE=       1  TARGET=      130.000
 16771.000     13.99    594.79      0.00    592.15    594.89      0.10      0.02      0.00    589.50
    2749.0       0.0    2749.0       0.0       0.0    1082.8       0.0    1556.8     213.1 100000.00
      4.46      0.00      2.54      0.00     0.000     0.039     0.000     0.000    580.80   1400.00
  0.000416       41.       41.       41.         1         0         0     -0.20    127.60   1530.00
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T1 CLINTON TOWNSHIP FLOOD INSURANCE STUDY
T2 UPDATED 500-YEAR FLOOD STS CONSULTANTS LTD 12/93 MMW
T3 MIDDLE BRANCH OF THE CLINTON RIVER

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-1.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0	595.82	0.0

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	15.0	0.0	-1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*PROF 4

CCHV= 0.100 CEHV= 0.300
1490 NH CARD USED
*SECNO 0.000
3280 CROSS SECTION 0.00 EXTENDED 4.12 FEET

0.000	23.02	595.82	0.00	595.82	595.83	0.01	0.00	0.00	573.70
5900.0	1383.3	760.3	3756.4	3399.6	677.1	5633.6	0.0	0.0	573.70
0.00	0.41	1.12	0.67	0.070	0.040	0.050	0.000	572.80	0.00
0.000014	0.	0.	0.	0	0	0	0.00	815.00	815.00

1490 NH CARD USED
*SECNO 450.000
3280 CROSS SECTION 450.00 EXTENDED 3.83 FEET

450.000	22.73	595.83	0.00	0.00	595.83	0.01	0.01	0.00	574.00
5900.0	1369.7	770.5	3759.8	3288.1	668.3	5514.7	99.1	8.4	574.00
0.18	0.42	1.15	0.68	0.070	0.040	0.050	0.000	573.10	0.00
0.000015	450.	450.	450.	0	0	0	0.00	815.00	815.00

1490 NH CARD USED
*SECNO 1420.000
3280 CROSS SECTION 1420.00 EXTENDED 0.64 FEET

3470 ENCROACHMENT STATIONS= 1.0 1700.0 TYPE= 1 TARGET= 1699.000

1420.000	22.14	595.84	0.00	588.19	595.85	0.00	0.01	0.00	582.10
5900.0	3157.0	638.4	2104.6	8552.1	991.7	5461.0	371.6	36.4	582.80
0.85	0.37	0.64	0.39	0.070	0.052	0.069	0.000	573.70	1.00
0.000011	970.	970.	970.	0	0	0	0.00	1699.00	1700.00

1490 NH CARD USED
*SECNO 2350.000
3280 CROSS SECTION 2350.00 EXTENDED 1.86 FEET

2350.000	21.53	595.85	0.00	588.21	595.86	0.01	0.01	0.00	576.00
5900.0	1266.2	671.2	3962.6	2441.6	620.9	7547.6	628.9	66.8	576.00
1.26	0.52	1.08	0.53	0.052	0.040	0.051	0.000	574.32	0.00
0.000015	980.	930.	780.	0	0	0	0.00	1388.52	1388.52

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  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

1490 NH CARD USED
*SECNO 3220.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3470 ENCROACHMENT STATIONS=     1200.0    2250.0  TYPE=       1  TARGET=      1050.000
   3220.000     20.97    595.87      0.00    588.25    595.87      0.01      0.01      0.00    581.90
     5430.0    3608.8    1641.2     180.0    6038.0    1559.5     533.7     807.0      89.4    580.00
       1.58      0.60      1.05      0.34     0.050     0.044     0.050     0.000    574.90   1200.00
   0.000020      920.      870.      720.         0         0         0      0.00   1019.33   2219.33

CCHV=     0.300 CEHV=     0.500
*SECNO 3268.000

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=     1200.0    2400.0  TYPE=       1  TARGET=      1200.000
   3268.000     21.67    595.87      0.00    588.23    595.88      0.01      0.00      0.00    589.30
     5430.0    3328.1    1863.9     238.0    6028.5    1555.9     693.2     816.1      90.6    590.00
       1.60      0.55      1.20      0.34     0.055     0.040     0.055     0.000    574.20   1200.00
   0.000027       48.       48.       48.         0         0         0      0.00   1117.69   2335.89


*SECNO 3269.000

3265 DIVIDED FLOW


3370 NORMAL BRIDGE, NRD=  18 MIN ELTRD=   587.30 MAX ELLC=   590.00


3470 ENCROACHMENT STATIONS=     1200.0    2400.0  TYPE=       1  TARGET=      1200.000
   3269.000     21.67    595.87      0.00    588.21    595.88      0.01      0.00      0.00    589.30
     5430.0    3877.4    1340.3     212.3    6028.0    1203.9     586.8     816.3      90.6    590.00
       1.60      0.64      1.11      0.36     0.050     0.020     0.050     0.000    574.20   1200.00
   0.000031        1.        1.        1.         0         0         0   -458.29   1117.61   2335.85


*SECNO 3304.000

3265 DIVIDED FLOW
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 SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
 Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
 TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
 SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

3370 NORMAL BRIDGE, NRD=  18 MIN ELTRD=   587.30 MAX ELLC=   590.00

3470 ENCROACHMENT STATIONS=     1200.0    2400.0  TYPE=       1  TARGET=     1200.000
 3304.000     21.67    595.87      0.00    588.22    595.88      0.01      0.00      0.00    589.30
   5430.0    3877.6    1339.9     212.5    6030.1    1204.1     587.5     822.6      91.5    590.00
     1.61      0.64      1.11      0.36     0.050     0.020     0.050     0.000    574.20   1200.00
 0.000031       35.       35.       35.         0         0         0   -458.29   1117.96   2336.05

*SECNO 3305.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=     1200.0    2400.0  TYPE=       1  TARGET=     1200.000
 3305.000     21.67    595.87      0.00    588.28    595.88      0.01      0.00      0.00    589.30
   5430.0    3328.3    1863.5     238.2    6030.2    1556.1     693.8     822.7      91.6    590.00
     1.61      0.55      1.20      0.34     0.055     0.040     0.055     0.000    574.20   1200.00
 0.000027        1.        1.        1.         0         0         0      0.00   1117.98   2336.06

CCHV=     0.200 CEHV=     0.400
1490 NH CARD USED
*SECNO 5050.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  0.66

3470 ENCROACHMENT STATIONS=      200.0     900.0  TYPE=       1  TARGET=     -200.000
 5050.000     20.32    595.92      0.00    588.51    595.94      0.02      0.06      0.00    580.30
   5430.0    3973.4    1273.5     183.2    4235.3     831.4     382.5    1063.0     122.2    582.10
     2.02      0.94      1.53      0.48     0.074     0.052     0.040     0.000    575.60    200.00
 0.000063     1450.     1745.     1745.         0         0         0      0.00    591.58    791.58

1490 NH CARD USED
*SECNO 6120.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.43
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3470 ENCROACHMENT STATIONS= 200.0 700.0 TYPE= 1 TARGET= 500.000

6120.000	19.27	595.97	0.00	588.58	595.98	0.01	0.04	0.00	583.00
5430.0	2902.7	376.4	2150.9	3319.0	365.3	2030.4	1176.7	132.5	581.80
2.28	0.87	1.03	1.06	0.051	0.045	0.040	0.000	576.70	200.00
0.000031	950.	1070.	600.	0	0	0	0.00	500.00	700.00

SPECIAL BRIDGE

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
0.00	1.53	3.04	0.00	19.50	0.00	197.80	0.00	576.70	576.70

*SECNO 6134.000
PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
613.87	595.98	0.00	5245.	179.	198.	209.	587.40	588.20	648.

3470 ENCROACHMENT STATIONS= 200.0 700.0 TYPE= 1 TARGET= 500.000

6134.000	19.27	595.97	0.00	588.59	595.99	0.01	0.01	0.00	583.00
5430.0	2902.9	376.1	2151.0	3324.1	365.6	2033.1	1178.5	132.6	581.80
2.28	0.87	1.03	1.06	0.051	0.045	0.040	0.000	576.70	200.00
0.000031	14.	14.	14.	1	0	11	0.00	500.00	700.00

1490 NH CARD USED
*SECNO 8150.000

3470 ENCROACHMENT STATIONS= 900.0 1650.0 TYPE= 1 TARGET= 750.000

8150.000	19.53	596.03	0.00	588.75	596.04	0.01	0.05	0.00	585.20
5430.0	3591.3	673.0	1165.7	4293.8	824.4	1196.5	1411.9	155.6	585.20
2.83	0.84	0.82	0.97	0.045	0.060	0.030	0.000	576.50	963.13
0.000028	1500.	2016.	2016.	0	0	0	0.00	686.42	1649.54

CCHV= 0.100 CEHV= 0.300
1490 NH CARD USED
*SECNO 8700.000

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 SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
 Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
 TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
 SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

3280 CROSS SECTION    8700.00 EXTENDED      0.04 FEET

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  0.66

   8700.000     19.68     596.04       0.00     588.81     596.06       0.02       0.02       0.00     580.00
     5430.0    4438.4      716.2      275.3     4724.4      446.5      358.9     1468.1      162.4     580.00
       2.94      0.94       1.60       0.77      0.051      0.050      0.066      0.000     576.36       0.00
   0.000066      370.       550.       550.          0          0          0       0.00     752.00     752.00

1490 NH CARD USED
*SECNO 9350.000
3280 CROSS SECTION    9350.00 EXTENDED      0.07 FEET

   9350.000     19.77     596.07       0.00     589.04     596.09       0.02       0.03       0.00     580.00
     5430.0    1940.3      581.3     2908.4     2106.5      358.4     2850.5     1537.2      171.0     580.00
       3.09      0.92       1.62       1.02      0.052      0.045      0.052      0.000     576.30       0.00
   0.000056      500.       650.       650.          0          0          0       0.00     620.00     620.00

1490 NH CARD USED
*SECNO 10180.000
3280 CROSS SECTION   10180.00 EXTENDED      0.02 FEET

3470 ENCROACHMENT STATIONS=      1200.0     2100.0   TYPE=       1   TARGET=       900.000
  10180.000     20.13     596.13       0.00     589.24     596.15       0.02       0.06       0.00     584.30
     5430.0    1987.2      825.4     2617.4     2314.9      603.3     1966.5     1634.4      183.7     584.20
       3.29      0.86       1.37       1.33      0.061      0.062      0.049      0.000     576.00    1344.35
   0.000088      830.       830.       830.          0          0          0       0.00     712.24    2056.59

CCHV=     0.500 CEHV=     1.000
1490 NH CARD USED
*SECNO 10880.000

3265 DIVIDED FLOW

3280 CROSS SECTION   10880.00 EXTENDED      0.12 FEET

3470 ENCROACHMENT STATIONS=      1025.0     1803.1   TYPE=       1   TARGET=       778.100
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 SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
 Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
 TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
 SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

 10880.000     19.42     596.22       0.00     589.60     596.25       0.03       0.09       0.01     584.30
    5475.0    2536.6     1503.0     1435.4     2354.0      705.6     1196.7     1710.5      197.3     590.00
      3.43      1.08       2.13       1.20      0.070      0.053      0.050      0.000     576.80    1340.15
  0.000181      750.       700.       700.          2          0          0       0.00     924.45    2500.00


SPECIAL BRIDGE

SB  XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
      0.00       1.53       3.09       0.00      38.00       0.00     504.30       0.00     576.80     576.80

*SECNO 10895.000
6870 D.S. ENERGY OF    596.25 IS HIGHER THAN COMPUTED ENERGY OF    596.24

3265 DIVIDED FLOW

3280 CROSS SECTION  10895.00 EXTENDED       0.12 FEET

PRESSURE AND WEIR FLOW,  Weir Submergence Based on TRAPEZOIDAL Shape

  EGPRS      EGLWC       H3        QWEIR       QPR       BAREA    TRAPEZOID     ELLC       ELTRD      WEIRLN
                                                                    AREA
    599.02     596.25      0.00      5001.       509.       504.       540.     591.00     591.80      1321.


3470 ENCROACHMENT STATIONS=      1025.0     1803.0  TYPE=       1   TARGET=        778.000
 10895.000     19.42     596.22       0.00     589.61     596.25       0.03       0.00       0.00     584.30
    5475.0    2932.9     1471.3     1070.9     2354.0      704.8     1196.6     1712.0      197.6     590.00
      3.44      1.25       2.09       0.89      0.045      0.040      0.050      0.000     576.80    1340.15
  0.000101       15.        15.        15.          2          0         11       0.00     924.45    2500.00

*SECNO 10965.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.50

3470 ENCROACHMENT STATIONS=        90.0     1160.0  TYPE=       1   TARGET=       1070.000
 10965.000     19.24     596.24       0.00     590.06     596.26       0.02       0.01       0.01     585.20
    5475.0    3543.9     1320.9      610.2     3525.6      836.0     1010.7     1724.2      200.0     583.70
      3.47      1.01       1.58       0.60      0.045      0.040      0.050      0.000     577.00      96.59
  0.000045      120.       100.        90.          1          0          0       0.00    1063.41    1160.00
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 11275.000

11275.000	18.37	596.27	0.00	590.10	596.28	0.01	0.01	0.00	584.20
5475.0	2990.3	458.5	2026.2	3613.7	385.2	2686.1	1776.7	208.1	584.70
3.59	0.83	1.19	0.75	0.045	0.040	0.050	0.000	577.90	98.99
0.000035	380.	380.	380.	0	0	0	0.00	793.51	892.50

*SECNO 11276.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.58

3370 NORMAL BRIDGE, NRD= 26 MIN ELTRD= 585.90 MAX ELLC= 587.30

11276.000	18.37	596.27	0.00	590.10	596.29	0.02	0.00	0.00	584.20
5475.0	2128.4	136.8	3209.8	3606.2	362.3	2682.1	1776.9	208.1	584.70
3.59	0.59	0.38	1.20	0.040	0.040	0.020	0.000	577.90	98.87
0.000014	1.	1.	1.	0	0	0	-35.20	793.63	892.50

*SECNO 11290.000

3370 NORMAL BRIDGE, NRD= 26 MIN ELTRD= 585.90 MAX ELLC= 587.30

11290.000	18.37	596.27	0.00	590.10	596.29	0.02	0.00	0.00	584.20
5475.0	2128.4	136.8	3209.8	3606.4	362.4	2682.2	1779.0	208.4	584.70
3.60	0.59	0.38	1.20	0.040	0.040	0.020	0.000	577.90	98.85
0.000014	14.	14.	14.	0	0	0	-35.20	793.66	892.50

1490 NH CARD USED
*SECNO 11291.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.34

11291.000	18.38	596.28	0.00	590.10	596.29	0.01	0.00	0.00	584.20
5475.0	2760.7	635.9	2078.4	3614.3	385.2	2686.5	1779.2	208.4	584.70
3.60	0.76	1.65	0.77	0.090	0.053	0.090	0.000	577.90	98.86
0.000119	1.	1.	1.	0	0	0	0.00	793.64	892.50

1490 NH CARD USED

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 11700.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.71

11700.000	16.69	596.29	0.00	590.16	596.30	0.01	0.01	0.00	587.80
5475.0	4382.4	821.6	271.0	4996.2	716.5	559.1	1807.3	211.5	586.30
3.66	0.88	1.15	0.48	0.049	0.047	0.080	0.000	579.60	83.73
0.000041	100.	409.	350.	0	0	0	0.00	689.26	772.99

CCHV= 0.500 CEHV= 0.100
1490 NH CARD USED
*SECNO 12750.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.42

12750.000	16.53	596.35	0.00	590.30	596.37	0.03	0.07	0.00	582.00
3773.0	767.6	723.7	2281.6	948.4	339.6	1960.6	1937.9	229.4	582.00
3.92	0.81	2.13	1.16	0.065	0.045	0.054	0.000	579.82	14.14
0.000111	1050.	1050.	1600.	2	0	0	0.00	613.88	628.02

1490 NH CARD USED
*SECNO 14540.000

3470 ENCROACHMENT STATIONS= 400.0 1400.0 TYPE= 1 TARGET= 1000.000

14540.000	16.33	596.53	0.00	590.98	596.55	0.02	0.17	0.00	588.00
3773.0	2848.3	762.0	162.8	3250.8	347.9	192.6	2046.8	250.7	582.70
4.26	0.88	2.19	0.85	0.076	0.044	0.058	0.000	580.20	554.86
0.000142	1350.	1790.	1200.	2	0	0	0.00	781.01	1335.87

1490 NH CARD USED
*SECNO 15330.000
3280 CROSS SECTION 15330.00 EXTENDED 0.02 FEET

15330.000	12.63	596.63	0.00	591.38	596.64	0.02	0.09	0.00	584.00
3773.0	1496.4	371.2	1905.4	1857.8	205.8	1882.2	2107.8	262.9	584.00
4.45	0.81	1.80	1.01	0.081	0.040	0.057	0.000	584.00	0.00
0.000120	650.	760.	760.	1	0	0	0.00	754.69	754.69

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

1490 NH CARD USED
*SECNO 16690.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.48

3470 ENCROACHMENT STATIONS= 714.0 855.0 TYPE= 1 TARGET= 141.000

16690.000	15.23	596.73	0.00	591.91	596.93	0.20	0.27	0.02	584.20
3820.0	1147.6	1174.8	1497.6	486.9	240.5	486.5	2179.6	274.9	583.20
4.55	2.36	4.88	3.08	0.052	0.040	0.041	0.000	581.50	714.00
0.000528	1350.	1390.	1040.	2	0	0	0.00	141.00	855.00

CCHV= 0.500 CEHV= 1.000
1490 NH CARD USED
*SECNO 16730.000

3470 ENCROACHMENT STATIONS= 1400.0 1530.0 TYPE= 1 TARGET= 130.000

16730.000	16.06	596.86	0.00	592.14	596.99	0.12	0.02	0.04	589.50
3820.0	0.0	3820.0	0.0	0.0	1350.1	0.0	2180.7	275.0	100000.00
4.56	0.00	2.83	0.00	0.000	0.040	0.000	0.000	580.80	1400.00
0.000430	40.	40.	40.	2	0	0	0.00	130.00	1530.00

SPECIAL BRIDGE

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
0.00	1.86	3.04	0.00	130.00	0.00	1302.70	0.00	580.80	580.80

*SECNO 16771.000
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
597.11	596.99	0.00	0.	3820.	1303.	2041.	596.50	599.20	0.

3470 ENCROACHMENT STATIONS= 1400.0 1530.0 TYPE= 1 TARGET= 130.000

16771.000	16.19	596.99	0.00	592.15	597.11	0.12	0.12	0.00	589.50
3820.0	0.0	3820.0	0.0	0.0	1366.6	0.0	2182.0	275.1	100000.00
4.56	0.00	2.80	0.00	0.000	0.040	0.000	0.000	580.80	1400.00
0.000414	41.	41.	41.	2	0	0	0.00	130.00	1530.00

THIS RUN EXECUTED 11JAN94 12:10:31

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HEC-2 WATER SURFACE PROFILES

Version 4.6.0; February 1991
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

E BRANCH OF THE CLINTON

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	0.000	0.00	0.00	0.00	572.80	2190.00	588.15	0.00	588.16	0.20	1.01	4056.29	4875.74
	0.000	0.00	0.00	0.00	572.80	3540.00	591.88	0.00	591.89	0.15	1.01	6499.19	9155.06
	0.000	0.00	0.00	0.00	572.80	4240.00	593.10	0.00	593.11	0.15	1.05	7493.47	10948.52
	0.000	0.00	0.00	0.00	572.80	5900.00	595.82	0.00	595.83	0.14	1.12	9710.30	15571.90
	450.000	450.00	0.00	0.00	573.10	2190.00	588.16	0.00	588.17	0.23	1.06	3898.01	4603.33
	450.000	450.00	0.00	0.00	573.10	3540.00	591.89	0.00	591.89	0.16	1.04	6260.88	8754.67
	450.000	450.00	0.00	0.00	573.10	4240.00	593.11	0.00	593.11	0.16	1.09	7254.50	10500.48
	450.000	450.00	0.00	0.00	573.10	5900.00	595.83	0.00	595.83	0.15	1.15	9471.08	15034.39
	1420.000	970.00	0.00	0.00	573.70	2190.00	588.19	0.00	588.19	0.25	0.71	5242.71	4350.21
	1420.000	970.00	0.00	0.00	573.70	3540.00	591.91	0.00	591.91	0.13	0.60	9910.89	9947.08
	1420.000	970.00	0.00	0.00	573.70	4240.00	593.13	0.00	593.13	0.12	0.62	11345.52	12128.47
	1420.000	970.00	0.00	0.00	573.70	5900.00	595.84	0.00	595.85	0.11	0.64	15004.82	17927.65
	2350.000	930.00	0.00	0.00	574.32	2190.00	588.21	0.00	588.22	0.49	1.44	3078.33	3115.35
	2350.000	930.00	0.00	0.00	574.32	3540.00	591.92	0.00	591.92	0.22	1.14	6027.03	7535.96
	2350.000	930.00	0.00	0.00	574.32	4240.00	593.14	0.00	593.14	0.20	1.13	7176.75	9489.55
	2350.000	930.00	0.00	0.00	574.32	5900.00	595.85	0.00	595.86	0.15	1.08	10610.05	15222.41
	3220.000	870.00	0.00	0.00	574.90	2000.00	588.25	0.00	588.27	0.59	1.29	2243.04	2595.21
	3220.000	870.00	0.00	0.00	574.90	3250.00	591.94	0.00	591.95	0.30	1.10	4637.97	5901.17
	3220.000	870.00	0.00	0.00	574.90	3900.00	593.15	0.00	593.16	0.27	1.09	5639.13	7516.45
	3220.000	870.00	0.00	0.00	574.90	5430.00	595.87	0.00	595.87	0.20	1.05	8131.09	12041.17
*	3268.000	48.00	0.00	0.00	574.20	2000.00	588.23	0.00	588.30	1.49	2.05	1219.50	1636.63
	3268.000	48.00	0.00	0.00	574.20	3250.00	591.93	0.00	591.95	0.54	1.45	4225.37	4433.68
	3268.000	48.00	0.00	0.00	574.20	3900.00	593.15	0.00	593.17	0.43	1.37	5286.84	5914.01
	3268.000	48.00	0.00	0.00	574.20	5430.00	595.87	0.00	595.88	0.27	1.20	8277.57	10390.34
	3269.000	1.00	587.30	590.00	574.20	2000.00	588.21	0.00	588.32	2.23	2.71	970.02	1339.88
	3269.000	1.00	587.30	590.00	574.20	3250.00	591.94	0.00	591.95	0.80	1.47	3872.63	3642.90
	3269.000	1.00	587.30	590.00	574.20	3900.00	593.15	0.00	593.17	0.56	1.32	4937.87	5189.58
	3269.000	1.00	587.30	590.00	574.20	5430.00	595.87	0.00	595.88	0.31	1.11	7818.67	9808.95

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	3304.000	35.00	587.30	590.00	574.20	2000.00	588.22	0.00	588.33	2.23	2.71	973.04	1340.71
	3304.000	35.00	587.30	590.00	574.20	3250.00	591.94	0.00	591.96	0.79	1.46	3912.74	3659.21
	3304.000	35.00	587.30	590.00	574.20	3900.00	593.16	0.00	593.17	0.55	1.31	5033.58	5241.89
	3304.000	35.00	587.30	590.00	574.20	5430.00	595.87	0.00	595.88	0.31	1.11	7821.61	9814.11
	3305.000	1.00	0.00	0.00	574.20	2000.00	588.28	0.00	588.34	1.46	2.03	1245.80	1652.84
	3305.000	1.00	0.00	0.00	574.20	3250.00	591.94	0.00	591.96	0.53	1.44	4280.36	4452.07
	3305.000	1.00	0.00	0.00	574.20	3900.00	593.16	0.00	593.17	0.43	1.35	5403.65	5973.70
	3305.000	1.00	0.00	0.00	574.20	5430.00	595.87	0.00	595.88	0.27	1.20	8280.03	10394.45
	5050.000	1745.00	0.00	0.00	575.60	2000.00	588.51	0.00	588.52	0.78	1.23	2569.85	2261.88
	5050.000	1745.00	0.00	0.00	575.60	3250.00	592.03	0.00	592.05	0.63	1.31	3768.42	4108.31
	5050.000	1745.00	0.00	0.00	575.60	3900.00	593.24	0.00	593.25	0.65	1.41	4202.01	4848.53
*	5050.000	1745.00	0.00	0.00	575.60	5430.00	595.92	0.00	595.94	0.63	1.53	5449.24	6859.13
	6120.000	1070.00	0.00	0.00	576.70	2000.00	588.58	0.00	588.59	0.65	1.07	2398.09	2480.08
	6120.000	1070.00	0.00	0.00	576.70	3250.00	592.08	0.00	592.09	0.36	0.95	3892.09	5413.80
	6120.000	1070.00	0.00	0.00	576.70	3900.00	593.28	0.00	593.29	0.35	0.99	4411.46	6625.87
*	6120.000	1070.00	0.00	0.00	576.70	5430.00	595.97	0.00	595.98	0.31	1.03	5714.69	9778.11
	6134.000	14.00	588.20	587.40	576.70	2000.00	588.59	0.00	588.60	0.64	1.07	2405.30	2492.06
	6134.000	14.00	588.20	587.40	576.70	3250.00	592.09	0.00	592.10	0.36	0.95	3895.67	5421.84
	6134.000	14.00	588.20	587.40	576.70	3900.00	593.29	0.00	593.30	0.35	0.98	4417.12	6639.54
	6134.000	14.00	588.20	587.40	576.70	5430.00	595.97	0.00	595.99	0.31	1.03	5722.75	9798.91
*	8150.000	2016.00	0.00	0.00	576.50	2000.00	588.75	0.00	588.76	1.47	1.29	1859.71	1647.09
	8150.000	2016.00	0.00	0.00	576.50	3250.00	592.16	0.00	592.17	0.50	0.91	3757.36	4602.20
	8150.000	2016.00	0.00	0.00	576.50	3900.00	593.36	0.00	593.37	0.41	0.88	4514.36	6066.95
	8150.000	2016.00	0.00	0.00	576.50	5430.00	596.03	0.00	596.04	0.28	0.82	6314.79	10174.31
*	8700.000	550.00	0.00	0.00	576.36	2000.00	588.81	0.00	588.89	5.08	3.15	1168.45	887.34
*	8700.000	550.00	0.00	0.00	576.36	3250.00	592.18	0.00	592.21	1.54	2.08	2720.13	2622.08
*	8700.000	550.00	0.00	0.00	576.36	3900.00	593.37	0.00	593.40	1.15	1.90	3557.12	3636.11
*	8700.000	550.00	0.00	0.00	576.36	5430.00	596.04	0.00	596.06	0.66	1.60	5529.89	6690.87
*	9350.000	650.00	0.00	0.00	576.30	2000.00	589.04	0.00	589.07	1.90	2.14	1668.31	1451.12
	9350.000	650.00	0.00	0.00	576.30	3250.00	592.26	0.00	592.28	0.90	1.75	3084.25	3421.66
	9350.000	650.00	0.00	0.00	576.30	3900.00	593.43	0.00	593.45	0.78	1.72	3730.43	4423.59
	9350.000	650.00	0.00	0.00	576.30	5430.00	596.07	0.00	596.09	0.56	1.62	5315.46	7252.99
	10180.000	830.00	0.00	0.00	576.00	2000.00	589.24	0.00	589.28	3.39	1.91	1411.55	1085.51
	10180.000	830.00	0.00	0.00	576.00	3250.00	592.35	0.00	592.38	1.61	1.57	2665.50	2565.29
	10180.000	830.00	0.00	0.00	576.00	3900.00	593.51	0.00	593.54	1.34	1.51	3263.27	3364.59
	10180.000	830.00	0.00	0.00	576.00	5430.00	596.13	0.00	596.15	0.88	1.37	4884.67	5784.18
*	10880.000	700.00	0.00	0.00	576.80	2010.00	589.60	0.00	589.74	8.24	3.40	872.25	700.14
*	10880.000	700.00	0.00	0.00	576.80	3261.00	592.53	0.00	592.60	4.43	2.87	2011.64	1549.13
*	10880.000	700.00	0.00	0.00	576.80	3923.00	593.66	0.00	593.71	3.38	2.63	2603.70	2134.74
	10880.000	700.00	0.00	0.00	576.80	5475.00	596.22	0.00	596.25	1.81	2.13	4256.23	4067.64

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	10895.000	15.00	591.80	591.00	576.80	2010.00	589.61	0.00	589.92	9.24	4.44	452.74	661.38
*	10895.000	15.00	591.80	591.00	576.80	3261.00	592.82	0.00	592.87	1.82	2.45	2156.60	2419.96
*	10895.000	15.00	591.80	591.00	576.80	3923.00	593.73	0.00	593.78	1.63	2.41	2645.59	3071.40
	10895.000	15.00	591.80	591.00	576.80	5475.00	596.22	0.00	596.25	1.01	2.09	4255.40	5452.21
*	10965.000	100.00	0.00	0.00	577.00	2010.00	590.06	0.00	590.08	0.73	1.51	2059.47	2358.05
*	10965.000	100.00	0.00	0.00	577.00	3261.00	592.88	0.00	592.90	0.53	1.49	3259.47	4484.39
*	10965.000	100.00	0.00	0.00	577.00	3923.00	593.78	0.00	593.81	0.54	1.58	3677.26	5317.61
*	10965.000	100.00	0.00	0.00	577.00	5475.00	596.24	0.00	596.26	0.45	1.58	5372.25	8182.24
	11275.000	380.00	0.00	0.00	577.90	2010.00	590.10	0.00	590.12	1.35	1.73	2226.15	1729.47
	11275.000	380.00	0.00	0.00	577.90	3261.00	592.91	0.00	592.92	0.53	1.26	4173.84	4482.10
	11275.000	380.00	0.00	0.00	577.90	3923.00	593.82	0.00	593.83	0.49	1.27	4832.53	5615.87
	11275.000	380.00	0.00	0.00	577.90	5475.00	596.27	0.00	596.28	0.35	1.19	6684.93	9250.34
	11276.000	1.00	585.90	587.30	577.90	2010.00	590.10	0.00	590.12	0.70	0.61	2190.95	2410.27
*	11276.000	1.00	585.90	587.30	577.90	3261.00	592.91	0.00	592.93	0.23	0.41	4134.40	6846.35
*	11276.000	1.00	585.90	587.30	577.90	3923.00	593.82	0.00	593.83	0.20	0.41	4792.36	8684.11
*	11276.000	1.00	585.90	587.30	577.90	5475.00	596.27	0.00	596.29	0.14	0.38	6650.70	14603.99
	11290.000	14.00	585.90	587.30	577.90	2010.00	590.10	0.00	590.12	0.69	0.61	2192.29	2412.73
	11290.000	14.00	585.90	587.30	577.90	3261.00	592.91	0.00	592.93	0.23	0.41	4134.79	6847.41
	11290.000	14.00	585.90	587.30	577.90	3923.00	593.82	0.00	593.83	0.20	0.41	4792.72	8685.15
	11290.000	14.00	585.90	587.30	577.90	5475.00	596.27	0.00	596.29	0.14	0.38	6650.94	14604.82
*	11291.000	1.00	0.00	0.00	577.90	2010.00	590.10	0.00	590.13	4.15	2.28	2227.24	986.81
*	11291.000	1.00	0.00	0.00	577.90	3261.00	592.91	0.00	592.93	1.76	1.73	4169.81	2460.96
*	11291.000	1.00	0.00	0.00	577.90	3923.00	593.82	0.00	593.83	1.64	1.74	4827.78	3066.46
*	11291.000	1.00	0.00	0.00	577.90	5475.00	596.28	0.00	596.29	1.19	1.65	6686.00	5011.22
*	11700.000	409.00	0.00	0.00	579.60	2010.00	590.16	0.00	590.18	0.98	1.26	2435.05	2032.68
*	11700.000	409.00	0.00	0.00	579.60	3261.00	592.94	0.00	592.95	0.53	1.11	4094.98	4461.91
*	11700.000	409.00	0.00	0.00	579.60	3923.00	593.84	0.00	593.85	0.52	1.15	4664.40	5447.16
*	11700.000	409.00	0.00	0.00	579.60	5475.00	596.29	0.00	596.30	0.41	1.15	6271.81	8577.57
*	12750.000	1050.00	0.00	0.00	579.82	1405.00	590.30	0.00	590.36	3.91	2.87	920.40	710.59
*	12750.000	1050.00	0.00	0.00	579.82	2264.00	593.01	0.00	593.05	1.85	2.34	1770.50	1663.41
*	12750.000	1050.00	0.00	0.00	579.82	2714.00	593.91	0.00	593.95	1.70	2.35	2081.20	2079.42
*	12750.000	1050.00	0.00	0.00	579.82	3773.00	596.35	0.00	596.37	1.11	2.13	3248.62	3578.67
	14540.000	1790.00	0.00	0.00	580.20	1405.00	590.98	0.00	591.06	5.45	3.06	1136.02	602.10
	14540.000	1790.00	0.00	0.00	580.20	2264.00	593.32	0.00	593.36	2.61	2.50	2127.92	1400.90
	14540.000	1790.00	0.00	0.00	580.20	2714.00	594.19	0.00	594.23	2.27	2.45	2536.68	1801.62
	14540.000	1790.00	0.00	0.00	580.20	3773.00	596.53	0.00	596.55	1.42	2.19	3791.20	3167.64
	15330.000	760.00	0.00	0.00	584.00	1405.00	591.38	0.00	591.41	3.95	2.04	1269.25	707.30
	15330.000	760.00	0.00	0.00	584.00	2264.00	593.51	0.00	593.53	2.19	1.92	2155.08	1530.33
	15330.000	760.00	0.00	0.00	584.00	2714.00	594.36	0.00	594.38	1.94	1.94	2543.62	1948.46
	15330.000	760.00	0.00	0.00	584.00	3773.00	596.63	0.00	596.64	1.20	1.80	3945.90	3444.50

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	16690.000	1390.00	0.00	0.00	581.50	1415.00	591.91	0.00	592.11	8.06	4.57	534.30	498.31
*	16690.000	1390.00	0.00	0.00	581.50	2286.00	593.80	0.00	593.99	6.68	4.71	801.47	884.58
*	16690.000	1390.00	0.00	0.00	581.50	2749.00	594.60	0.00	594.80	6.54	4.87	913.23	1075.05
*	16690.000	1390.00	0.00	0.00	581.50	3820.00	596.73	0.00	596.93	5.28	4.88	1213.88	1662.01
*	16730.000	40.00	0.00	0.00	580.80	1415.00	592.14	0.00	592.20	3.22	1.90	746.54	788.04
	16730.000	40.00	0.00	0.00	580.80	2286.00	593.98	0.00	594.06	3.83	2.33	980.78	1168.03
	16730.000	40.00	0.00	0.00	580.80	2749.00	594.77	0.00	594.87	4.17	2.54	1081.89	1345.52
	16730.000	40.00	0.00	0.00	580.80	3820.00	596.86	0.00	596.99	4.30	2.83	1350.09	1842.11
	16771.000	41.00	599.20	596.50	580.80	1415.00	592.15	0.00	592.21	3.21	1.89	747.33	789.23
	16771.000	41.00	599.20	596.50	580.80	2286.00	593.99	0.00	594.08	3.82	2.33	981.63	1169.48
	16771.000	41.00	599.20	596.50	580.80	2749.00	594.79	0.00	594.89	4.16	2.54	1082.79	1347.12
	16771.000	41.00	599.20	596.50	580.80	3820.00	596.99	0.00	597.11	4.14	2.80	1366.59	1877.84

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SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH	
	0.000	2190.00	588.15	0.00	0.00	0.00	548.50	0.00	
	0.000	3540.00	591.88	3.73	0.00	0.00	815.00	0.00	
	0.000	4240.00	593.10	1.22	0.00	0.00	815.00	0.00	1
	0.000	5900.00	595.82	2.72	0.00	0.00	815.00	0.00	
	450.000	2190.00	588.16	0.00	0.01	0.00	539.77	450.00	
	450.000	3540.00	591.89	3.73	0.01	0.00	802.54	450.00	
	450.000	4240.00	593.11	1.22	0.01	0.00	815.00	450.00	2
	450.000	5900.00	595.83	2.72	0.01	0.00	815.00	450.00	
	1420.000	2190.00	588.19	0.00	0.03	0.00	951.76	970.00	
	1420.000	3540.00	591.91	3.72	0.02	3.72	1155.42	970.00	3 A
	1420.000	4240.00	593.13	1.22	0.02	4.94	1196.38	970.00	
	1420.000	5900.00	595.84	2.72	0.02	7.66	1699.00	970.00	
	2350.000	2190.00	588.21	0.00	0.02	0.00	763.11	930.00	
	2350.000	3540.00	591.92	3.71	0.01	3.71	833.16	930.00	
	2350.000	4240.00	593.14	1.22	0.01	4.93	1065.48	930.00	4
	2350.000	5900.00	595.85	2.72	0.01	7.64	1388.52	930.00	
	3220.000	2000.00	588.25	0.00	0.04	0.00	432.04	870.00	
	3220.000	3250.00	591.94	3.68	0.02	3.68	799.89	870.00	5 B
	3220.000	3900.00	593.15	1.22	0.02	4.90	845.96	870.00	
	3220.000	5430.00	595.87	2.71	0.01	7.61	1019.33	870.00	
*	3268.000	2000.00	588.23	0.00	-0.02	0.00	552.50	48.00	
	3268.000	3250.00	591.93	3.70	0.00	3.70	872.00	48.00	
	3268.000	3900.00	593.15	1.22	0.00	4.92	872.00	48.00	6
	3268.000	5430.00	595.87	2.71	0.00	7.63	1117.69	48.00	
	3269.000	2000.00	588.21	0.00	-0.02	0.00	547.01	1.00	
	3269.000	3250.00	591.94	3.72	0.00	3.72	874.00	1.00	
	3269.000	3900.00	593.15	1.22	0.00	4.94	874.00	1.00	7
	3269.000	5430.00	595.87	2.71	0.00	7.66	1117.61	1.00	
	3304.000	2000.00	588.22	0.00	0.01	0.00	548.55	35.00	
	3304.000	3250.00	591.94	3.72	0.00	3.72	920.00	35.00	
	3304.000	3900.00	593.16	1.22	0.00	4.94	920.00	35.00	8
	3304.000	5430.00	595.87	2.71	0.00	7.65	1117.96	35.00	
	3305.000	2000.00	588.28	0.00	0.06	0.00	563.72	1.00	
	3305.000	3250.00	591.94	3.66	0.00	3.66	922.00	1.00	9 C
	3305.000	3900.00	593.16	1.22	0.00	4.87	922.00	1.00	
	3305.000	5430.00	595.87	2.71	0.00	7.59	1117.98	1.00	

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH	
	5050.000	2000.00	588.51	0.00	0.23	0.00	334.17	1745.00	
	5050.000	3250.00	592.03	3.52	0.10	3.52	346.12	1745.00	
	5050.000	3900.00	593.24	1.20	0.08	4.72	379.00	1745.00	10 D
*	5050.000	5430.00	595.92	2.69	0.06	7.41	591.58	1745.00	
	6120.000	2000.00	588.58	0.00	0.07	0.00	420.43	1070.00	
	6120.000	3250.00	592.08	3.50	0.05	3.50	431.49	1070.00	
	6120.000	3900.00	593.28	1.20	0.05	4.70	439.17	1070.00	11
*	6120.000	5430.00	595.97	2.69	0.04	7.39	500.00	1070.00	
	6134.000	2000.00	588.59	0.00	0.01	0.00	420.48	14.00	
	6134.000	3250.00	592.09	3.50	0.01	3.50	431.51	14.00	E
	6134.000	3900.00	593.29	1.20	0.01	4.70	439.81	14.00	12
	6134.000	5430.00	595.97	2.68	0.01	7.38	500.00	14.00	
*	8150.000	2000.00	588.75	0.00	0.16	0.00	499.86	2016.00	F
	8150.000	3250.00	592.16	3.41	0.07	3.41	590.52	2016.00	13
	8150.000	3900.00	593.36	1.20	0.07	4.61	659.34	2016.00	
	8150.000	5430.00	596.03	2.67	0.05	7.28	686.42	2016.00	
*	8700.000	2000.00	588.81	0.00	0.07	0.00	357.17	550.00	
*	8700.000	3250.00	592.18	3.37	0.02	3.37	684.96	550.00	14
*	8700.000	3900.00	593.37	1.19	0.02	4.56	717.78	550.00	
*	8700.000	5430.00	596.04	2.67	0.01	7.23	752.00	550.00	
*	9350.000	2000.00	589.04	0.00	0.23	0.00	375.82	650.00	
	9350.000	3250.00	592.26	3.22	0.08	3.22	528.76	650.00	15
	9350.000	3900.00	593.43	1.17	0.06	4.39	569.93	650.00	
	9350.000	5430.00	596.07	2.64	0.03	7.03	620.00	650.00	
	10180.000	2000.00	589.24	0.00	0.20	0.00	328.60	830.00	
	10180.000	3250.00	592.35	3.11	0.09	3.11	491.51	830.00	16 G
	10180.000	3900.00	593.51	1.16	0.08	4.27	545.31	830.00	
	10180.000	5430.00	596.13	2.62	0.05	6.89	712.24	830.00	
*	10880.000	2010.00	589.60	0.00	0.36	0.00	187.67	700.00	
*	10880.000	3261.00	592.53	2.93	0.18	2.93	499.46	700.00	17
*	10880.000	3923.00	593.66	1.13	0.15	4.06	552.01	700.00	
	10880.000	5475.00	596.22	2.56	0.09	6.62	924.45	700.00	
	10895.000	2010.00	589.61	0.00	0.01	0.00	187.74	15.00	
*	10895.000	3261.00	592.82	3.21	0.29	3.21	512.89	15.00	18 H
*	10895.000	3923.00	593.73	0.92	0.08	4.12	555.60	15.00	
	10895.000	5475.00	596.22	2.48	0.00	6.61	924.45	15.00	
*	10965.000	2010.00	590.06	0.00	0.45	0.00	398.17	100.00	19
*	10965.000	3261.00	592.88	2.82	0.06	2.82	452.81	100.00	
*	10965.000	3923.00	593.78	0.91	0.05	3.73	470.82	100.00	
*	10965.000	5475.00	596.24	2.46	0.03	6.19	1063.41	100.00	

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH	
	11275.000	2010.00	590.10	0.00	0.04	0.00	664.83	380.00	
	11275.000	3261.00	592.91	2.81	0.03	2.81	717.23	380.00	20
	11275.000	3923.00	593.82	0.91	0.03	3.72	734.10	380.00	
	11275.000	5475.00	596.27	2.45	0.03	6.17	793.51	380.00	
	11276.000	2010.00	590.10	0.00	0.00	0.00	664.83	1.00	
*	11276.000	3261.00	592.91	2.81	0.00	2.81	717.12	1.00	21
*	11276.000	3923.00	593.82	0.91	0.00	3.72	733.97	1.00	
*	11276.000	5475.00	596.27	2.45	0.00	6.17	793.63	1.00	
	11290.000	2010.00	590.10	0.00	0.00	0.00	664.87	14.00	
	11290.000	3261.00	592.91	2.81	0.00	2.81	717.13	14.00	22 I
	11290.000	3923.00	593.82	0.91	0.00	3.72	733.98	14.00	
	11290.000	5475.00	596.27	2.45	0.00	6.17	793.66	14.00	
*	11291.000	2010.00	590.10	0.00	0.00	0.00	664.86	1.00	
*	11291.000	3261.00	592.91	2.81	0.00	2.81	717.12	1.00	23
*	11291.000	3923.00	593.82	0.91	0.00	3.72	733.98	1.00	
*	11291.000	5475.00	596.28	2.46	0.00	6.18	793.64	1.00	
*	11700.000	2010.00	590.16	0.00	0.06	0.00	576.88	409.00	
*	11700.000	3261.00	592.94	2.77	0.02	2.77	621.49	409.00	24 J
*	11700.000	3923.00	593.84	0.91	0.02	3.68	636.08	409.00	
*	11700.000	5475.00	596.29	2.45	0.01	6.12	689.26	409.00	
*	12750.000	1405.00	590.30	0.00	0.13	0.00	297.98	1050.00	
*	12750.000	2264.00	593.01	2.71	0.08	2.71	335.21	1050.00	25
*	12750.000	2714.00	593.91	0.90	0.07	3.62	353.26	1050.00	
*	12750.000	3773.00	596.35	2.43	0.06	6.05	613.88	1050.00	
	14540.000	1405.00	590.98	0.00	0.69	0.00	385.77	1790.00	
	14540.000	2264.00	593.32	2.34	0.31	2.34	457.09	1790.00	26 K
	14540.000	2714.00	594.19	0.87	0.28	3.21	481.10	1790.00	
	14540.000	3773.00	596.53	2.33	0.18	5.54	781.01	1790.00	
	15330.000	1405.00	591.38	0.00	0.40	0.00	386.49	760.00	
	15330.000	2264.00	593.51	2.13	0.19	2.13	442.84	760.00	27
	15330.000	2714.00	594.36	0.85	0.16	2.98	494.11	760.00	
	15330.000	3773.00	596.63	2.27	0.10	5.24	754.69	760.00	
	16690.000	1415.00	591.91	0.00	0.53	0.00	141.00	1390.00	L
*	16690.000	2286.00	593.80	1.89	0.29	1.89	141.00	1390.00	28
*	16690.000	2749.00	594.60	0.80	0.24	2.69	141.00	1390.00	
*	16690.000	3820.00	596.73	2.13	0.11	4.82	141.00	1390.00	
*	16730.000	1415.00	592.14	0.00	0.23	0.00	127.60	40.00	
	16730.000	2286.00	593.98	1.84	0.17	1.84	127.60	40.00	29
	16730.000	2749.00	594.77	0.79	0.17	2.63	127.60	40.00	
	16730.000	3820.00	596.86	2.09	0.13	4.72	130.00	40.00	

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
16771.000	1415.00	592.15	0.00	0.01	0.00	127.60	41.00
16771.000	2286.00	593.99	1.84	0.02	1.84	127.60	41.00
16771.000	2749.00	594.79	0.79	0.02	2.63	127.60	41.00
16771.000	3820.00	596.99	2.20	0.13	4.84	130.00	41.00

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SUMMARY OF ERRORS AND SPECIAL NOTES

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WARNING SECNO=   3268.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   5050.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   6120.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   8150.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   8700.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   8700.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   8700.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   8700.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   9350.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  10880.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  10880.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  10880.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  10895.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  10895.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  10965.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  10965.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  10965.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  10965.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  11276.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  11276.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  11276.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  11291.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  11291.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  11291.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  11291.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  11700.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  11700.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  11700.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  11700.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  12750.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  12750.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  12750.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  12750.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  16690.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  16690.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  16690.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  16730.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Clinton Twp.

3) WATERCOURSE: Middle Branch Clinton River

4) DOCUMENT TYPE: 100year Encroached

00BREAK00

THIS RUN EXECUTED 11JAN94 12:10:21

****
HEC-2 WATER SURFACE PROFILES

Version 4.6.0; February 1991
****

T1 CLINTON TOWNSHIP FLOOD INSURANCE STUDY
T2 UPDATED 10-YEAR FLOOD STS CONSULTANTS LTD 12/93 MMW
T3 MIDDLE BRANCH OF THE CLINTON RIVER

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-1.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	588.15	0.0

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	1.0	0.0	-1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

J3 VARIABLE CODES FOR SUMMARY PRINTOUT

150.0	0 0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

QT	4.0	2130 0	3540.0	4240.0	5900.0	0.0	0.0	0.0	0.0	0.0
NC	.07	07	.03	.10	.30	0.0	0.0	0.0	0.0	0.0
NH	3.0	07	380.0	.04	410.0	.05	815.0	0.0	0.0	0.0
X1	0.0	21.0	380.0	410.0	0.0	0.0	0.0	0.0	-.30	0.0
GR	592.0	0.0	590.0	205.0	588.0	245.0	586.0	270.0	584.0	278.0
GR	582.0	285.0	580.0	300.0	578.0	360.0	576.0	370.0	574.0	380.0
GR	573.1	395.0	574.0	410.0	576.0	415.0	578.0	425.0	580.0	430.0
GR	582.0	715.0	584.0	735.0	586.0	760.0	588.0	780.0	590 0	800.0
GR	592.0	815.0	0 0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NH	3.0	07	380.0	.04	410.0	.05	815.0	0.0	0.0	0.0
X1	450.0	0.0	0.0	0.0	450.0	450.0	450.0	0.0	.30	0.0
NH	4.0	07	758.0	.04	792.0	.07	1153.0	.04	1700.0	0.0
ET	0.0	6.1	8.1	8.1	8.1	80.0	1060.0	1.0	1700.0	0.0
X1	1420.0	30.0	750.0	800.0	970.0	970.0	970.0	0.0	0.0	0.0
GR	588.6	0.0	587.4	100.0	587.8	300.0	588.5	360.0	579.7	382.0
GR	579.7	400.0	581.7	500.0	582.5	600.0	579.6	700.0	582.1	750.0
GR	577.3	758.0	575.9	762.0	574.0	768.0	573.7	774.0	573.8	780.0
GR	573.9	786.0	575.0	792.0	582.8	800.0	582.3	900.0	579.4	1000.0
GR	579.5	1085.0	582.5	1100.0	591.8	1153.0	593.2	1200.0	595.0	1260.0
GR	594.5	1300.0	595.1	1400.0	595.4	1500.0	595.5	1600.0	595.2	1700.0
NH	5.0	05	390.0	.07	400.0	.04	430.0	.07	462.0	.05
NH	1400.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
X1	2350.0	25.0	400.0	430.0	980.0	780.0	930.0	0.0	0.0	0.0
GR	594.0	0.0	592.0	275.0	590.0	295.0	588.0	300.0	586.0	305.0
GR	584.0	310.0	582.0	315.0	580.0	325.0	580.0	390.0	578.0	393.0
GR	576.0	400.0	574.32	415.0	576.0	430.0	578.0	435.0	580.0	440.0
GR	582.0	452.0	584.0	462.0	584.0	830.0	586.0	845.0	588.0	890.0

GR	588 0	1060.0	590.0	1085.0	592.0	1110.0	594.0	1240.0	596.0	1400.0
QT	4.0	2000.0	3250.0	3900.0	5430.0	0.0	0.0	0.0	0.0	0.0
NH	5.0	.05	1900.0	.07	1905.0	.04	1978.0	.07	1981.0	.05
NH	2250.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ET	0.0	6.1	8.1	8.1	8.1	1500.0	2250.0	1200.0	2250.0	0.0
X1	3220.0	40.0	1900.0	1981.0	920.0	720.0	870.0	0.0	0.0	0.0
X3	10 0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GR	596.0	0.0	595.5	100.0	595.1	200.0	594.9	300.0	594.8	400.0
GR	594.2	500.0	593.7	600.0	591.3	700.0	588.3	800.0	587.7	900.0
GR	587.8	942.5	587.7	967.0	588.1	1000.0	589.2	1100.0	591.0	1200.0
GR	590.9	1300.0	589.3	1400.0	589.3	1400.0	589.3	1400.0	589.3	1400.0
GR	588 0	1600.0	583.1	1700.0	583.2	1800.0	584.3	1880.0	581.9	1900.0
GR	577.2	1905.0	575.7	1910.0	575.2	1915.0	574.9	1920.0	575.0	1925.0
GR	575.4	1930.0	575.7	1935.0	576.9	1938.0	577.1	1978.0	580.0	1981.0
GR	592.0	2000.0	594.5	2100.0	595.3	2175.0	596.0	2230.0	596.5	2250.0
NC	.055	.055	.04	0.3	0.5	0.0	0.0	0.0	0.0	0.0
ET	0.0	6.1	8.1	8.1	6.1	1200.0	2400.0	1200.0	2072.0	0.0
X1	3268.0	38.0	1980.0	2060.1	48.0	48.0	48.0	0.0	0.0	0.0
X3	10 0	0.0	0.0	0 0	0.0	0.0	0.0	587.0	590.0	0.0
GR	596.0	0.0	595.5	100.0	595.1	200.0	594.9	300.0	594.8	400.0
GR	594.2	500.0	593.7	600.0	591.3	700.0	588.3	800.0	587.7	900.0
GR	588 7	942.0	588.9	967.0	589.2	1000.0	589.5	1100.0	589.7	1200.0
GR	589 0	1300.0	588.5	1400.0	587.3	1600.0	587.6	1800.0	588.0	1900.0
GR	588.7	1950.0	589.3	1980.0	579.3	1980.1	577.4	1992.0	576.8	1995.0
GR	577.4	2002 0	576.3	2008.0	574.8	2018.0	574.4	2027.0	574.2	2038.0
GR	576 5	2045 0	579.5	2060.0	590.0	2060.1	591.0	2102.0	593.3	2202.0
GR	596.2	2277.0	595.4	2300.0	595.7	2400.0	0.0	0.0	0.0	0.0
NC	05	05	.02	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ET	0.0	6.1	8.1	8.1	6.1	1200.0	2400.0	1200.0	2074.0	0.0
X1	3269.0	0.0	0.0	0.0	1.0	1.0	1.0	0.0	0.0	0.0
BT	18.0	900.0	587.7	587.7	942.0	588.7	588.7	967.0	588.9	588.9
BT	1000 0	589.2	589.2	1100.0	589.5	589.5	1200.0	589.7	589.7	1300.0
BT	589 0	589 0	1400.0	588.5	588.5	1600.0	587.3	587.3	1800.0	587.6
BT	587.6	1900.0	588.0	588.0	1950.0	588.7	588.7	1980.0	589.3	589.3
BT	1980.1	589.3	584.3	2060.0	590.0	586.2	2060.1	590.0	590.0	2102.0
BT	591.3	591 0	2202.0	595.0	593.3	0.0	0.0	0.0	0.0	0.0
ET	0 0	6.1	8.1	8.1	6.1	1200.0	2400.0	1200.0	2120.0	0.0
X1	3304 0	0.0	0.0	0.0	35.0	35.0	35.0			
X2							1.0			
NC	.055	055	.04							
ET		6.1	8.1	8.1	6.1	1200.0	2400.0	1200.0	2122.0	
X1	3305.0	0.0	0.0	0.0	1.0	1.0	1.0			
X3	10.0	0.0	0.0	0.0	0.0	0.0	0.0	587.3	590.0	0.0

NC				0.2	0.4					
NH	6.0	.05	220.0	.075	500.0	.06	512.0	.045	536.0	.06
NH	544.0	.04	900.0							
X1	5050.0	19.0	500.0	544.0	1450.0	1745.0	1745.0			
X3				200.0						
GR	594.5	0.0	594.5	100.0	594.0	200.0	586.0	220.0	580.4	303.0
GR	580.4	400.0	580.3	500.0	577.1	507.0	576.0	512.0	575.6	517.0
GR	575.6	522.0	575.7	527.0	575.9	532.0	576.8	536.0	582.1	544.0
GR	592.0	550.0	594.0	600.0	596.0	800.0	599.0	900.0	0.0	0.0
NH	5.0	.05	500.0	.06	515.0	.045	534.5	.06	538.0	.04
NH	1572.0									
X1	6120.0	36 0	515.0	534.5	950.0	600.0	1070.0			
X3				200.0		700.0				
GR	594.5	0.0	593.7	100.0	594.5	200.0	593.2	265.0	584.0	294.0
GR	581.1	303.0	581.4	315.0	582.9	400.0	582.9	415.0	583.0	500.0
GR	583.0	515.0	579 1	515.1	577.4	518.0	576.8	523.0	576.7	528.0
GR	576.8	532.0	578.8	534.4	581.8	534.5	581.9	538.0	582.5	560.0
GR	58[illegible] 5	535.0	583.6	600.0	584.5	660.0	584.6	670.0	585.1	700.0
GR	588 [illegible]	800.0	590.1	900.0	592.1	1000.0	595 9	1100.0	596.7	1132.0
GR	596.3	1200.0	597.8	1300.0	597.0	1400.0	596.5	1500.0	596.1	1515.0
GR	598.1	1572.0								
SB	0.0	1.53	3.04	0.0	19.5	0.0	197.8	0.0	576.7	576.7
X1	6134.0	0.0	0.0	0.0	14.0	14.0	14.0			
X2	0.0	0.0	1.0	587.4	588.2					
X3				200.0		700.0				
BT	22.0	0.0	594.5	560.0	100.0	594.5	560.0	200.0	594.5	560.0
BT	265.0	593 2	560.0	294.0	584.0	560.0	315.0	583.3	560.0	415.0
BT	584.2	560.0	515.0	588.2	583.0	515.1	588.2	587.4	534.4	588.3
BT	587.[illegible]	534.5	588.3	581.8	538.0	588.3	560.0	560.0	588.9	560.0
BT	595.0	539 4	560 0	660.0	597.4	560.0	670.0	597.3	560.0	1132.0
BT	596.7	560.0	1300.0	597.8	560.0	1400.0	597.0	560.0	1500.0	596.5
BT	560.0	1515.0	596.1	560.0	1572.0	598.1	560.0			
NH	7.0	.05	800.0	.095	960.0	.045	1400.0	.07	1413.0	.05
NH	1440.0	.07	1448.0	.03	2600.0					
X1	8150.0	42.0	1400.0	1448.0	1500.0	2016.0	2016.0			
X3				900.0		1650.0				
GR	595.5		595.5	100.0	595.5	200.0	595.5	300.0	595.4	400.0
GR	595.1	500.0	595.3	600.0	595.9	700.0	596.8	800.0	596.8	900.0
GR	596.8	960.0	589.9	988.0	589.2	1000.0	587.2	1100.0	585.1	1200.0
GR	584.0	1300.0	583.4	1380.0	585.2	1400.0	576.7	1413.0	576.5	1420.0
GR	577 4	1430.0	577.0	1435.0	578.1	1440.0	585.2	1448.0	587.1	1500.0
GR	592.2	1570.0	592.5	1600.0	593.3	1633.0	596.6	1653.0	597.3	1700.0
GR	596.2	1800.0	594.5	1842.0	596.2	1868.0	596.1	2000.0	597.8	2020.0
GR	598.0	2100.0	598.5	2186.0	598.3	2230.0	597.7	2300.0	596.9	2400.0
GR	596.5	2500.0	596.5	2600.0						

NC				.10	.30					
NH	5.0	.05	660.0	.07	680.0	.05	705.0	.07	730.0	.05
NH	752.0									
X1	8700.0	19.0	680.0	705.0	370.0	550.0	550.0			
GR	596.0		594.0	15.0	592.0	60.0	590.3	135.0	592.0	210.0
GR	592.0	275.0	590.0	340.0	588.0	390.0	586.0	460.0	586.0	560.0
GR	584.0	670.0	582.0	673.0	580.0	680.0	576.36	692.0	580.0	705.0
GR	590 0	730.0	592.0	740.0	594.0	750.0	596.0	752.0		
NH	5.0	.05	285.0	.07	300.0	.045	320.0	.07	340.0	.05
NH	620.0									
X1	9350 0	20.0	300.0	320.0	500.0	650.0	650.0			
GR	596.0		594.0	20.0	592.0	70.0	590.0	185.0	588.0	195.0
GR	586.0	200 0	584.0	205.0	584.0	285.0	582.0	292.0	580.0	300 0
GR	576.3	310.0	580.0	320.0	582.0	330.0	584.0	340.0	586.0	505.0
GR	588.0	550 0	590.0	580.0	592.0	590.0	594.0	610.0	596.0	620 0
NH	8.0	.05	1700.0	.09	1769.0	.07	1777.0	.045	1795.0	.07
NH	1800.0	.05	1964.0	.035	2300.0	.04	2500.0			
X1	10130	36 0	1765.0	1800.0	830.0	830.0	830.0			
X3				1200.0		2100.0				
GR	597 1	0.0	596.6	100.0	596.4	200.0	596.4	300.0	596.1	400.0
GR	596 0	500.0	595.3	600.0	596.1	700.0	596.4	800.0	596.3	900.0
GR	597 3	1000.0	597.4	1100.0	597.4	1200.0	597.1	1300.0	594.9	1400.0
GR	591 8	1500 0	590.2	1600.0	586.3	1700.0	584.3	1765.0	580.4	1769.0
GR	579.3	1777 0	577.6	1780.0	576.0	1785.0	577.1	1790.0	578.6	1795.0
GR	584 2	1800 0	584.5	1900.0	585.1	1935.0	591.7	1964.0	594.2	2000.0
GR	597 6	2100 0	597.1	2200.0	597.6	2232.0	596.1	2300.0	595.9	2400.0
GR	596 1	2500.0								
QT	4.0	2010 0	3261.0	3923.0	5475.0					
NC				.50	1.0					
NH	6.0	045	1600.0	.085	1765.0	.085	1769.0	.040	1800.0	.07
NH	1803 0	.05	2500.0							
X1	10880.	42.0	1765.0	1803.1	750.0	700.0	700.0			
X3				1025.0		1803.1	590.0			
GR	597.1	0.0	596.6	100.0	596.4	200.0	596.4	300.0	596.1	400.0
GR	596.0	500.0	595.3	600.0	596.1	700.0	596.4	800.0	596.3	900.0
GR	597.3	1000 0	597.4	1100.0	597.4	1200.0	597.1	1300.0	594.9	1400.0
GR	591.8	1500 0	590.2	1600.0	586.3	1700.0	584.3	1765.0	580.2	1765.1
GR	577.6	1769.0	577.6	1777.0	576.8	1785.0	577.1	1793.0	578.3	1800.0
GR	580.5	1803.0	584.2	1803.1	584.3	1822.0	584.4	1854.0	584.4	1865.0
GR	584.4	1883.0	584.5	1900.0	585.1	1935.0	591.7	1964.0	594.2	2000.0
GR	595.9	2050.0	597.6	2100.0	597.1	2200.0	597.6	2232.0	596.1	2300.0
GR	595.9	2400 0	596.1	2500.0						
SB		1.53	3.09		38.0		504.3		576.8	576.8
NC	.045	.05	.04							
X1	10895.	0.0	0.0	0.0	15.0	15.0	15.0			
X2			1.0	591.0	591.8					
X3				1025.0		1803.0	590.0			
BT	34 0	0.0	597.1	587.1	100.0	596.6	596.6	200.0	596.4	596.4
BT	300 0	596.4	596.4	400.0	596.1	596.1	500.0	596.0	596.0	600.0

BT	595.3	595.3	700.0	596.1	596.1	800.0	596.4	596.4	900.0	596.3
BT	596.3	1000.0	597.3	597.3	1100.0	597.4	597.4	1200.0	597.4	597.4
BT	1300.0	597.1	597.1	1400.0	594.9	594.9	1500.0	591.8	591.8	1600.0
BT	591.4	590.2	1700.0	591.5	586.3	1765.0	592.1	584.3	1765.1	592.1
BT	590.9	1803.0	592.2	591.0	1803.1	592.2	584.2	1822.0	592.0	584.3
BT	1854.0	593.8	584.4	1865.0	593.5	584.4	1883.0	593.5	584.4	1900.0
BT	595.9	584.5	2050.0	595.9		2100.0	597.6		2200.0	597.1
BT		2232.0	597.6		2300.0	596.1		2400.0	595.9	
BT	2500.0	596.1								
ET		6.1	8.1	8.1	8.1	320.0	1160.0	90.0	1160.0	
X1	10965.	23.0	653.0	700.0	120.0	90.0	100.0	0.0	0.0	0.0
GR	597.3	0.0	596.2	100.0	596.0	200.0	594.0	300.0	587.0	400.0
GR	585.0	500.0	584.0	600.0	585.2	653.0	577.8	662.0	577.0	670.0
GR	577.0	682.0	577.0	689.0	577.8	694.0	583.7	700.0	588.0	744.0
GR	593.7	773.0	595.0	787.0	595.1	800.0	596.0	820.0	595.0	1000.0
GR	594.9	1100.0	594.9	1200.0	596.5	1201.0				
X1	11275.	32.0	561.9	584.5	380.0	380.0	330.0			
GR	597.3	0.0	596.1	115.5	588.4	230.9	586.5	346.4	585.9	461.9
GR	586.4	511.9	587.6	548.9	588.0	557.9	584.2	561.9	581.9	562.0
GR	580.6	563.9	580.1	566.9	579.0	569.9	577.9	573.9	578.7	578.9
GR	578.8	581.9	579.9	584.4	584.7	584.5	588.1	586.9	587.9	588.9
GR	587.5	599.9	586.6	661.9	587.8	754.0	586.3	808.3	587.0	859.1
GR	596.3	892.6	597.8	908.7	597.5	923.8	598.2	1039.2	597.5	1154.7
GR	597.4	1270.2	597.2	1385.6						
NC	.04	.02	.04							
X1	11276	0.0	0.0	0.0	1.0	1.0	1.0			
BT	26.0	0.0	597.3	597.3	115.5	596.1	596.1	230.9	588.4	588.4
BT	346.4	586.5	586.5	461.9	585.9	585.9	511.9	586.4	586.4	548.9
BT	587.6	587.6	557.9	588.0	588.0	561.9	588.2	584.2	562.0	588.2
BT	587.2	584.4	588.3	587.3	584.5	588.3	584.7	586.9	588.1	588.1
BT	588.9	587.9	587.9	599.9	587.5	587.5	661.9	586.6	586.6	754.0
BT	587.8	587.8	808.3	586.3	586.3	859.1	587.0	587.0	892.6	596.3
BT	596.3	908.7	597.8	597.8	923.8	597.5	597.5	1039.2	598.2	598.2
BT	1154.7	597.5	597.5	1270.2	597.4	597.4	1385.6	597.2	597.2	0.0
X1	11290.	0.0	0.0	0.0	14.0	14.0	14.0			
X2							1.0			
NH	3.0	.09	561.9	.045	584.4	.09	1385.6			
X1	11291.				1.0	1.0	1.0			
NH	7.0	.04	500.0	.09	653.0	.05	662.0	.045	689.0	.05
NH	700.0	.08	773.0	.05	1200.0					
X1	11700.	22.0	653.0	700.0	100.0	350.0	409.0			
GR	597.3		596.1	100.0	588.4	200.0	586.5	300.0	585.9	400.0
GR	584.2	500.0	586.6	600.0	587.8	653.0	580.4	662.0	579.6	670.0
GR	579.6	682.0	579.6	689.0	580.4	694.0	586.3	700.0	587.0	744.0
GR	596.3	773.0	597.8	787.0	597.5	800.0	598.2	900.0	597.5	1000.0
GR	597.4	1100.0	597.2	1200.0						

QT	4.0	1405.0	2264.0	2714.0	3773.0					
NC					.10	.30				
NH	7.0	.04	250.0	.09	308.0	.05	320.0	.045	342.0	.05
NH	355.0	.08	400.0	.05	640.0					
X1	12750.	20.0	320.0	342.0	1050.0	1600.0	1050.0			
GR	596.5	0.0	594.0	230.0	592.0	250.0	590.0	260.0	588.0	275.0
GR	586.0	308.0	584.0	310.0	582.0	320.0	579.82	331.0	582.0	342.0
GR	584.0	350.0	586.0	355.0	588.0	360.0	589.4	370.0	588.0	400.0
GR	588.0	535.0	590.0	555.0	592.0	565.0	594.0	585.0	597.0	640.0

NH	7.0	.05	1000.0	.09	1268.0	.05	1277.0	.04	1293.0	.05
NH	1300.0	07	1340.0	.05	2000.0					
X1	14540	29 0	1268.0	1293.0	1350.0	1200.0	1790.0			
X3				400.0		1400.0				
GR	598.1	0.0	597.2	100.0	596.1	200.0	596.3	300.0	596.9	400.0
GR	596.8	500 0	596.3	600.0	596.3	700.0	596.1	800.0	591.6	900.0
GR	588.6	1000 0	587.7	1100.0	587.4	1200.0	589.5	1255.0	588.0	1268.0
GR	582.1	1277.0	580.9	1281.0	580.2	1284.0	581.1	1289.0	582.7	1293.0
GR	589.8	1300.0	597.3	1340.0	597.6	1400.0	596.5	1500.0	597.1	1600.0
GR	598 1	1700.0	598.5	1800.0	596.6	1900.0	597.2	2000.0		

NH	6.0	.09	240.0	.05	260.0	.04	280.0	.05	290.0	.07
NH	355.0	05	800.0							
X1	15330	17.0	260.0	280.0	650.0	760.0	760.0			
GR	596.6	0.0	594.0	30.0	592.0	50.0	590.0	75.0	588.0	105.0
GR	588.0	240.0	586.0	250.0	584.0	260.0	588.66	270.0	584.0	280.0
GR	586.0	290.0	588.0	355.0	590.0	420.0	592.0	455.0	594.0	485.0
GR	596.0	680.0	597.0	800.0	0.0	0.0	0.0	0.0	0.0	0.0

QT	4 0	1415.0	2286.0	2749.0	3820.0					
NH	8.0	03	200.0	.05	769.0	.06	778.0	.04	795.0	.06
NH	800.0	04	1200.0	.03	1400.0	.05	2000.0			
X1	16690.	27.0	778.0	795.0	1350.0	1040.0	1390.0			
X3				714.0		855.0				
GR	597.2		596.5	100.0	592.3	200.0	590.5	300.0	588.7	400.0
GR	589.7	500.0	588.8	600.0	589.5	700.0	589.5	769.0	584.2	778.0
GR	583.2	781.0	581.5	789.0	583.2	795.0	589.8	800.0	588.0	850.0
GR	588.2	900 0	588.4	1000.0	589.3	1100.0	596.2	1200.0	598.7	1300.0
GR	597.5	1400.0	598.6	1500.0	598.9	1600.0	597.5	1700.0	598.0	1800.0
GR	598.6	1900.0	599.6	2000.0						

NC				.50	1.0					
NH	5.0	.04	830.0	.06	1400.0	.04	1530.0	.06	1830.0	.04
NH	2630.0									
X1	16730.	48.0	1400.0	1530.0	40.0	40.0	40.0			
X3				1400.0		1530.0				
X4	4.0	589.5	1397.6	589.5	1400.1	588.2	1530.1	588.2	1532.6	
GR	599.2	0.0	599.4	200.0	599.4	400.0	599.4	600.0	597.2	630.0
GR	596.5	730.0	592.3	830.0	590.3	930.0	588.7	1030.0	589.7	1130.0
GR	588.9	1230.0	589.5	1330.0	589.5	1397.5	589.5	1400.0	589.5	1422.0
GR	586.0	1430.0	585.5	1440.0	585.8	1444.4	596.5	1444.4	596.5	1445.6
GR	585.8	1445.6	586.4	1450.0	588.0	1455.0	583.9	1458.0	582.0	1460.0
GR	580.8	1470.0	583.1	1480.0	583.9	1483.0	585.2	1489.4	596.5	1489.4

GR	596.5	1490.6	585.2	1490.6	587.1	1500.0	587.0	1510.0	588.1	1513.0
GR	588.2	1530.0	588.2	1532.5	588.4	1630.0	589.3	1730.0	596.2	1830.0
GR	598.7	1930.0	597.5	2030.0	598.6	2130.0	598.9	2230.0	597.5	2330.0
GR	598.0	2430.0	598.6	2530.0	599.2	2630.0				
SB		1.86	3.04		130.0		1302.7		580.8	580.8
X1	16771	0.0	0.0	0.0	41.0	41.0	41.0			
X2			1.0	596.5	599.2					
X3				1400.0		1530.0				
BT	27.0	0.0	599.2	599.2	200.0	599.4	599.4	400.0	599.4	599.4
BT	600.0	599.4	599.4	630.0	599.4	597.2	730.0	599.5	596.5	830.0
BT	599.5	592.3	930.0	599.4	590.5	1030.0	599.3	588.7	1130.0	599.3
BT	589.7	1230.0	599.3	588.8	1330.0	599.4	589.5	1397.5	599.4	589.5
BT	1397.6	600.2	589.5	1400.0	600.2	589.5	1400.1	600.2	596.5	1444.4
BT	600.2	596.5	1445.6	600.2	596.5	1489.4	600.2	596.6	1490.6	600.2
BT	596.5	1530.0	600.2	596.5	1530.1	600.2	588.2	1532.5	600.2	588.2
BT	1532.6	599.6	588.2	2230.0	599.6	0.0	2430.0	599.3	0.0	2630.0
BT	599.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*PROF 1


CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 0.000
     0.000      15.35     588.15       0.00     588.15     588.16       0.01       0.00       0.00     573.70
    2190.0      429.7      451.1     1309.2     1031.8      447.0     2577.5        0.0        0.0     573.70
      0.00       0.42       1.01       0.51      0.070      0.040      0.050      0.000     572.80     236.00
  0.000020          0         0.         0.          0          0          0       0.00     548.50     784.50


1490 NH CARD USED
*SECNO 450.000
   450.000      15.06     588.16       0.00       0.00     588.17       0.01       0.01       0.00     574.00
    2190.0      430.8      462.4     1296.8      990.7      438.3     2469.0       41.1        5.6     574.00
      0.20       0.43       1.06       0.53      0.070      0.040      0.050      0.000     573.10     241.82
  0.000023       450.       450.       450.          0          0          0       0.00     539.77     781.59


1490 NH CARD USED
*SECNO 1420.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=        80.0     1060.0  TYPE=        1  TARGET=       980.000
  1420.000      14.19     588.19       0.00       0.00     588.19       0.00       0.02       0.00     582.10
    2190.0     1053.7      432.9      703.4     2813.4      608.7     1820.7      142.9       22.2     582.80
      0.81       0.37       0.71       0.39      0.070      0.052      0.070      0.000     573.70      80.00
  0.000025        970       970.       970.          0          0          0       0.00     951.76    1060.00


1490 NH CARD USED
*SECNO 2350.000
  2350.000      13.89     588.21       0.00       0.00     588.22       0.01       0.03       0.00     576.00
    2190.0      606.0      564.2     1019.7      759.8      391.4     1927.1      227.3       39.4     576.00
      1.10       0.80       1.44       0.53      0.052      0.040      0.053      0.000     574.32     299.48
  0.000049       980.       930.       780.          0          0          0       0.00     763.11    1062.60
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SECNO       DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
Q           QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
TIME        VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
SLOPE       XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


1490 NH CARD USED
*SECNO 3220.000

3470 ENCROACHMENT STATIONS=      1500.0     2250.0  TYPE=       1  TARGET=       750.000
  3220.000      13.35     588.25       0.00       0.00     588.27       0.02       0.05       0.00     581.90
    2000.0      760.0     1211.6       28.4     1246.8      942.4       53.8      278.2       50.5     580.00
      1.33       0.61       1.29       0.53      0.050      0.044      0.050      0.000     574.90    1562.02
  0.000059       920.       870.       720.          1          0          0       0.00     432.04    1994.06


CCHV=     0.300 CEHV=      0.500
*SECNO 3268.000

3265 DIVIDED FLOW


3302 WARNING.  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  0.63


3470 ENCROACHMENT STATIONS=      1200.0     2400.0  TYPE=       1  TARGET=      1200.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       587.00 ELREA=       590.00

  3268.000      14.03     588.23       0.00       0.00     588.30       0.06       0.00       0.02     589.30
    2000.0       66.9     1933.1        0.0      274.9      944.6        0.0      280.1       51.0     590.00
      1.34       0.24       2.05       0.00      0.055      0.040      0.000      0.000     574.20    1444.30
  0.000149        48.        48.        48.          2          0          0       0.00     552.50    2060.08


*SECNO 3269.000

3265 DIVIDED FLOW


3370 NORMAL BRIDGE, NRD=  18 MIN ELTRD=    587.30 MAX ELLC=    590.00


3470 ENCROACHMENT STATIONS=      1200.0     2400.0  TYPE=       1  TARGET=      1200.000
  3269.000      14.01     588.21       0.00       0.00     588.32       0.11       0.00       0.02     589.30
    2000.0       84.7     1915.3        0.0      264.1      705.9        0.0      280.1       51.1     590.00
      1.34       0.32       2.71       0.00      0.050      0.020      0.000      0.000     574.20    1448.15
  0.000223         1.         1.         1.          2          0          0    -236.80     547.01    2060.08
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  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*SECNO 3304.000

3265 DIVIDED FLOW

3370 NORMAL BRIDGE, NRD=  18 MIN ELTRD=   587.30 MAX ELLC=   590.00

3470 ENCROACHMENT STATIONS=     1200.0    2400.0  TYPE=       1  TARGET=     1200.000
  3304.000     14.02    588.22      0.00      0.00    588.33      0.11      0.01      0.00    589.30
    2000.0      86.1    1913.9       0.0     267.1     705.9       0.0     280.9      51.5    590.00
      1.34      0.32      2.71      0.00     0.050     0.020     0.000     0.000    574.20   1447.07
  0.000223       35.       35.       35.         0         0         0   -237.32    548.55   2060.08

*SECNO 3305.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=     1200.0    2400.0  TYPE=       1  TARGET=     1200.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      587.30 ELREA=      590.00

  3305.000     14.08    588.28      0.00      0.00    588.34      0.06      0.00      0.01    589.30
    2000.0      74.3    1925.7       0.0     297.5     948.3       0.0     280.9      51.5    590.00
      1.35      0.25      2.03      0.00     0.055     0.040     0.000     0.000    574.20   1436.45
  0.000146        1.        1.        1.         2         0         0      0.00    563.72   2060.08

CCHV=     0.200 CEHV=     0.400
1490 NH CARD USED
*SECNO 5050.000

3470 ENCROACHMENT STATIONS=      200.0     900.0  TYPE=       1  TARGET=     -200.000
  5050.000     12.91    588.51      0.00      0.00    588.52      0.01      0.17      0.01    580.30
    2000.0    1373.3     620.9       5.7    2051.8     505.6      12.5     349.4      66.9    582.10
      1.89      0.67      1.23      0.46     0.075     0.052     0.040     0.000    575.60    213.72
  0.000078     1450.     1745.     1745.         2         0         0      0.00    334.17    547.89

1490 NH CARD USED
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SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


*SECNO 6120.000

3470 ENCROACHMENT STATIONS=      200.0      700.0  TYPE=       1  TARGET=       500.000
  6120.000     11.88     588.58      0.00       0.00     588.59      0.01       0.07       0.00     583.00
    2000.0    1067.5      237.0     695.5     1368.8      221.2     808.0      401.3       74.5     581.80
      2.19      0.78       1.07      0.86      0.050      0.045     0.040      0.000     576.70     279.57
  0.000065      950.      1070.      600.          2          0         0       0.00     420.43     700.00



SPECIAL BRIDGE

SB  XK        XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
     0.00      1.53       3.04       0.00      19.50       0.00     197.80      0.00     576.70     576.70

*SECNO 6134.000
PRESSURE AND WEIR FLOW,  Weir Submergence Based on TRAPEZOIDAL Shape


 EGPRS       EGLWC       H3         QWEIR      QPR        BAREA     TRAPEZOID      ELLC       ELTRD      WEIRLN
                                                                      AREA
   591.01     588.59      0.00      1809.       193.       198.       209.      587.40     588.20       269.



3470 ENCROACHMENT STATIONS=      200.0      700.0  TYPE=       1  TARGET=       500.000
  6134.000     11.89     588.59      0.00       0.00     588.60      0.01       0.01       0.00     583.00
    2000.0    1067.4      236.4     696.1     1372.9      221.6     810.9      402.0       74.7     581.80
      2.19      0.78       1.07      0.86      0.050      0.045     0.040      0.000     576.70     279.52
  0.000064       14.        14.       14.          1          0        12       0.00     420.48     700.00


1490 NH CARD USED
*SECNO 8150.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  0.66


3470 ENCROACHMENT STATIONS=      900.0     1650.0  TYPE=       1  TARGET=       750.000
  8150.000     12.25     588.75      0.00       0.00     588.76      0.02       0.16       0.00     585.20
    2000.0    1226.6      610.4     163.0     1231.4      474.8     153.5      485.3       92.3     585.20
      2.63      1.00       1.29      1.06      0.045      0.060     0.030      0.000     576.50    1022.72
  0.000147     1500.      2016.     2016.          2          0         0       0.00     499.86    1522.59
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SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 8700.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  0.54

 8700.000    12.45    588.81     0.00     0.00    588.89     0.08     0.11     0.02    580.00
   2000.0   1044.3     837.1    118.6    805.9     265.7     96.9    500.2     96.3    580.00
     2.69     1.30      3.15     1.22    0.053     0.050    0.070    0.000   576.36    369.85
 0.000508     370.      550.     550.        1         0        0     0.00   357.17    727.02


1490 NH CARD USED
*SECNO 9350.000

3302 WARNING.  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.64

 9350.000    12 74    589.04     0.00     0.00    589.07     0.03     0.17     0.00    580.00
   2000.0    626.7     466.7    906.5    543 0     217.8    907.5    519.0    101.1    580.00
     2.81     1.15      2.14     1.00    0.054     0 045    0.053    0.000   576.30    189 80
 0.000190      500      650.     650.        2         0        0     0.00   375.82    565.61


1490 NH CARD USED
*SECNO 10180 000

3470 ENCROACHMENT STATIONS=     1200.0    2100.0  TYPE=      1  TARGET=     900.000
10180.000    13 24    589.24     0.00     0.00    589.28     0.04     0.21     0.00    584.30
   2000.0    272 8     692.7   1034.5    367.0     362.4    682.2    548.4    107.8    584.20
     2.96     0.74      1.91     1.52    0.078     0.062    0.050    0.000   576.00   1624.60
 0.000339      830      830.     830.        2         0        0     0.00   328.60   1953.19


CCHV=    0 500 CEHV=    1.000
1490 NH CARD USED
*SECNO 10880.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  0.64


3470 ENCROACHMENT STATIONS=     1025.0    1803.1  TYPE=      1  TARGET=     778.100
10880.000    12.80    589.60     0.00     0.00    589.74     0.14     0.36     0.10    584.30
   2010.0    468.2    1541.8      0.0    418.8     453.4      0.0    567.2    112.1    590.00
     3.03     1.12      3.40     0.00    0.085     0.053    0.000    0.000   576.80   1615.43
 0.000824     750.      700.     700.        2         0        0     0.00   187.67   1803.10
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 SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
 Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
 TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
 SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.00      1.53      3.09      0.00     38.00      0.00    504.30      0.00    576.80    576.80

*SECNO 10895.000

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS=     0.000  EGLWC=    589.741  ELLC=    591.000  PCWSE=    589.598  ELTRD=    591.800

3370 NORMAL BRIDGE, NRD=  34 MIN ELTRD=   591.80 MAX ELLC=   591.00


3470 ENCROACHMENT STATIONS=     1025.0    1803.0  TYPE=      1  TARGET=      778.000
  10895.000     12.81    589.61      0.00      0.00    589.92      0.31      0.01      0.16    584.30
     2010.0       0.0    2010.0       0.0       0.0     452.7       0.0     567.4     112.1    590.00
       3.03      0.00      4.44      0.00     0.000     0.040     0.000     0.000    576.80   1615.26
   0.000924       15.       15.       15.         1         0         0   -420.07    187.74   1803.00


*SECNO 10965.000

3302 WARNING   CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  3.57


3470 ENCROACHMENT STATIONS=      320.0    1160.0  TYPE=      1  TARGET=      840.000
  10965.000     13.06    590.06      0.00      0.00    590.08      0.02      0.02      0.14    585.20
     2010.0    1059.1     826.2     124.7    1317.9     545.6     196.0     570.6     112.9    583.70
       3.06      0.80      1.51      0.64     0.045     0.040     0.050     0.000    577.00    356.30
   0.000073      120      100.       90.         2         0         0      0.00    398.17    754.48


*SECNO 11275.000
  11275.000     12.20    590.10      0.00      0.00    590.12      0.02      0.04      0.00    584.20
     2010.0     969.6     425.5     614.8    1126.8     245.7     853.6     589.3     117.6    584.70
       3.16      0.86      1.73      0.72     0.045     0.040     0.050     0.000    577.90    205.43
   0.000135      380.      380.      380.         2         0         0      0.00    664.83    870.26

*SECNO 11276.000

3370 NORMAL BRIDGE, NRD=  26 MIN ELTRD=   585.90 MAX ELLC=   587.30
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

11276.000	12.20	590.10	0.00	0.00	590.12	0.02	0.00	0.00	584.20
2010.0	776.6	135.3	1098.1	1118.8	222.8	849.3	589.3	117.6	584.70
3.17	0.69	0.61	1.29	0.040	0.040	0.020	0.000	577.90	205.43
0.000070	1.	1.	1.	0	0	0	-35.20	664.83	870.26

*SECNO 11290.000

3370 NORMAL BRIDGE, NRD= 26 MIN ELTRD= 585.90 MAX ELLC= 587.30

11290.000	12.20	590.10	0.00	0.00	590.12	0.02	0.00	0.00	584.20
2010.0	776.6	135.2	1098.2	1119.5	222.9	849.9	590.0	117.8	584.70
3.17	0.69	0.61	1.29	0.040	0.040	0.020	0.000	577.90	205.40
0.000069	14.	14.	14.	0	0	0	-35.20	664.87	870.27

1490 NH CARD USED
*SECNO 11291.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.41

11291.000	12.20	590.10	0.00	0.00	590.13	0.03	0.00	0.01	584.20
2010.0	850.4	560.4	599.2	1127.4	245.7	854.1	590.1	117.8	584.70
3.17	0.75	2.28	0.70	0.090	0.053	0.090	0.000	577.90	205.41
0.000415	1	1.	1.	0	0	0	0.00	664.86	870.27

1490 NH CARD USED
*SECNO 11700.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.06

11700.000	10.56	590.16	0.00	0.00	590.18	0.01	0.04	0.01	587.80
2010.0	1399.8	540.6	69.6	1835.9	428.6	170.6	600.8	120.4	586.30
3.24	0.76	1.26	0.41	0.050	0.047	0.080	0.000	579.60	177.01
0.000098	100.	409.	350.	0	0	0	0.00	576.88	753.89

CCHV= 0.500 CEHV= 0.100
1490 NH CARD USED
*SECNO 12750.000

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      SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
      Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
      TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
      SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  0.35

  12750.000      10.48     590.30       0.00       0.00     590.36       0.07       0.18       0.01     582.00
     1405.0      260.5      592.5      552.0      212.1      206.5      501.7      645.5      132.7     582.00
       3.41       1.23       2.87       1.10      0.063      0.045      0.052      0.000     579.82     258.51
   0.000391      1050.      1050.      1600.          2          0          0       0.00     297.98     556.49


 1490 NH CARD USED
 *SECNO 14540.000

 3470 ENCROACHMENT STATIONS=      400.0     1400.0  TYPE=       1  TARGET=      1000.000
  14540.000      10.78     590.98       0.00       0.00     591.06       0.07       0.69       0.00     588.00
     1405.0      712.3      640.2       52.5      889.8      209.3       36.9      678.5      143.1     582.70
       3.64       0.80       3.06       1.42      0.086      0.044      0.050      0.000     580.20     920.54
   0.000545      1350.      1790.      1200.          2          0          0       0.00     385.77    1306.31


 1490 NH CARD USED
 *SECNO 15330.000
  15330.000       7.38     591.38       0.00       0.00     591.41       0.02       0.33       0.02     584.00
     1405.0      578.8      205.7      620.5      647.8      101.1      520.4      697.5      149.2     584.00
       3.81       0.89       2.04       1.19      0.076      0.040      0.060      0.000     584.00      57.71
   0.000395       650.       760.       760.          2          0          0       0.00     386.49     444.20


 1490 NH CARD USED
 *SECNO 16690.000

 3470 ENCROACHMENT STATIONS=      714.0      855.0  TYPE=       1  TARGET=       141.000
  16690.000      10.41     591.91       0.00       0.00     592.11       0.19       0.68       0.02     584.20
     1415.0      281.7      724.8      408.5      178.4      158.6      197.3      723.0      156.6     583.20
       3.91       1.58       4.57       2.07      0.053      0.040      0.042      0.000     581.50     714.00
   0.000806       1350      1390.      1040.          2          0          0       0.00     141.00     855.00


 CCHV=     0.500 CEHV=     1.000
 1490 NH CARD USED
 *SECNO 16730.000

 3265 DIVIDED FLOW
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SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.58


3470 ENCROACHMENT STATIONS=     1400.0    1530.0  TYPE=       1  TARGET=      130.000
 16730.000     11.34    592.14      0.00      0.00    592.20      0.06      0.02      0.07    589.50
    1415.0       0.0    1415.0       0.0       0.0     746.5       0.0     723.6     156.7 100000.00
      3.92      0.00      1.90      0.00     0.000     0.038     0.000     0.000    580.80   1400.00
  0.000322       40.       40.       40.         2         0         0      0.00    127.60   1530.00


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
      0.00      1.86      3.04      0.00    130.00      0.00   1302.70      0.00    580 80    580.80

*SECNO 16771.000

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS=     0.000  EGLWC=    592.196  ELLC=    596.500  PCWSE=    592.140  ELTRD=    599.200

3265 DIVIDED FLOW


3370 NORMAL BRIDGE, NRD=  27 MIN ELTRD=   599.20 MAX ELLC=   596.50


3470 ENCROACHMENT STATIONS=     1400.0    1530.0  TYPE=       1  TARGET=      130.000
 16771.000     11.35    592.15      0.00      0.00    592.21      0.06      0.01      0.00    589.50
    1415.0       0.0    1415.0       0.0       0.0     747.3       0.0     724.3     156.8 100000.00
      3.92      0.00      1.89      0.00     0.000     0.038     0.000     0.000    580.80   1400.00
  0.000321       41.       41.       41.         1         0         0     -0.05    127.60   1530.00
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T1 CLINTON TOWNSHIP FLOOD INSURANCE STUDY
T2 UPDATED 50-YEAR FLOOD   STS CONSULTANTS LTD  12/93 MMW
T3 MIDDLE BRANCH OF THE CLINTON RIVER

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

    -1.0      3.0      0.0      0.0      0.0      0.0      0.0      0.0    591.88     0.0

J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

    2.0       0.0     -1.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
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      SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
      Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
      TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
      SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*PROF 2


CCHV=    0.100 CEHV=     0.300
1490 NH CARD USED
*SECNO 0.000
3280 CROSS SECTION       0.00 EXTENDED       0.18 FEET

      0.000      19.08     591.88       0.00     591.88     591.89       0.01       0.00       0.00     573.70
     3540.0      714.8      563.6     2261.6     1902.4      558.9     4037.9        0.0        0.0     573.70
       0.00       0.38       1.01       0.56      0.070      0.040      0.050      0.000     572.80       0.00
   0.000015         0.         0.         0.          0          0          0       0.00     815.00     815.00


1490 NH CARD USED
*SECNO 450.000
    450.000      18.79     591.89       0.00       0.00     591 89       0.01       0.01       0.00     574.00
     3540 0      708.1      574.0     2258.0     1791.6      550.1     3919.2       65.9        8.4     574.00
       0.20       0 40       1.04       0.58      0.070      0.040      0.050      0.000     573.10      11.61
   0.000016       450.       450.       450.          0          0          0       0.00     802.54     814.15


1490 NH CARD USED
*SECNO 1420.000

3470 ENCROACHMENT STATIONS=        1.0     1700.0  TYPE=        1  TARGET=      1699.000
   1420.000      18.21     591.91       0.00     588.19     591.91       0.00       0.01       0.00     582.10
     3540.0     1792.0      477.3     1270.6     5601.8      794.8     3514.3      246.0       30.2     582.80
       0.93       0.32       0.60       0.36      0.070      0.052      0.070      0.000     573.70       1.00
   0.000013        970       970.       970.          0          0          0       0.00    1155.42    1156.42


1490 NH CARD USED
*SECNO 2350.000
   2350.000      17.60     591.92       0.00     588.21     591.92       0.01       0.01       0.00     576.00
     3540.0      776.8      572.2     2191.0     1163.8      502.7     4360.5      406.4       50.1     576.00
       1.30       0.67       1.14       0.50      0.052      0.040      0.052      0.000     574.32     275.82
   0.000022       980.       930.       780.          0          0          0       0.00     833.16    1108.98


1490 NH CARD USED
*SECNO 3220.000
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 SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
 Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
 TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
 SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3470 ENCROACHMENT STATIONS=     1200.0     2250.0  TYPE=       1  TARGET=     1050.000
  3220.000     17.04    591.94      0.00    588.25    591.95      0.01      0.02      0.00    581.90
    3250.0    1826.3    1369.5      54.2    3284.5    1240.8     112.7     507.8      65.7    580.00
      1.60      0.56      1.10      0.48     0.050     0.044     0.050     0.000    574.90   1200.00
  0.000030      920.      870.      720.         0         0         0      0.00    799.89   1999.89


CCHV=     0.300 CEHV=     0.500
*SECNO 3268.000

3470 ENCROACHMENT STATIONS=     1200.0     2072.0  TYPE=       1  TARGET=      872.000
  3268.000     17.73    591.93      0.00    588.23    591.95      0.02      0.00      0.00    589.30
    3250.0    1450.6    1793.7       5.7    2962.9    1241.1      21.4     512.7      66.6    590.00
      1.62      0.49      1.45      0.27     0.055     0.040     0.055     0.000    574.20   1200.00
  0.000054       48.       48.       48.         0         0         0      0.00    872.00   2072.00


*SECNO 3269.000

3370 NORMAL BRIDGE, NRD=  18 MIN ELTRD=    587.30 MAX ELLC=    590.00


3470 ENCROACHMENT STATIONS=     1200.0     2074.0  TYPE=       1  TARGET=      874.000
  3269.000     17.74    591.94      0.00    588.21    591.95      0.02      0.00      0.00    589.30
    3250.0    1938.9    1302.6       8.5    2960.0     888.8      23.9     512.8      66.6    590.00
      1.62      0.66      1.47      0.35     0.050     0.020     0.050     0.000    574.20   1200.00
  0.000080        1.        1.        1.         0         0         0   -352.69    874.00   2074.00


*SECNO 3304.000

3370 NORMAL BRIDGE, NRD=  18 MIN ELTRD=    587.30 MAX ELLC=    590.00


3470 ENCROACHMENT STATIONS=     1200.0     2120.0  TYPE=       1  TARGET=      920.000
  3304.000     17.74    591.94      0.00    588.22    591.96      0.02      0.00      0.00    589.30
    3250.0    1934.6    1297.8      17.5    2964.1     889.2      59.5     515.9      67.3    590.00
      1.63      0.65      1.46      0.29     0.050     0.020     0.050     0.000    574.20   1200.00
  0.000079       35.       35.       35.         0         0         0   -365.94    920.00   2120.00
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 SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
 Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
 TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
 SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


*SECNO 3305.000

3470 ENCROACHMENT STATIONS=     1200.0    2122.0  TYPE=      1  TARGET=       922.000
   3305.000     17.74    591.94      0.00    588.28    591.96      0.02      0.00      0.00    589.30
     3250.0    1446.0    1786.7      17.3    2964.6    1241.3      74.5     516.0      67.4    590.00
       1.63      0.49      1.44      0.23     0.055     0.040     0.055     0.000    574.20   1200.00
   0.000053        1.        1.        1.         0         0         0      0.00    922.00   2122.00


CCHV=     0.200 CEHV=     0.400
1490 NH CARD USED
*SECNO 5050 000

3470 ENCROACHMENT STATIONS=      200.0     900.0  TYPE=      1  TARGET=      -200.000
   5050.000     16.43    592.03      0.00    588.51    592.05      0.01      0.09      0.00    580.30
     3250.0    2365.4     868.1      16.6    3077.6     660.9      30.0     656.7      89.1    582.10
       2.10      0.77      1.31      0.55     0.075     0.052     0.040     0.000    575.60    204.90
   0.000063     1450.     1745.     1745.         1         0         0      0.00    346.12    551.01


1490 NH CARD USED
*SECNO 6120 000

3470 ENCROACHMENT STATIONS=      200.0     700.0  TYPE=      1  TARGET=       500.000
   6120.000     15.38    592.08      0.00    588.58    592.09      0.01      0.04      0.00    583.00
     3250.0    1723.2     276.4    1250.4    2214.0     289.6    1388.5     735.9      97.0    581.80
       2.40      0 78      0.95      0.90     0.051     0.045     0.040     0.000    576.70    268.51
   0.000036      950.     1070.      600.         0         0         0      0.00    431.49    700.00



SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
      0.00      1 53      3.04      0.00     19.50      0.00    197.80      0.00    576.70    576.70

*SECNO 6134.000
PRESSURE AND WEIR FLOW,  Weir Submergence Based on TRAPEZOIDAL Shape

 EGPRS     EGLWC       H3       QWEIR       QPR      BAREA   TRAPEZOID      ELLC      ELTRD     WEIRLN
                                                                AREA
    598.49    592.09      0.00     3072.      177.      198.      209.    587.40    588.20      348.
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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3470 ENCROACHMENT STATIONS=       200.0      700.0  TYPE=       1  TARGET=       500.000
  6134.000      15.39     592.09       0.00     588.59     592.10       0.01       0.01       0.00     583.00
    3250.0     1723.2      276.2     1250.5     2216.0      289.8     1389.9      737.1       97.1     581.80
      2.41       0.78       0.95       0.90      0.051      0.045      0.040      0.000     576.70     268.49
  0.000036        14.        14.        14.          1          0         12       0.00     431.51     700.00


1490 NH CARD USED
*SECNO 8150.000

3470 ENCROACHMENT STATIONS=       900.0     1650.0  TYPE=       1  TARGET=       750.000
  8150.000      15.66     592.16       0.00     588.75     592.17       0.01       0.07       0.00     585.20
    3250.0     2194.2      581.5      474.3     2631.4      638.4      487.6      885.5      116.8     585.20
      2.95       0.83       0.91       0.97      0.045      0.060      0.030      0.000     576.50     978.85
  0.000050       1500      2016.      2016.          0          0          0       0.00     590.52    1569.38


CCHV=     0.100 CEHV=     0.300
1490 NH CARD USED
*SECNO 8700.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  0.57

  8700.000      15.32     592.18       0.00     588.81     592.21       0.03       0.03       0.01     580.00
    3250.0     2348.9      729.0      172.1     2178.7      350.0      191.4      916.5      122.7     580.00
      3.04       1.08       2.08       0.90      0.052      0.050      0.069      0.000     576.36      55.94
  0.000154        370       550.       550.          0          0          0       0.00     684.96     740.90


1490 NH CARD USED
*SECNO 9350.000
  9350.000      15.96     592.26       0.00     589.04     592.28       0.02       0.07       0.00     580.00
    3250.0     1031.0      494.7     1724.4     1054.4      282.0     1747.9      954.2      130.3     580.00
      3.19       0.98       1.75       0.99      0.053      0.045      0.052      0.000     576.30      63.74
  0.000090       500.       650.       650.          1          0          0       0.00     528.76     592.50


1490 NH CARD USED
*SECNO 10180.000

3470 ENCROACHMENT STATIONS=      1200.0     2100.0  TYPE=       1  TARGET=       900.000
 10180.000      16.35     592.35       0.00     589.24     592.38       0.03       0.10       0.00     584.30
    3250.0      813.4      738.6     1698.0     1010.6      471.5     1183.4     1009.0      140.0     584.20
      3.37       0.80       1.57       1.43      0.067      0.062      0.050      0.000     576.00    1481.97
  0.000161       830.       830.       830.          0          0          0       0.00     491.51    1973.49
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  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

CCHV=    0.500 CEHV=    1.000
1490 NH CARD USED
*SECNO 10880.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  0.60


3470 ENCROACHMENT STATIONS=     1025.0    1803.1  TYPE=       1  TARGET=      778.100
  10880 000     15 73    592.53      0.00    589.60    592.60      0.07      0.18      0.05    584.30
     3261.0    1205.4    1623.5     432.1    1059.3     565.1     387.2    1047.8     148.3    590.00
       3.46      1.14      2.87      1.12     0.080     0.053     0.050     0.000    576.80   1476.48
   0 000443      750.      700.      700.         2         0         0      0.00    499.46   1975.94



SPECIAL BRIDGE

SB   XK       XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
      0.00     1 53      3.09      0.00     38.00      0.00    504.30      0.00    576.80    576.80

*SECNO 10895 000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.56

PRESSURE AND WEIR FLOW,  Weir Submergence Based on TRAPEZOIDAL Shape


 EGPRS      EGLWC      H3        QWEIR     QPR       BAREA    TRAPEZOID   ELLC      ELTRD     WEIRLN
                                                               AREA
    593.52    592.60      0.00     1356.     1913.      504.      540.    591.00    591.80      372.



3470 ENCROACHMENT STATIONS=     1025.0    1803.0  TYPE=       1  TARGET=      778.000
  10895.000     16 02    592.82      0.00    589.61    592.87      0.05      0.27      0.00    584.30
     3261.0    1518.4    1407.5     335.1    1143.7     575.3     437.6    1048.5     148.5    590.00
       3.47      1.33      2.45      0.77     0.045     0.040     0.050     0.000    576.80   1467.19
   0.000182       15.       15.       15.         2         0         3      0.00    512.89   1980.09


*SECNO 10965.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.85
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SECNO      DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
Q          QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
TIME       VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
SLOPE      XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


3470 ENCROACHMENT STATIONS=     90.0     1160.0  TYPE=      1  TARGET=     1070.000
 10965.000     15.88    592.88      0.00    590.06    592.90      0.02      0.01      0.02    585.20
    3261.0    1980.2    1012.8     267.9    2211.5     678.1     369.8    1055.4     149.7    583.70
      3.50      0.90      1.49      0.72     0.045     0.040     0.050     0.000    577.00    316.01
  0.000053      120.      100.       90.         2         0         0      0.00    452.81    768.82


*SECNO 11275.000
 11275.000     15.01    592.91      0.00    590.10    592.92      0.01      0.02      0.00    584.20
    3261.0    1712.6     391.2    1157.2    2191.1     309.4    1673.4    1087.8     154.8    584.70
      3.63      0.78      1.26      0.69     0.045     0.040     0.050     0.000    577.90    163.19
  0.000053      380.      380.      380.         1         0         0      0.00    717.23    880.42


*SECNO 11276.000

3302 WARNING   CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.53


3370 NORMAL BRIDGE, NRD=  26 MIN ELTRD=   585.90 MAX ELLC=   587.30

 11276.000     15.01    592.91      0.00    590.10    592.93      0.01      0.00      0.00    584.20
    3261.0    1255.0     117.4    1888.6    2180.7     286.4    1667.3    1087.9     154.8    584.70
      3.63      0.58      0.41      1.13     0.040     0.040     0.020     0.000    577.90    163.28
  0.000023        1.        1.        1.         0         0         0    -35.20    717.12    880.40


*SECNO 11290.000

3370 NORMAL BRIDGE, NRD=  26 MIN ELTRD=   585.90 MAX ELLC=   587.30

 11290.000     15.01    592.91      0.00    590.10    592.93      0.01      0.00      0.00    584.20
    3261.0    1255.0     117.4    1888.6    2180.9     286.4    1667.5    1089.2     155.1    584.70
      3.63      0.58      0.41      1.13     0.040     0.040     0.020     0.000    577.90    163.27
  0.000023       14.       14.       14.         0         0         0    -35.20    717.13    880.40


1490 NH CARD USED
*SECNO 11291.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  0.36
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

11291.000	15.01	592.91	0.00	590.10	592.93	0.01	0.00	0.00	584.20
3261.0	1557.1	534.9	1169.0	2188.8	309.3	1671.7	1089.3	155.1	584.70
3.63	0.71	1.73	0.70	0.090	0.053	0.090	0.000	577.90	163.28
0.000176	1.	1.	1.	0	0	0	0.00	717.12	880.40

1490 NH CARD USED
*SECNO 11700.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.81

11700.000	13.34	592.94	0.00	590.16	592.95	0.01	0.02	0.00	587.80
3261.0	2496.4	621.7	143.0	3204.4	558.8	331.8	1107.6	157.9	586.30
3.70	0.78	1.11	0.43	0.049	0.047	0.080	0.000	579.60	141.03
0.000053	100	409.	350.	0	0	0	0.00	621.49	762.52

CCHV= 0.500 CEHV= 0.100
1490 NH CARD USED
*SECNO 12750.000

3302 WARNING. CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.37

12750.000	13.19	593.01	0.00	590.30	593.05	0.04	0.10	0.00	582.00
2264.0	396.1	622.6	1245.3	399.8	266.2	1104.4	1187.4	171.3	582.00
3.93	0.99	2.34	1.13	0.069	0.045	0.053	0.000	579.82	239.90
0.000185	1050	1050.	1600.	2	0	0	0.00	335.21	575.10

1490 NH CARD USED
*SECNO 14540.000

3470 ENCROACHMENT STATIONS= 400.0 1400.0 TYPE= 1 TARGET= 1000.000

14540.000	13.12	593.32	0.00	590.98	593.36	0.04	0.31	0.00	588.00
2264.0	1509.4	668.6	85.6	1777.5	267.8	82.6	1248.5	183.4	582.70
4.23	0.85	2.50	1.04	0.081	0.044	0.054	0.000	580.20	861.70
0.000261	1350.	1790.	1200.	2	0	0	0.00	457.09	1318.79

1490 NH CARD USED
*SECNO 15330.000

15330.000	9.51	593.51	0.00	591.38	593.53	0.02	0.17	0.01	584.00
2264.0	941.0	275.4	1047.6	1104.3	143.7	907.1	1282.2	190.4	584.00
4.40	0.85	1.92	1.15	0.079	0.040	0.059	0.000	584.00	34.86
0.000219	650	760.	760.	2	0	0	0.00	442.84	477.71

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

1490 NH CARD USED
*SECNO 16690 000

3302 WARNING CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.58

3470 ENCROACHMENT STATIONS= 714.0 855.0 TYPE= 1 TARGET= 141.000

16690.000	12.30	593.80	0.00	591.91	593.99	0.19	0.44	0.02	584.20
2286.0	590.8	897.8	797.3	299.7	190.8	311.0	1323.8	198.6	583.20
4.51	1.97	4.71	2.56	0.052	0.040	0.042	0.000	581.50	714.00
0.000668	1350.	1390.	1040.	1	0	0	0.00	141.00	855.00

CCHV= 0.500 CEHV= 1.000
1490 NH CARD USED
*SECNO 16730 000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 1400.0 1530.0 TYPE= 1 TARGET= 130.000

16730.000	13 18	593.98	0 00	592.14	594.06	0.08	0.02	0.05	589.50
2286.0	0 0	2286.0	0.0	0.0	980.8	0.0	1324.6	198.7	100000.00
4.51	0.00	2.33	0.00	0.000	0.039	0.000	0.000	580.80	1400.00
0.000383	40.	40.	40.	2	0	0	0.00	127.60	1530.00

SPECIAL BRIDGE

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
0.00	1.86	3.04	0.00	130.00	0.00	1302.70	0.00	580.80	580.80

*SECNO 16771.000

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS= 0.000 EGLWC= 594.060 ELLC= 596.500 PCWSE= 593.976 ELTRD= 599.200

3265 DIVIDED FLOW

3370 NORMAL BRIDGE, NRD= 27 MIN ELTRD= 599.20 MAX ELLC= 596.50

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3470 ENCROACHMENT STATIONS= 1400.0 1530.0 TYPE= 1 TARGET= 130.000

16771.000	13.19	593.99	0.00	592.15	594.08	0.08	0.02	0.00	589.50
2286.0	0.0	2286.0	0.0	0.0	981.6	0.0	1325.6	198.8	100000.00
4.52	0.00	2.33	0.00	0.000	0.039	0.000	0.000	580.80	1400.00
0.000382	41.	41.	41.	1	0	0	-0.14	127.60	1530.00

T1 CLINTON TOWNSHIP FLOOD INSURANCE STUDY
T2 UPDATED 100-YEAR FLOOD STS CONSULTANTS LTD 12/93 MMW
T3 MIDDLE BRANCH OF THE CLINTON RIVER

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-1.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	593.10	0.0

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	3.0	0.0	-1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*PROF 3


CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 0.000
3280 CROSS SECTION       0.00 EXTENDED       1.40 FEET

     0.000      20.30     593.10       0.00     593.10     593.11       0.01       0.00       0.00     573.70
    4240.0      898.1      627.4     2714.5     2366.0      595.5     4532.0        0.0        0.0     573.70
      0.00       0.38       1.05       0.60      0.070      0.040      0.050      0.000     572.80       0.00
  0.000015          0         0.         0.          0          0          0       0.00     815.00     815.00


1490 NH CARD USED
*SECNO 450.000
3280 CROSS SECTION     450.00 EXTENDED       1.11 FEET

   450.000      20.01     593.11       0.00       0.00     593.11       0.01       0.01       0.00     574.00
    4240.0      887.6      638.1     2714.3     2254.6      586.7     4413.2       76.2        8.4     574.00
      0.20       0.39       1.09       0.62      0.070      0.040      0.050      0.000     573.10       0.00
  0.000016       450.       450.       450.          0          0          0       0.00     815.00     815.00


1490 NH CARD USED
*SECNO 1420.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3470 ENCROACHMENT STATIONS=         1.0     1700.0  TYPE=        1  TARGET=      1699.000
  1420.000      19.43     593.13       0.00     588.19     593.13       0.00       0.01       0.00     582.10
    4240.0     2204.3      530.4     1505.3     6515.6      855.8     3974.2      283.3       30.8     582.80
      0.89       0.34       0.62       0.38      0.070      0.052      0.070      0.000     573.70       1.00
  0.000012       970.       970.       970.          0          0          0       0.00    1196.38    1197.38


1490 NH CARD USED
*SECNO 2350.000
  2350.000      18.82     593.14       0.00     588.21     593.14       0.01       0.01       0.00     576.00
    4240.0      891.0      611.9     2737.1     1405.3      539.3     5232.1      469.7       53.6     576.00
      1.27       0.63       1.13       0.52      0.052      0.040      0.051      0.000     574.32     118.50
  0.000020       980.       930.       780.          0          0          0       0.00    1065.48    1183.98
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 SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
 Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
 TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
 SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


1490 NH CARD USED
*SECNO 3220.000

3470 ENCROACHMENT STATIONS=     1200.0     2250.0  TYPE=        1  TARGET=      1050.000
  3220.000      18.25     593.15       0.00     588.25     593.16       0.01       0.02       0.00     581.90
    3900.0     2362.0     1465.7       72.3     4137.4     1339.5      162.2      591.6       71.8     580.00
      1.58       0.57       1.09       0.45      0.050      0.044      0.050      0.000     574.90    1200.00
  0.000027       920.       870.       720.          0          0          0       0.00     845.96    2045.96


CCHV=     0.300 CEHV=     0.500
*SECNO 3268.000

3470 ENCROACHMENT STATIONS=     1200.0     2072.0  TYPE=        1  TARGET=       872.000
  3268.000      18.95     593.15       0.00     588.23     593.17       0.02       0.00       0.00     589.30
    3900.0     2058.1     1830.4       11.5     3912.4     1338.6       35.8      597.6       72.8     590.00
      1.59       0.53       1.37       0.32      0.055      0.040      0.055      0.000     574.20    1200.00
  0.000043        48.        48.        48.          0          0          0       0.00     872.00    2072.00


*SECNO 3269.000

3370 NORMAL BRIDGE, NRD=  18 MIN ELTRD=    587.30 MAX ELLC=    590.00


3470 ENCROACHMENT STATIONS=     1200.0     2074.0  TYPE=        1  TARGET=       874.000
  3269.000      18.95     593.15       0.00     588.21     593.17       0.01       0.00       0.00     589.30
    3900.0     2578.0     1305.4       16.6     3910.7      986.4       40.8      597.7       72.8     590.00
      1.59       0.66       1.32       0.41      0.050      0.020      0.050      0.000     574.20    1200.00
  0.000056          1         1.         1.          0          0          0    -352.69     874.00    2074.00


*SECNO 3304.000

3370 NORMAL BRIDGE, NRD=  18 MIN ELTRD=    587.30 MAX ELLC=    590.00


3470 ENCROACHMENT STATIONS=     1200.0     2120.0  TYPE=        1  TARGET=       920.000
  3304.000      18.96     593.16       0.00     588.22     593.17       0.01       0.00       0.00     589.30
    3900.0     2556.3     1293.2       50.5     3914.4      986.8      132.4      601.7       73.5     590.00
      1.60       0.65       1.31       0.38      0.050      0.020      0.050      0.000     574.20    1200.00
  0.000055        35.        35.        35.          0          0          0    -365.95     920.00    2120.00
```

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 3305.000

3470 ENCROACHMENT STATIONS= 1200.0 2122.0 TYPE= 1 TARGET= 922.000

3305.000	18.96	593.16	0.00	588.28	593.17	0.02	0.00	0.00	589.30
3900.0	2039.7	1812.7	47.6	3914.9	1338.9	149.9	601.8	73.5	590.00
1.60	0 52	1.35	0.32	0.055	0.040	0.055	0.000	574.20	1200.00
0.000043	1.	1.	1.	0	0	0	0.00	922.00	2122.00

CCHV= 0 200 CEHV= 0.400
1490 NH CARD USED
*SECNO 5050.000

3470 ENCROACHMENT STATIONS= 200.0 900.0 TYPE= 1 TARGET= -200.000

5050.000	17.64	593.24	0.00	588.51	593.25	0.02	0.08	0.00	580.30
3900.0	2868.9	1002.8	28.3	3432.3	713.5	56.2	769.4	95.9	582.10
2.05	0.84	1.41	0.50	0.075	0.052	0.040	0.000	575.60	201.91
0.000065	1450.	1745.	1745.	0	0	0	0.00	379.00	580.91

1490 NH CARD USED
*SECNO 6120.000

3470 ENCROACHMENT STATIONS= 200.0 700.0 TYPE= 1 TARGET= 500.000

6120.000	16 58	593.28	0.00	588.58	593.29	0.01	0.04	0.00	583.00
3900.0	2067 1	308.4	1524.5	2511.7	313.0	1586.8	858.1	104.1	581.80
2.33	0 82	0.99	0.96	0.051	0.045	0.040	0.000	576.70	260.83
0.000035	950	1070.	600.	0	0	0	0.00	439.17	700.00

SPECIAL BRIDGE

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
0.00	1.53	3.04	0.00	19.50	0.00	197.80	0.00	576.70	576.70

*SECNO 6134.000
PRESSURE AND WEIR FLOW, *Weir Submergence Based on TRAPEZOIDAL Shape*

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
602.52	593.29	0.00	3689.	182.	198.	209.	587.40	588.20	367.

```
 SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
 Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
 TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
 SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


3470 ENCROACHMENT STATIONS=      200.0      700.0  TYPE=       1  TARGET=       500.000
  6134.000     16.59    593.29      0.00    588.59    593.30      0.01      0.01      0.00    583.00
    3900.0    2067.1     308.2    1524.7    2515.0     313.2    1588.9     859.5     104.3    581.80
      2.33      0.82      0.98      0.96     0.051     0.045     0.040     0.000    576.70    260.18
  0.000035       14.       14.       14.         1         0        10      0.00    439.81    700.00

1490 NH CARD USED
*SECNO 8150.000

3470 ENCROACHMENT STATIONS=      900.0     1650.0  TYPE=       1  TARGET=       750.000
  8150.000     16.86    593.36      0.00    588.75    593.37      0.01      0.06      0.00    585.20
    3900.0    2634.3     611.2     654.5    3139.4     696.0     679.0    1032.7     125.7    585.20
      2.88      0.84      0.88      0.96     0.045     0.060     0.030     0.000    576.50    973.98
  0.000041      1500     2016.     2016.         0         0         0      0.00    659.34   1633.33

CCHV=     0.100 CEHV=     0.300
1490 NH CARD USED
*SECNO 8700.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  0.60

  8700.000     17.01    593.37      0.00    588.81    593.40      0.02      0.03      0.00    580.00
    3900.0    2975.5     722.9     201.5    2939.5     379.8     237.8    1071.1     132.1    580.00
      2.98      1.01      1.90      0.85     0.051     0.050     0.069     0.000    576.36     29.09
  0.000115      370.      550.      550.         0         0         0      0.00    717.78    746.87


1490 NH CARD USED
*SECNO 9350.000
  9350.000     17.11    593.43      0.00    589.04    593.45      0.02      0.05      0.00    580.00
    3900.0    1282.6     524.8    2092.6    1349.6     305.5    2075.4    1118.1     140.2    580.00
      3.12      0.95      1.72      1.01     0.053     0.045     0.052     0.000    576.30     34.34
  0.000078      500.      650.      650.         1         0         0      0.00    569.93    604.27

1490 NH CARD USED
*SECNO 10180.000

3470 ENCROACHMENT STATIONS=     1200.0     2100.0  TYPE=       1  TARGET=       900.000
 10180.000     17.51    593.51      0.00    589.24    593.54      0.03      0.08      0.00    584.30
    3900.0    1138.4     774.9    1986.7    1358.4     511.9    1393.0    1184.7     150.8    584.20
      3.30      0.84      1.51      1.43     0.065     0.062     0.050     0.000    576.00   1444.78
  0.000134      830.      830.      830.         0         0         0      0.00    545.31   1990.09
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SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

CCHV=    0.500 CEHV=    1.000
1490 NH CARD USED
*SECNO 10880.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  0.63

3470 ENCROACHMENT STATIONS=     1025.0    1803.1  TYPE=      1  TARGET=      778.100
 10880.000     16.86    593.66      0.00    589.60    593.71      0.06      0.15      0.03    584.30
    3923.0    1593.9    1601.1     727.9    1404.7     608.0     591.0    1233.4     160.0    590.00
      3.42      1.13      2.63      1.23     0.076     0.053     0.050     0.000    576.80   1440.15
  0.000328       750      700.      700.         2         0         0      0.00    552.01   1992.16


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
      0.00      1.53      3.09      0.00     38.00      0.00    504.30      0.00    576.80    576.80

*SECNO 10895.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.44

PRESSURE AND WEIR FLOW,  Weir Submergence Based on TRAPEZOIDAL Shape

 EGPRS      EGLWC       H3      QWEIR       QPR      BAREA  TRAPEZOID     ELLC     ELTRD     WEIRLN
                                                              AREA
    595.09    593.71      0.00     2744.     1163.      504.      540.    591.00    591.80      448.


3470 ENCROACHMENT STATIONS=     1025.0    1803.0  TYPE=      1  TARGET=      778.000
 10895.000     16.93    593.73      0.00    589.61    593.78      0.05      0.07      0.00    584.30
    3923.0    1926.2    1471.5     525.3    1429.8     610.2     605.6    1234.3     160.2    590.00
      3.42      1.35      2.41      0.87     0.045     0.040     0.050     0.000    576.80   1437.67
  0.000163       15.       15.       15.         2         0         8      0.00    555.60   1993.27

*SECNO 10965.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.73
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[redacted]

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3470 ENCROACHMENT STATIONS= 90.0 1160.0 TYPE= 1 TARGET= 1070.000

10965.000	16.78	593.78	0.00	590.06	593.81	0.02	0.01	0.01	585.20
3923.0	2444.5	1137.2	341.3	2522.4	720.7	434.2	1242.4	161.5	583.70
3.45	0.97	1.58	0.79	0.045	0.040	0.050	0.000	577.00	303.08
0.000054	120.	100.	90.	2	0	0	0.00	470.82	773.91

*SECNO 11275.000

11275.000	15.92	593.82	0.00	590.10	593.83	0.01	0.02	0.00	584.20
3923.0	2087.9	418.0	1417.1	2559.1	329.9	1943.5	1279.5	166.7	584.70
3.57	0.82	1.27	0.73	0.045	0.040	0.050	0.000	577.90	149.59
0.000049	380.	380.	380.	0	0	0	0.00	734.10	883.69

*SECNO 11276.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.55

3370 NORMAL BRIDGE, NRD= 26 MIN ELTRD= 585.90 MAX ELLC= 587.30

11276.000	15.92	593.82	0.00	590.10	593.83	0.01	0.00	0.00	584.20
3923.0	1512.4	125.0	2285.6	2548.3	306.9	1937.1	1279.6	166.7	584.70
3.57	0.59	0.41	1.18	0.040	0.040	0.020	0.000	577.90	149.69
0.000020	1.	1.	1.	0	0	0	-35.20	733.97	883.66

*SECNO 11290.000

3370 NORMAL BRIDGE, NRD= 26 MIN ELTRD= 585.90 MAX ELLC= 587.30

11290.000	15.92	593.82	0.00	590.10	593.83	0.01	0.00	0.00	584.20
3923.0	1512.4	125.0	2285.6	2548.5	306.9	1937.3	1281.2	167.0	584.70
3.58	0.59	0.41	1.18	0.040	0.040	0.020	0.000	577.90	149.68
0.000020	14.	14.	14.	0	0	0	-35.20	733.98	883.66

1490 NH CARD USED
*SECNO 11291.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.35

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
11291.000	15.92	593.82	0.00	590.10	593.83	0.01	0.00	0.00	584.20
3923.0	1908.9	574.7	1439.4	2556.5	329.8	1941.5	1281.3	167.0	584.70
3.58	0.75	1.74	0.74	0.090	0.053	0.090	0.000	577.90	149.68
0.000164	1.	1.	1.	0	0	0	0.00	733.98	883.66

1490 NH CARD USED
*SECNO 11700.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.78

11700.000	14.24	593.84	0.00	590.16	593.85	0.01	0.02	0.00	587.80
3923.0	3051.3	692.3	179.4	3673.3	601.4	389.7	1302.2	169.9	586.30
3.64	0.83	1.15	0.46	0.049	0.047	0.080	0.000	579.60	129.27
0.000052	100	409.	350.	0	0	0	0.00	636.08	765.35

CCHV= 0.500 CEHV= 0.100
1490 NH CARD USED
*SECNO 12750.000

3302 WARNING. CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.38

12750.000	14.09	593.91	0.00	590.30	593.95	0.04	0.09	0.00	582.00
2714.0	474.2	673.1	1566.6	476.2	286.1	1318.9	1394.2	183.7	582.00
3.88	1.00	2.35	1.19	0.070	0.045	0.053	0.000	579.82	230.87
0.000170	1050.	1050.	1600.	2	0	0	0.00	353.26	584.13

1490 NH CARD USED
*SECNO 14540.000

3470 ENCROACHMENT STATIONS= 400.0 1400.0 TYPE= 1 TARGET= 1000.000

14540.000	13.99	594.19	0.00	590.98	594.23	0.03	0.28	0.00	588.00
2714.0	1898.2	710.0	105.8	2140.0	289.6	107.1	1466.3	196.4	582.70
4.18	0.89	2.45	0.99	0.079	0.044	0.055	0.000	580.20	842.34
0.000227	1350.	1790.	1200.	2	0	0	0.00	481.10	1323.44

1490 NH CARD USED
*SECNO 15330.000

15330.000	10.36	594.36	0.00	591.38	594.38	0.02	0.15	0.01	584.00
2714.0	1125.2	312.1	1276.7	1298.2	160.6	1084.8	1506.2	204.1	584.00
4.35	0.87	1.94	1.18	0.080	0.040	0.058	0.000	584.00	25.86
0.000194	650	760.	760.	2	0	0	0.00	494.11	519.97

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

1490 NH CARD USED
*SECNO 16690.000

3302 WARNING CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.55

3470 ENCROACHMENT STATIONS= 714.0 855.0 TYPE= 1 TARGET= 141.000

16690.000	13.10	594.60	0.00	591.91	594.80	0.20	0.40	0.02	584.20
2749.0	752.6	995.4	1001.0	350.4	204.2	358.6	1554.8	212.9	583.20
4.45	2 15	4.87	2.79	0.052	0.040	0.041	0.000	581.50	714.00
0.000654	1350.	1390.	1040.	2	0	0	0.00	141.00	855.00

CCHV= 0.500 CEHV= 1.000
1490 NH CARD USED
*SECNO 16730.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 1400.0 1530.0 TYPE= 1 TARGET= 130.000

16730.000	13.97	594.77	0.00	592.14	594.87	0.10	0.02	0.05	589.50
2749.0	0.0	2749.0	0.0	0.0	1081.9	0.0	1555.7	213.0	100000.00
4.46	0.00	2.54	0.00	0.000	0.039	0.000	0.000	580.80	1400.00
0.000417	40.	40.	40.	2	0	0	0.00	127.60	1530.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.86	3.04	0.00	130.00	0.00	1302.70	0.00	580.80	580.80

*SECNO 16771.000

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS= 0.000 EGLWC= 594.869 ELLC= 596.500 PCWSE= 594.769 ELTRD= 599.200

3265 DIVIDED FLOW

3370 NORMAL BRIDGE, NRD= 27 MIN ELTRD= 599.20 MAX ELLC= 596.50

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3470 ENCROACHMENT STATIONS= 1400.0 1530.0 TYPE= 1 TARGET= 130.000

16771.000	13.99	594.79	0.00	592.15	594.89	0.10	0.02	0.00	589.50
2749 0	0.0	2749.0	0.0	0.0	1082.8	0.0	1556.8	213'.1	100000.00
4.46	0.00	2.54	0.00	0.000	0.039	0.000	0.000	580.80	1400.00
0.000416	41.	41.	41.	1	0	0	-0.20	127.60	1530.00

T1 CLINTON TOWNSHIP FLOOD INSURANCE STUDY
T2 UPDATED 500-YEAR FLOOD STS CONSULTANTS LTD 12/93 MMW
T3 MIDDLE BRANCH OF THE CLINTON RIVER

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-1.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0	595.82	0.0

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	15.0	0.0	-1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*PROF 4

CCHV= 0.100 CEHV= 0.300
1490 NH CARD USED
*SECNO 0.000
3280 CROSS SECTION 0.00 EXTENDED 4.12 FEET

0.000	23.02	595.82	0.00	595.82	595.83	0.01	0.00	0.00	573.70
5900.0	1383.3	760.3	3756.4	3399.6	677.1	5633.6	0.0	0.0	573.70
0.00	0.41	1.12	0.67	0.070	0.040	0.050	0.000	572.80	0.00
0.000014	0.	0.	0.	0	0	0	0.00	815.00	815.00

1490 NH CARD USED
*SECNO 450.000
3280 CROSS SECTION 450.00 EXTENDED 3.83 FEET

450.000	22.73	595.83	0.00	0.00	595.83	0.01	0.01	0.00	574.00
5900.0	1369.7	770.5	3759.8	3288.1	668.3	5514.7	99.1	8.4	574.00
0.18	0.42	1.15	0.68	0.070	0.040	0.050	0.000	573.10	0.00
0.000015	450.	450.	450.	0	0	0	0.00	815.00	815.00

1490 NH CARD USED
*SECNO 1420.000
3280 CROSS SECTION 1420.00 EXTENDED 0.64 FEET

3470 ENCROACHMENT STATIONS= 1.0 1700.0 TYPE= 1 TARGET= 1699.000

1420.000	22.14	595.84	0.00	588.19	595.85	0.00	0.01	0.00	582.10
5900.0	3157.0	638.4	2104.6	8552.1	991.7	5461.0	371.6	36.4	582.80
0.85	0.37	0.64	0.39	0.070	0.052	0.069	0.000	573.70	1.00
0.000011	970.	970.	970.	0	0	0	0.00	1699.00	1700.00

1490 NH CARD USED
*SECNO 2350.000
3280 CROSS SECTION 2350.00 EXTENDED 1.86 FEET

2350.000	21.53	595.85	0.00	588.21	595.86	0.01	0.01	0.00	576.00
5900.0	1266.2	671.2	3962.6	2441.6	620.9	7547.6	628.9	66.8	576.00
1.26	0.52	1.08	0.53	0.052	0.040	0.051	0.000	574.32	0.00
0.000015	980.	930.	780.	0	0	0	0.00	1388.52	1388.52

```
 SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
 Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
 TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
 SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

1490 NH CARD USED
*SECNO 3220.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3470 ENCROACHMENT STATIONS=     1200.0    2250.0  TYPE=       1  TARGET=      1050.000
  3220.000     20.97    595.87      0.00    588.25    595.87      0.01      0.01      0.00    581.90
    5430 0    3608.8    1641 2     180.0    6038.0    1559.5     533.7     807.0      89.4    580.00
      1.58      0.60      1.05      0.34     0.050     0.044     0.050     0.000    574.90   1200.00
  0.000020      920.      870.      720.         0         0         0      0.00   1019.33   2219.33

CCHV=     0 300 CEHV=     0.500
*SECNO 3268.000

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=     1200.0    2400.0  TYPE=       1  TARGET=      1200 000
  3268.000     21.67    595.87      0.00    588.23    595.88      0.01      0.00      0 00    589.30
    5430.0    3328.1    1863.9     238.0    6028.5    1555.9     693.2     816.1      90.6    590.00
      1.60      0 55      1.20      0.34     0.055     0.040     0.055     0.000    574.20   1200.00
  0.000027        48       48.       48.         0         0         0      0 00   1117.69   2335 89


*SECNO 3269 000

3265 DIVIDED FLOW


3370 NORMAL BRIDGE, NRD=  18 MIN ELTRD=   587.30 MAX ELLC=   590.00


3470 ENCROACHMENT STATIONS=     1200.0    2400.0  TYPE=       1  TARGET=      1200.000
  3269.000     21.67    595.87      0.00    588.21    595.88      0.01      0.00      0.00    589.30
    5430.0    3877 4    1340.3     212.3    6028.0    1203.9     586.8     816.3      90.6    590.00
      1.60      0.64      1.11      0.36     0.050     0.020     0.050     0.000    574.20   1200.00
  0.000031        1.        1.        1.         0         0         0   -458.29   1117.61   2335.85


*SECNO 3304.000

3265 DIVIDED FLOW
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     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 3370 NORMAL BRIDGE, NRD=  18 MIN ELTRD=   587.30 MAX ELLC=    590.00


 3470 ENCROACHMENT STATIONS=      1200.0    2400.0  TYPE=       1  TARGET=     1200.000
   3304.000     21.67    595.87      0.00    588.22    595.88      0.01      0.00      0.00    589.30
     5430.0    3877 6    1339.9     212.5    6030.1    1204.1     587.5     822.6      91.5    590.00
       1.61      0 64      1.11      0.36     0.050     0.020     0.050     0.000    574.20   1200.00
   0.000031       35.       35.       35.         0         0         0   -458.29   1117.96   2336 05

 *SECNO 3305.000

 3265 DIVIDED FLOW


 3470 ENCROACHMENT STATIONS=      1200.0    2400.0  TYPE=       1  TARGET=     1200.000
   3305.000     21.67    595.87      0.00    588.28    595.88      0 01      0.00      0.00    589.30
     5430.0    3328 3    1863.5     238.2    6030.2    1556.1     693.8     822.7      91.6    590.00
       1.61      0 55      1.20      0.34     0.055     0.040     0.055     0.000    574.20   1200.00
   0.000027        1         1.        1.         0         0         0      0.00   1117.98   2336.06

 CCHV=     0 200 CEHV=     0.400
 1490 NH CARD USED
 *SECNO 5050 000

 3302 WARNING.  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  0.66


 3470 ENCROACHMENT STATIONS=       200.0     900.0  TYPE=       1  TARGET=     -200.000
   5050.000     20 32    595.92      0.00    588.51    595.94      0.02      0.06      0.00    580.30
     5430.0    3973.4    1273.5     183.2    4235.3     831.4     382.5    1063.0     122.2    582.10
       2.02      0 94      1.53      0.48     0.074     0.052     0.040     0.000    575.60    200.00
   0.000063      1450     1745.     1745.         0         0         0      0.00    591.58    791.58


 1490 NH CARD USED
 *SECNO 6120.000

 3302 WARNING.  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.43
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3470 ENCROACHMENT STATIONS= 200.0 700.0 TYPE= 1 TARGET= 500.000

6120.000	19.27	595.97	0.00	588.58	595.98	0.01	0.04	0.00	583.00
5430.0	2902.7	376.4	2150.9	3319.0	365.3	2030.4	1176.7	132.5	581.80
2.28	0.87	1.03	1.06	0.051	0.045	0.040	0.000	576.70	200.00
0.000031	950.	1070.	600.	0	0	0	0.00	500.00	700.00

SPECIAL BRIDGE

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
0.00	1.53	3.04	0.00	19.50	0.00	197.80	0.00	576 70	576.70

*SECNO 6134 000
PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
613.87	595.98	0.00	5245.	179.	198.	209.	587.40	588.20	648.

3470 ENCROACHMENT STATIONS= 200.0 700.0 TYPE= 1 TARGET= 500.000

6134.000	19 27	595.97	0.00	588.59	595.99	0.01	0.01	0.00	583.00
5430.0	2902.9	376.1	2151.0	3324.1	365.6	2033.1	1178.5	132.6	581.80
2.28	0.87	1.03	1.06	0.051	0.045	0.040	0.000	576.70	200.00
0.000031	14.	14	14.	1	0	11	0.00	500.00	700.00

1490 NH CARD USED
*SECNO 8150.000

3470 ENCROACHMENT STATIONS= 900.0 1650.0 TYPE= 1 TARGET= 750.000

8150.000	19.53	596.03	0.00	588.75	596.04	0.01	0.05	0.00	585.20
5430.0	3591.3	673.0	1165.7	4293.8	824.4	1196.5	1411.9	155.6	585.20
2.83	0.84	0.82	0.97	0.045	0.060	0.030	0.000	576.50	963.13
0.000028	1500.	2016.	2016.	0	0	0	0.00	686.42	1649.54

CCHV= 0.100 CEHV= 0.300
1490 NH CARD USED
*SECNO 8700.000

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 SECNO      DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
 Q          QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
 TIME       VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
 SLOPE      XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

3280 CROSS SECTION   8700.00 EXTENDED     0.04 FEET

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  0.66

  8700.000    19.68    596.04      0.00    588.81    596.06      0.02      0.02      0.00    580.00
    5430.0   4438.4     716.2     275.3    4724.4     446.5     358.9    1468.1     162.4    580.00
      2.94     0.94      1.60      0.77     0.051     0.050     0.066     0.000    576.36      0 00
  0.000066     370.      550.      550.         0         0         0      0.00    752.00    752.00

1490 NH CARD USED
*SECNO 9350.000
3280 CROSS SECTION   9350.00 EXTENDED      0.07 FEET

  9350.000    19.77    596.07      0.00    589.04    596.09      0.02      0.03      0.00    580.00
    5430.0   1940 3     581.3    2908.4    2106.5     358.4    2850.5    1537.2     171.0    580.00
      3.09     0 92      1.62      1.02     0.052     0.045     0.052     0.000    576.30      0.00
  0 000056     500.      650.      650.         0         0         0      0 00    620.00    620 00

1490 NH CARD USED
*SECNO 10180.000
3280 CROSS SECTION  10180.00 EXTENDED      0.02 FEET

3470 ENCROACHMENT STATIONS=      1200.0    2100.0  TYPE=      1  TARGET=      900.000
 10180.000    20 13    596.13      0.00    589.24    596.15      0.02      0.06      0.00    584.30
    5430.0   1987.2     825.4    2617.4    2314.9     603.3    1966.5    1634.4     183.7    584.20
      3.29     0 86      1.37      1.33     0.061     0.062     0.049     0.000    576.00   1344.35
  0.000088      830      830.      830.         0         0         0      0.00    712.24   2056.59

CCHV=    0.500 CEHV=     1.000
1490 NH CARD USED
*SECNO 10880.000

3265 DIVIDED FLOW

3280 CROSS SECTION  10880.00 EXTENDED      0.12 FEET

3470 ENCROACHMENT STATIONS=      1025.0    1803.1  TYPE=      1  TARGET=      778.100
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
10880.000	19.42	596.22	0.00	589.60	596.25	0.03	0.09	0.01	584.30
5475.0	2536.6	1503.0	1435.4	2354.0	705.6	1196.7	1710.5	197.3	590.00
3.43	1.08	2.13	1.20	0.070	0.053	0.050	0.000	576.80	1340.15
0.000181	750	700.	700.	2	0	0	0.00	924.45	2500.00

SPECIAL BRIDGE

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
0.00	1.53	3.09	0.00	38.00	0.00	504.30	0.00	576.80	576.80

*SECNO 10895.000
6870 D.S ENERGY OF 596.25 IS HIGHER THAN COMPUTED ENERGY OF 596.24

3265 DIVIDED FLOW

3280 CROSS SECTION 10895.00 EXTENDED 0.12 FEET

PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
599.02	596.25	0.00	5001.	509.	504.	540.	591.00	591.80	1321.

3470 ENCROACHMENT STATIONS= 1025.0 1803.0 TYPE= 1 TARGET= 778.000

10895.000	19.42	596.22	0.00	589.61	596.25	0.03	0.00	0.00	584.30
5475.0	2932.9	1471.3	1070.9	2354.0	704.8	1196.6	1712.0	197.6	590.00
3.44	1.25	2.09	0.89	0.045	0.040	0.050	0.000	576.80	1340.15
0.000101	15	15.	15.	2	0	11	0.00	924.45	2500.00

*SECNO 10965.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.50

3470 ENCROACHMENT STATIONS= 90.0 1160.0 TYPE= 1 TARGET= 1070.000

10965.000	19.24	596.24	0.00	590.06	596.26	0.02	0.01	0.01	585.20
5475.0	3543.9	1320.9	610.2	3525.6	836.0	1010.7	1724.2	200.0	583.70
3.47	1.01	1.58	0.60	0.045	0.040	0.050	0.000	577.00	96.59
0.000045	120.	100.	90.	1	0	0	0.00	1063.41	1160.00

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 11275.000

11275.000	18.37	596.27	0.00	590.10	596.28	0.01	0.01	0.00	584.20
5475.0	2990.3	458.5	2026.2	3613.7	385 2	2686.1	1776.7	208.1	584.70
3.59	0 83	1.19	0.75	0.045	0.040	0.050	0.000	577.90	98.99
0.000035	380.	380.	380.	0	0	0	0.00	793.51	892.50

*SECNO 11276 000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.58

3370 NORMAL BRIDGE, NRD= 26 MIN ELTRD= 585.90 MAX ELLC= 587.30

11276.000	18.37	596.27	0.00	590.10	596.29	0.02	0.00	0.00	584.20
5475.0	2128.4	136 8	3209.8	3606.2	362.3	2682.1	1776.9	208.1	584.70
3.59	0.59	0.38	1.20	0.040	0.040	0.020	0.000	577.90	98.87
0.000014	1.	1.	1.	0	0	0	-35.20	793.63	892.50

*SECNO 11290.000

3370 NORMAL BRIDGE, NRD= 26 MIN ELTRD= 585.90 MAX ELLC= 587.30

11290.000	18.37	596 27	0.00	590.10	596.29	0.02	0.00	0.00	584.20
5475.0	2128.4	136.8	3209.8	3606.4	362.4	2682.2	1779.0	208.4	584.70
3.60	0.59	0.38	1.20	0.040	0.040	0.020	0.000	577.90	98.85
0.000014	14.	14.	14.	0	0	0	-35.20	793.66	892.50

1490 NH CARD USED
*SECNO 11291.000

3302 WARNING CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.34

11291.000	18.38	596.28	0.00	590.10	596.29	0.01	0.00	0.00	584.20
5475.0	2760.7	635.9	2078.4	3614.3	385.2	2686.5	1779.2	208.4	584.70
3.60	0.76	1.65	0.77	0.090	0.053	0.090	0.000	577.90	98.86
0.000119	1.	1.	1.	0	0	0	0.00	793.64	892.50

1490 NH CARD USED

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 11700.000

3302 WARNING CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.71

11700.000	16.69	596.29	0.00	590.16	596.30	0.01	0.01	0.00	587.80
5475.0	4382.4	821.6	271.0	4996.2	716.5	559.1	1807.3	211.5	586.30
3.66	0.88	1.15	0.48	0.049	0.047	0.080	0.000	579.60	83.73
0.000041	100.	409.	350.	0	0	0	0.00	689.26	772.99

CCHV= 0.500 CEHV= 0.100
1490 NH CARD USED
*SECNO 12750.000

3302 WARNING CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.42

12750.000	16.52	596.35	0.00	590.30	596.37	0.03	0.07	0.00	582.00
3773.0	767.6	723.7	2281.6	948.4	339.6	1960.6	1937.9	229.4	582.00
3.92	0.81	2.13	1.16	0.065	0.045	0.054	0.000	579.82	14.14
0.000111	1050.	1050.	1600.	2	0	0	0.00	613.88	628.02

1490 NH CARD USED
*SECNO 14540.000

3470 ENCROACHMENT STATIONS= 400.0 1400.0 TYPE= 1 TARGET= 1000.000

14540.000	16.33	596.53	0.00	590.98	596.55	0.02	0.17	0.00	588.00
3773.0	2848.3	762.0	162.8	3250.8	347.9	192.6	2046.8	250.7	582.70
4.26	0.88	2.19	0.85	0.076	0.044	0.058	0.000	580.20	554.86
0.000142	1350.	1790.	1200.	2	0	0	0.00	781.01	1335.87

1490 NH CARD USED
*SECNO 15330.000
3280 CROSS SECTION 15330.00 EXTENDED 0.02 FEET

15330.000	12.63	596.63	0.00	591.38	596.64	0.02	0.09	0.00	584.00
3773.0	1496.4	371.2	1905.4	1857.8	205.8	1882.2	2107.8	262.9	584.00
4.45	0.81	1.80	1.01	0.081	0.040	0.057	0.000	584.00	0.00
0.000120	650.	760.	760.	1	0	0	0.00	754.69	754.69

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

1490 NH CARD USED
*SECNO 16690.000

3302 WARNING CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.48

3470 ENCROACHMENT STATIONS= 714.0 855.0 TYPE= 1 TARGET= 141.000

16690.000	15.23	596.73	0.00	591.91	596.93	0.20	0.27	0.02	584.20
3820.0	1147.6	1174.8	1497.6	486.9	240.5	486.5	2179.6	274.9	583.20
4.55	2.36	4.88	3.08	0.052	0.040	0.041	0.000	581.50	714.00
0.000528	1350.	1390.	1040.	2	0	0	0.00	141.00	855.00

CCHV= 0.500 CEHV= 1.000
1490 NH CARD USED
*SECNO 16730.000

3470 ENCROACHMENT STATIONS= 1400.0 1530.0 TYPE= 1 TARGET= 130.000

16730.000	16.06	596.86	0.00	592.14	596.99	0.12	0.02	0.04	589.50
3820.0	0.0	3820.0	0.0	0.0	1350.1	0.0	2180.7	275.0	100000.00
4.56	0.00	2.83	0.00	0.000	0.040	0.000	0.000	580.80	1400.00
0.000430	40.	40.	40.	2	0	0	0.00	130.00	1530.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.86	3.04	0.00	130.00	0.00	1302.70	0.00	580.80	580.80

*SECNO 16771.000
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
597.11	596.99	0.00	0.	3820.	1303.	2041.	596.50	599.20	0.

3470 ENCROACHMENT STATIONS= 1400.0 1530.0 TYPE= 1 TARGET= 130.000

16771.000	16.19	596.99	0.00	592.15	597.11	0.12	0.12	0.00	589.50
3820.0	0.0	3820.0	0.0	0.0	1366.6	0.0	2182.0	275.1	100000.00
4.56	0.00	2.80	0.00	0.000	0.040	0.000	0.000	580.80	1400.00
0.000414	41.	41.	41.	2	0	0	0.00	130.00	1530.00

THIS RUN EXECUTED 11JAN94 12:10:31

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HEC-2 WATER SURFACE PROFILES

Version 4.6.0; February 1991
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

E BRANCH OF THE CLINTON

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	0.000	0.00	0.00	0.00	572.80	2190.00	588.15	0.00	588.16	0.20	1.01	4056.29	4875.74
	0.000	0.00	0.00	0.00	572.80	3540.00	591.88	0.00	591.89	0.15	1.01	6499.19	9155.06
	0.000	0.00	0.00	0.00	572.80	4240.00	593.10	0.00	593.11	0.15	1.05	7493.47	10948.52
	0.000	0.00	0.00	0.00	572.80	5900.00	595.82	0.00	595.83	0.14	1.12	9710.30	15571.90
	450.000	450.00	0.00	0.00	573.10	2190.00	588.16	0.00	588.17	0.23	1.06	3898.01	4603.33
	450.000	450.00	0.00	0.00	573.10	3540.00	591.89	0.00	591.89	0.16	1.04	6260.88	8754.67
	450.000	450.00	0.00	0.00	573.10	4240.00	593.11	0.00	593.11	0.16	1.09	7254.50	10500.48
	450.000	450.00	0.00	0.00	573.10	5900.00	595.83	0.00	595.83	0.15	1.15	9471.08	15034.39
	1420.000	970.00	0.00	0.00	573.70	2190.00	588.19	0.00	588.19	0.25	0.71	5242.71	4350.21
	1420.000	970.00	0.00	0.00	573.70	3540.00	591.91	0.00	591.91	0.13	0.60	9910.89	9947.08
	1420.000	970.00	0.00	0.00	573.70	4240.00	593.13	0.00	593.13	0.12	0.62	11345.52	12128.47
	1420.000	970.00	0.00	0.00	573.70	5900.00	595.84	0.00	595.85	0.11	0.64	15004.82	17927.65
	2350.000	930.00	0.00	0.00	574.32	2190.00	588.21	0.00	588.22	0.49	1.44	3078.33	3115.35
	2350.000	930.00	0.00	0.00	574.32	3540.00	591.92	0.00	591.92	0.22	1.14	6027.03	7535.96
	2350.000	930.00	0.00	0.00	574.32	4240.00	593.14	0.00	593.14	0.20	1.13	7176.75	9489.55
	2350.000	930.00	0.00	0.00	574.32	5900.00	595.85	0.00	595.86	0.15	1.08	10610.05	15222.41
	3220.000	870.00	0.00	0.00	574.90	2000.00	588.25	0.00	588.27	0.59	1.29	2243.04	2595.21
	3220.000	870.00	0.00	0.00	574.90	3250.00	591.94	0.00	591.95	0.30	1.10	4637.97	5901.17
	3220.000	870.00	0.00	0.00	574.90	3900.00	593.15	0.00	593.16	0.27	1.09	5639.13	7516.45
	3220.000	870.00	0.00	0.00	574.90	5430.00	595.87	0.00	595.87	0.20	1.05	8131.09	12041.17
*	3268.000	48.00	0.00	0.00	574.20	2000.00	588.23	0.00	588.30	1.49	2.05	1219.50	1636.63
	3268.000	48.00	0.00	0.00	574.20	3250.00	591.93	0.00	591.95	0.54	1.45	4225.37	4433.68
	3268.000	48.00	0.00	0.00	574.20	3900.00	593.15	0.00	593.17	0.43	1.37	5286.84	5914.01
	3268.000	48.00	0.00	0.00	574.20	5430.00	595.87	0.00	595.88	0.27	1.20	8277.57	10390.34
	3269.000	1.00	587.30	590.00	574.20	2000.00	588.21	0.00	588.32	2.23	2.71	970.02	1339.88
	3269.000	1.00	587.30	590.00	574.20	3250.00	591.94	0.00	591.95	0.80	1.47	3872.63	3642.90
	3269.000	1.00	587.30	590.00	574.20	3900.00	593.15	0.00	593.17	0.56	1.32	4937.87	5189.58
	3269.000	1.00	587.30	590.00	574.20	5430.00	595.87	0.00	595.88	0.31	1.11	7818.67	9808.95

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	3304.000	35.00	587.30	590.00	574.20	2000.00	588.22	0.00	588.33	2.23	2.71	973.04	1340.71
	3304.000	35.00	587.30	590.00	574.20	3250.00	591.94	0.00	591.96	0.79	1.46	3912.74	3659.21
	3304.000	35.00	587.30	590.00	574.20	3900.00	593.16	0.00	593.17	0.55	1.31	5033.58	5241.89
	3304.000	35.00	587.30	590.00	574.20	5430.00	595.87	0.00	595.88	0.31	1.11	7821.61	9814.11
	3305.000	1.00	0.00	0.00	574.20	2000.00	588.28	0.00	588.34	1.46	2.03	1245.80	1652.84
	3305.000	1.00	0.00	0.00	574.20	3250.00	591.94	0.00	591.96	0.53	1.44	4280.36	4452.07
	3305.000	1.00	0.00	0.00	574.20	3900.00	593.16	0.00	593.17	0.43	1.35	5403.65	5973.70
	3305.000	1.00	0.00	0.00	574.20	5430.00	595.87	0.00	595.88	0.27	1.20	8280.03	10394.45
	5050.000	1745.00	0.00	0.00	575.60	2000.00	588.51	0.00	588.52	0.78	1.23	2569.85	2261.88
	5050.000	1745.00	0.00	0.00	575.60	3250.00	592.03	0.00	592.05	0.63	1.31	3768.42	4108.31
	5050.000	1745.00	0.00	0.00	575.60	3900.00	593.24	0.00	593.25	0.65	1.41	4202.01	4848.53
*	5050.000	1745.00	0.00	0.00	575.60	5430.00	595.92	0.00	595.94	0.63	1.53	5449.24	6859.13
	6120.000	1070.00	0.00	0.00	576.70	2000.00	588.58	0.00	588.59	0.65	1.07	2398.09	2480.08
	6120.000	1070.00	0.00	0.00	576.70	3250.00	592.08	0.00	592.09	0.36	0.95	3892.09	5413.80
	6120.000	1070.00	0.00	0.00	576.70	3900.00	593.28	0.00	593.29	0.35	0.99	4411.46	6625.87
*	6120.000	1070.00	0.00	0.00	576.70	5430.00	595.97	0.00	595.98	0.31	1.03	5714.69	9778.11
	6134.000	14.00	588.20	587.40	576.70	2000.00	588.59	0.00	588.60	0.64	1.07	2405.30	2492.06
	6134.000	14.00	588.20	587.40	576.70	3250.00	592.09	0.00	592.10	0.36	0.95	3895.67	5421.84
	6134.000	14.00	588.20	587.40	576.70	3900.00	593.29	0.00	593.30	0.35	0.98	4417.12	6639.54
	6134.000	14.00	588.20	587.40	576.70	5430.00	595.97	0.00	595.99	0.31	1.03	5722.75	9798.91
*	8150.000	2016.00	0.00	0.00	576.50	2000.00	588.75	0.00	588.76	1.47	1.29	1859.71	1647.09
	8150.000	2016.00	0.00	0.00	576.50	3250.00	592.16	0.00	592.17	0.50	0.91	3757.36	4602.20
	8150.000	2016.00	0.00	0.00	576.50	3900.00	593.36	0.00	593.37	0.41	0.88	4514.36	6066.95
	8150.000	2016.00	0.00	0.00	576.50	5430.00	596.03	0.00	596.04	0.28	0.82	6314.79	10174.31
*	8700.000	550.00	0.00	0.00	576.36	2000.00	588.81	0.00	588.89	5.08	3.15	1168.45	887.34
*	8700.000	550.00	0.00	0.00	576.36	3250.00	592.18	0.00	592.21	1.54	2.08	2720.13	2622.08
*	8700.000	550.00	0.00	0.00	576.36	3900.00	593.37	0.00	593.40	1.15	1.90	3557.12	3636.11
*	8700.000	550.00	0.00	0.00	576.36	5430.00	596.04	0.00	596.06	0.66	1.60	5529.89	6690.87
*	9350.000	650.00	0.00	0.00	576.30	2000.00	589.04	0.00	589.07	1.90	2.14	1668.31	1451.12
	9350.000	650.00	0.00	0.00	576.30	3250.00	592.26	0.00	592.28	0.90	1.75	3084.25	3421.66
	9350.000	650.00	0.00	0.00	576.30	3900.00	593.43	0.00	593.45	0.78	1.72	3730.43	4423.59
	9350.000	650.00	0.00	0.00	576.30	5430.00	596.07	0.00	596.09	0.56	1.62	5315.46	7252.99
	10180.000	830.00	0.00	0.00	576.00	2000.00	589.24	0.00	589.28	3.39	1.91	1411.55	1085.51
	10180.000	830.00	0.00	0.00	576.00	3250.00	592.35	0.00	592.38	1.61	1.57	2665.50	2565.29
	10180.000	830.00	0.00	0.00	576.00	3900.00	593.51	0.00	593.54	1.34	1.51	3263.27	3364.59
	10180.000	830.00	0.00	0.00	576.00	5430.00	596.13	0.00	596.15	0.88	1.37	4884.67	5784.18
*	10880.000	700.00	0.00	0.00	576.80	2010.00	589.60	0.00	589.74	8.24	3.40	872.25	700.14
*	10880.000	700.00	0.00	0.00	576.80	3261.00	592.53	0.00	592.60	4.43	2.87	2011.64	1549.13
*	10880.000	700.00	0.00	0.00	576.80	3923.00	593.66	0.00	593.71	3.38	2.63	2603.70	2134.74
	10880.000	700.00	0.00	0.00	576.80	5475.00	596.22	0.00	596.25	1.81	2.13	4256.23	4067.64

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	10895.000	15.00	591.80	591.00	576.80	2010.00	589.61	0.00	589.92	9.24	4.44	452.74	661.38
*	10895.000	15.00	591.80	591.00	576.80	3261.00	592.82	0.00	592.87	1.82	2.45	2156.60	2419.96
*	10895.000	15.00	591.80	591.00	576.80	3923.00	593.73	0.00	593.78	1.63	2.41	2645.59	3071.40
	10895.000	15.00	591.80	591.00	576.80	5475.00	596.22	0.00	596.25	1.01	2.09	4255.40	5452.21
*	10965.000	100.00	0.00	0.00	577.00	2010.00	590.06	0.00	590.08	0.73	1.51	2059.47	2358.05
*	10965.000	100.00	0.00	0.00	577.00	3261.00	592.88	0.00	592.90	0.53	1.49	3259.47	4484.39
*	10965.000	100.00	0.00	0.00	577.00	3923.00	593.78	0.00	593.81	0.54	1.58	3677.26	5317.61
*	10965.000	100.00	0.00	0.00	577.00	5475.00	596.24	0.00	596.26	0.45	1.58	5372.25	8182.24
	11275.000	380.00	0.00	0.00	577.90	2010.00	590.10	0.00	590.12	1.35	1.73	2226.15	1729.47
	11275.000	380.00	0.00	0.00	577.90	3261.00	592.91	0.00	592.92	0.53	1.26	4173.84	4482.10
	11275.000	380.00	0.00	0.00	577.90	3923.00	593.82	0.00	593.83	0.49	1.27	4832.53	5615.87
	11275.000	380.00	0.00	0.00	577.90	5475.00	596.27	0.00	596.28	0.35	1.19	6684.93	9250.34
	11276.000	1.00	585.90	587.30	577.90	2010.00	590.10	0.00	590.12	0.70	0.61	2190.95	2410.27
*	11276.000	1.00	585.90	587.30	577.90	3261.00	592.91	0.00	592.93	0.23	0.41	4134.40	6846.35
*	11276.000	1.00	585.90	587.30	577.90	3923.00	593.82	0.00	593.83	0.20	0.41	4792.36	8684.11
*	11276.000	1.00	585.90	587.30	577.90	5475.00	596.27	0.00	596.29	0.14	0.38	6650.70	14603.99
	11290.000	14.00	585.90	587.30	577.90	2010.00	590.10	0.00	590.12	0.69	0.61	2192.29	2412.73
	11290.000	14.00	585.90	587.30	577.90	3261.00	592.91	0.00	592.93	0.23	0.41	4134.79	6847.41
	11290.000	14.00	585.90	587.30	577.90	3923.00	593.82	0.00	593.83	0.20	0.41	4792.72	8685.15
	11290.000	14.00	585.90	587.30	577.90	5475.00	596.27	0.00	596.29	0.14	0.38	6650.94	14604.82
*	11291.000	1.00	0.00	0.00	577.90	2010.00	590.10	0.00	590.13	4.15	2.28	2227.24	986.81
*	11291.000	1.00	0.00	0.00	577.90	3261.00	592.91	0.00	592.93	1.76	1.73	4169.81	2460.96
*	11291.000	1.00	0.00	0.00	577.90	3923.00	593.82	0.00	593.83	1.64	1.74	4827.78	3066.46
*	11291.000	1.00	0.00	0.00	577.90	5475.00	596.28	0.00	596.29	1.19	1.65	6686.00	5011.22
*	11700.000	409.00	0.00	0.00	579.60	2010.00	590.16	0.00	590.18	0.98	1.26	2435.05	2032.68
*	11700.000	409.00	0.00	0.00	579.60	3261.00	592.94	0.00	592.95	0.53	1.11	4094.98	4461.91
*	11700.000	409.00	0.00	0.00	579.60	3923.00	593.84	0.00	593.85	0.52	1.15	4664.40	5447.16
*	11700.000	409.00	0.00	0.00	579.60	5475.00	596.29	0.00	596.30	0.41	1.15	6271.81	8577.57
*	12750.000	1050.00	0.00	0.00	579.82	1405.00	590.30	0.00	590.36	3.91	2.87	920.40	710.59
*	12750.000	1050.00	0.00	0.00	579.82	2264.00	593.01	0.00	593.05	1.85	2.34	1770.50	1663.41
*	12750.000	1050.00	0.00	0.00	579.82	2714.00	593.91	0.00	593.95	1.70	2.35	2081.20	2079.42
*	12750.000	1050.00	0.00	0.00	579.82	3773.00	596.35	0.00	596.37	1.11	2.13	3248.62	3578.67
	14540.000	1790.00	0.00	0.00	580.20	1405.00	590.98	0.00	591.06	5.45	3.06	1136.02	602.10
	14540.000	1790.00	0.00	0.00	580.20	2264.00	593.32	0.00	593.36	2.61	2.50	2127.92	1400.90
	14540.000	1790.00	0.00	0.00	580.20	2714.00	594.19	0.00	594.23	2.27	2.45	2536.68	1801.62
	14540.000	1790.00	0.00	0.00	580.20	3773.00	596.53	0.00	596.55	1.42	2.19	3791.20	3167.64
	15330.000	760.00	0.00	0.00	584.00	1405.00	591.38	0.00	591.41	3.95	2.04	1269.25	707.30
	15330.000	760.00	0.00	0.00	584.00	2264.00	593.51	0.00	593.53	2.19	1.92	2155.08	1530.33
	15330.000	760.00	0.00	0.00	584.00	2714.00	594.36	0.00	594.38	1.94	1.94	2543.62	1948.46
	15330.000	760.00	0.00	0.00	584.00	3773.00	596.63	0.00	596.64	1.20	1.80	3945.90	3444.50

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	16690.000	1390.00	0.00	0.00	581.50	1415.00	591.91	0.00	592.11	8.06	4.57	534.30	498.31
*	16690.000	1390.00	0.00	0.00	581.50	2286.00	593.80	0.00	593.99	6.68	4.71	801.47	884.58
*	16690.000	1390.00	0.00	0.00	581.50	2749.00	594.60	0.00	594.80	6.54	4.87	913.23	1075.05
*	16690.000	1390.00	0.00	0.00	581.50	3820.00	596.73	0.00	596.93	5.28	4.88	1213.88	1662.01
*	16730.000	40.00	0.00	0.00	580.80	1415.00	592.14	0.00	592.20	3.22	1.90	746.54	788.04
	16730.000	40.00	0.00	0.00	580.80	2286.00	593.98	0.00	594.06	3.83	2.33	980.78	1168.03
	16730.000	40.00	0.00	0.00	580.80	2749.00	594.77	0.00	594.87	4.17	2.54	1081.89	1345.52
	16730.000	40.00	0.00	0.00	580.80	3820.00	596.86	0.00	596.99	4.30	2.83	1350.09	1842.11
	16771.000	41.00	599.20	596.50	580.80	1415.00	592.15	0.00	592.21	3.21	1.89	747.33	789.23
	16771.000	41.00	599.20	596.50	580.80	2286.00	593.99	0.00	594.08	3.82	2.33	981.63	1169.48
	16771.000	41.00	599.20	596.50	580.80	2749.00	594.79	0.00	594.89	4.16	2.54	1082.79	1347.12
	16771.000	41.00	599.20	596.50	580.80	3820.00	596.99	0.00	597.11	4.14	2.80	1366.59	1877.84

E BRANCH OF THE CLINTON

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH	
	0.000	2190.00	588.15	0.00	0.00	0.00	548.50	0.00	
	0.000	3540.00	591.88	3.73	0.00	0.00	815.00	0.00	
	0.000	4240.00	593.10	1.22	0.00	0.00	815.00	0.00	1
	0.000	5900.00	595.82	2.72	0.00	0.00	815.00	0.00	
	450.000	2190.00	588.16	0.00	0.01	0.00	539.77	450.00	
	450.000	3540.00	591.89	3.73	0.01	0.00	802.54	450.00	
	450.000	4240.00	593.11	1.22	0.01	0.00	815.00	450.00	2
	450.000	5900.00	595.83	2.72	0.01	0.00	815.00	450.00	
	1420.000	2190.00	588.19	0.00	0.03	0.00	951.76	970.00	
	1420.000	3540.00	591.91	3.72	0.02	3.72	1155.42	970.00	3 A
	1420.000	4240.00	593.13	1.22	0.02	4.94	1196.38	970.00	
	1420.000	5900.00	595.84	2.72	0.02	7.66	1699.00	970.00	
	2350.000	2190.00	588.21	0.00	0.02	0.00	763.11	930.00	
	2350.000	3540.00	591.92	3.71	0.01	3.71	833.16	930.00	
	2350.000	4240.00	593.14	1.22	0.01	4.93	1065.48	930.00	4
	2350.000	5900.00	595.65	2.72	0.01	7.64	1388.52	930.00	
	3220.000	2000.00	588.25	0.00	0.04	0.00	432.04	870.00	
	3220.000	3250.00	591.94	3.68	0.02	3.68	799.89	870.00	5 B
	3220.000	3900.00	593.15	1.22	0.02	4.90	845.96	870.00	
	3220.000	5430.00	595.87	2.71	0.01	7.61	1019.33	870.00	
*	3268.000	2000.00	588.23	0.00	-0.02	0.00	552.50	48.00	
	3268.000	3250.00	591.93	3.70	0.00	3.70	872.00	48.00	
	3268.000	3900.00	593.15	1.22	0.00	4.92	872.00	48.00	6
	3268.000	5430.00	595.87	2.71	0.00	7.63	1117.69	48.00	
	3269.000	2000.00	588.21	0.00	-0.02	0.00	547.01	1.00	
	3269.000	3250.00	591.94	3.72	0.00	3.72	874.00	1.00	
	3269.000	3900.00	593.15	1.22	0.00	4.94	874.00	1.00	7
	3269.000	5430.00	595.87	2.71	0.00	7.66	1117.61	1.00	
	3304.000	2000.00	588.22	0.00	0.01	0.00	548.55	35.00	
	3304.000	3250.00	591.94	3.72	0.00	3.72	920.00	35.00	
	3304.000	3900.00	593.16	1.22	0.00	4.94	920.00	35.00	8
	3304.000	5430.00	595.87	2.71	0.00	7.65	1117.96	35.00	
	3305.000	2000.00	588.28	0.00	0.06	0.00	563.72	1.00	
	3305.000	3250.00	591.94	3.66	0.00	3.66	922.00	1.00	9 C
	3305.000	3900.00	593.16	1.22	0.00	4.87	922.00	1.00	
	3305.000	5430.00	595.87	2.71	0.00	7.59	1117.98	1.00	

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH	
	5050.000	2000.00	588.51	0.00	0.23	0.00	334.17	1745.00	
	5050.000	3250.00	592.03	3.52	0.10	3.52	346.12	1745.00	
	5050.000	3900.00	593.24	1.20	0.08	4.72	379.00	1745.00	10 D
*	5050.000	5430.00	595.92	2.69	0.06	7.41	591.58	1745.00	
	6120.000	2000.00	588.58	0.00	0.07	0.00	420.43	1070.00	
	6120.000	3250.00	592.08	3.50	0.05	3.50	431.49	1070.00	
	6120.000	3900.00	593.28	1.20	0.05	4.70	439.17	1070.00	11
*	6120.000	5430.00	595.97	2.69	0.04	7.39	500.00	1070.00	
	6134.000	2000.00	588.59	0.00	0.01	0.00	420.48	14.00	
	6134.000	3250.00	592.09	3.50	0.01	3.50	431.51	14.00	E
	6134.000	3900.00	593.29	1.20	0.01	4.70	439.81	14.00	12
	6134.000	5430.00	595.97	2.68	0.01	7.38	500.00	14.00	
*	8150.000	2000.00	588.75	0.00	0.16	0.00	499.86	2016.00	
	8150.000	3250.00	592.16	3.41	0.07	3.41	590.52	2016.00	F
	8150.000	3900.00	593.36	1.20	0.07	4.61	659.34	2016.00	13
	8150.000	5430.00	596.03	2.67	0.05	7.28	686.42	2016.00	
*	8700.000	2000.00	588.81	0.00	0.07	0.00	357.17	550.00	
*	8700.000	3250.00	592.18	3.37	0.02	3.37	684.96	550.00	
*	8700.000	3900.00	593.37	1.19	0.02	4.56	717.78	550.00	14
*	8700.000	5430.00	596.04	2.67	0.01	7.23	752.00	550.00	
*	9350.000	2000.00	589.04	0.00	0.23	0.00	375.82	650.00	
	9350.000	3250.00	592.26	3.22	0.08	3.22	528.76	650.00	
	9350.000	3900.00	593.43	1.17	0.06	4.39	569.93	650.00	15
	9350.000	5430.00	596.07	2.64	0.03	7.03	620.00	650.00	
	10180.000	2000.00	589.24	0.00	0.20	0.00	328.60	830.00	
	10180.000	3250.00	592.35	3.11	0.09	3.11	491.51	830.00	16 G
	10180.000	3900.00	593.51	1.16	0.08	4.27	545.31	830.00	
	10180.000	5430.00	596.13	2.62	0.05	6.89	712.24	830.00	
*	10880.000	2010.00	589.60	0.00	0.36	0.00	187.67	700.00	
*	10880.000	3261.00	592.53	2.93	0.18	2.93	499.46	700.00	17
*	10880.000	3923.00	593.66	1.13	0.15	4.06	552.01	700.00	
	10880.000	5475.00	596.22	2.56	0.09	6.62	924.45	700.00	
	10895.000	2010.00	589.61	0.00	0.01	0.00	187.74	15.00	H
*	10895.000	3261.00	592.82	3.21	0.29	3.21	512.89	15.00	18
*	10895.000	3923.00	593.73	0.92	0.08	4.12	555.60	15.00	
	10895.000	5475.00	596.22	2.48	0.00	6.61	924.45	15.00	
*	10965.000	2010.00	590.06	0.00	0.45	0.00	398.17	100.00	19
*	10965.000	3261.00	592.88	2.82	0.06	2.82	452.81	100.00	
*	10965.000	3923.00	593.78	0.91	0.05	3.73	470.82	100.00	
*	10965.000	5475.00	596.24	2.46	0.03	6.19	1063.41	100.00	

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH	
	11275.000	2010.00	590.10	0.00	0.04	0.00	664.83	380.00	
	11275.000	3261.00	592.91	2.81	0.03	2.81	717.23	380.00	20
	11275.000	3923.00	593.82	0.91	0.03	3.72	734.10	380.00	
	11275.000	5475.00	596.27	2.45	0.03	6.17	793.51	380.00	
	11276.000	2010.00	590.10	0.00	0.00	0.00	664.83	1.00	
*	11276.000	3261.00	592.91	2.81	0.00	2.81	717.12	1.00	21
*	11276.000	3923.00	593.82	0.91	0.00	3.72	733.97	1.00	
*	11276.000	5475.00	596.27	2.45	0.00	6.17	793.63	1.00	
	11290.000	2010.00	590.10	0.00	0.00	0.00	664.87	14.00	
	11290.000	3261.00	592.91	2.81	0.00	2.81	717.13	14.00	22 I
	11290.000	3923.00	593.82	0.91	0.00	3.72	733.98	14.00	
	11290.000	5475.00	596.27	2.45	0.00	6.17	793.66	14.00	
*	11291.000	2010.00	590.10	0.00	0.00	0.00	664.86	1.00	
*	11291.000	3261.00	592.91	2.81	0.00	2.81	717.12	1.00	23
*	11291.000	3923.00	593.82	0.91	0.00	3.72	733.98	1.00	
*	11291.000	5475.00	596.28	2.46	0.00	6.18	793.64	1.00	
*	11700.000	2010.00	590.16	0.00	0.06	0.00	576.88	409.00	
*	11700.000	3261.00	592.94	2.77	0.02	2.77	621.49	409.00	24 J
*	11700.000	3923.00	593.84	0.91	0.02	3.68	636.08	409.00	
*	11700.000	5475.00	596.29	2.45	0.01	6.12	689.26	409.00	
*	12750.000	1405.00	590.30	0.00	0.13	0.00	297.98	1050.00	
*	12750.000	2264.00	593.01	2.71	0.08	2.71	335.21	1050.00	25
*	12750.000	2714.00	593.91	0.90	0.07	3.62	353.26	1050.00	
*	12750.000	3773.00	596.35	2.43	0.06	6.05	613.88	1050.00	
	14540.000	1405.00	590.98	0.00	0.69	0.00	385.77	1790.00	
	14540.000	2264.00	593.32	2.34	0.31	2.34	457.09	1790.00	26 K
	14540.000	2714.00	594.19	0.87	0.28	3.21	481.10	1790.00	
	14540.000	3773.00	596.53	2.33	0.18	5.54	781.01	1790.00	
	15330.000	1405.00	591.38	0.00	0.40	0.00	386.49	760.00	
	15330.000	2264.00	593.51	2.13	0.19	2.13	442.84	760.00	27
	15330.000	2714.00	594.36	0.85	0.16	2.98	494.11	760.00	
	15330.000	3773.00	596.63	2.27	0.10	5.24	754.69	760.00	
	16690.000	1415.00	591.91	0.00	0.53	0.00	141.00	1390.00	L
*	16690.000	2286.00	593.80	1.89	0.29	1.89	141.00	1390.00	28
*	16690.000	2749.00	594.60	0.80	0.24	2.69	141.00	1390.00	
*	16690.000	3820.00	596.73	2.13	0.11	4.82	141.00	1390.00	
*	16730.000	1415.00	592.14	0.00	0.23	0.00	127.60	40.00	
	16730.000	2286.00	593.98	1.84	0.17	1.84	127.60	40.00	29
	16730.000	2749.00	594.77	0.79	0.17	2.63	127.60	40.00	
	16730.000	3820.00	596.86	2.09	0.13	4.72	130.00	40.00	

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
16771.000	1415.00	592.15	0.00	0.01	0.00	127.60	41.00
16771.000	2286.00	593.99	1.84	0.02	1.84	127.60	41.00
16771.000	2749.00	594.79	0.79	0.02	2.63	127.60	41.00
16771.000	3820.00	596.99	2.20	0.13	4.84	130.00	41.00

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SUMMARY OF ERRORS AND SPECIAL NOTES

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WARNING SECNO=   3268.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   5050.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   6120.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   8150.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   8700.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   8700.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   8700.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   8700.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   9350.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  10880.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  10880.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  10880.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  10895.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  10895.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  10965.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  10965.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  10965.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  10965.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  11276.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  11276.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  11276.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  11291.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  11291.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  11291.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  11291.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  11700.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  11700.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  11700.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  11700.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  12750.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  12750.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  12750.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  12750.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  16690.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  16690.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  16690.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  16730.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Clinton Twp.

3) WATERCOURSE: Middle Branch Clinton River

4) DOCUMENT TYPE: Multiple Run Profile Current

00BREAK00

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 $$$$$$   $$          $$$$$$$$  $$$$$$$$   $$$$$ $  $$$$$$$    $$$$$$
$$    $$  $$             $$          $$   $$    $   $$    $$  $$    $$
$$        $$             $$          $$   $$   $$$  $$    $$  $$
$$        $$             $$          $$   $$  $ $$  $$    $$  $$
$$        $$             $$          $$   $$ $$ $$  $$    $$  $$
$$        $$             $$          $$   $$ $  $$  $$$$$$$   $$
$$        $$             $$          $$   $$$   $$  $$  $$    $$
$$    $$  $$             $$      $$  $$   $     $$  $$   $$   $$    $$
 $$$$$$   $$$$$$$$  $$$$$$$$   $$$        $ $$$$$   $$    $$   $$$$$$
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4.26

JUL 12 '77

CLINTON TOWNSHIP

MIDDLE BRANCH OF THE CLINTON RIVER

MULTIPLE PROFILE RUN

current

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****************************************************
HEC2 VERSION UPDATED JAN 1976
ERROR CORRECTIONS 01,02,03,04,05,06,07,08,09
MODIFICATIONS 52,53,54,55,56,57,58
****************************************************

C
1        CLINTON TOWNSHIP-JOB NO. 5670-02   PROJECT MANAGER  WILLIAM C. ROSSOW
T2        10 YEAR FLOW = 2000
T3           MIDDLE BRANCH CLINTON RIVER

J1  ICHECK      INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

        -1.        2.         0.         0.   0.000000       0.00        0.0        0.    588.150     0.000

J2  NPROF       IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

       1.000      0.000     -1.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000

J3     1.000     10.000     11.000     12.000     14.000      8.000      4.000      0.000      0.000      0.000
QT     4.000   2000.000   2960.000   3390.000   4710.000      0.000      0.000      0.000      0.000      0.000
NC      .070       .070       .030       .100       .300      0.000      0.000      0.000      0.000      0.000
NH     3.000       .070    380.000       .040    410.000       .050    815.000      0.000      0.000      0.000

X1     0.000     21.000    380.000    410.000      0.000      0.000      0.000      0.000      -.300      0.000
GR   592.000      0.000    590.000    205.000    588.000    245.000    586.000    270.000    584.000    278.000
GR   582.000    285.000    580.000    300.000    578.000    360.000    576.000    370.000    574.000    380.000
GR   573.100    395.000    574.000    410.000    576.000    415.000    578.000    425.000    580.000    430.000
GR   582.000    715.000    584.000    735.000    586.000    760.000    588.000    780.000    590.000    800.000
GR   592.000    815.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
NH     3.000       .070    380.000       .040    410.000       .050    815.000      0.000      0.000      0.000

X1   450.000      0.000      0.000      0.000    450.000    450.000    450.000      0.000       .300      0.000
NH     4.000       .070    758.000       .040    792.000       .070   1153.000       .040   1700.000      0.000
ET     0.000      6.100      8.100      8.100      8.100     80.000   1060.000      1.000   1700.000      0.000

X1  1420.000     30.000    750.000    800.000    970.000    970.000    970.000      0.000      0.000      0.000
GR   588.600      0.000    587.400    100.000    587.800    300.000    588.500    360.000    579.700    382.000
GR   579.700    400.000    581.700    500.000    582.500    600.000    579.600    700.000    582.100    750.000
GR   577.300    758.000    575.900    762.000    574.000    768.000    573.700    774.000    573.800    780.000
GR   573.900    786.000    575.000    792.000    582.800    800.000    582.300    900.000    579.400   1000.000
GR   579.500   1085.000    582.500   1100.000    591.800   1153.000    593.200   1200.000    595.000   1260.000
GR   594.500   1300.000    595.100   1400.000    595.400   1500.000    595.500   1600.000    595.200   1700.000
NH     5.000       .050    390.000       .070    400.000       .040    430.000       .070    462.000       .050
NH  1150.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000

X1  2350.000     24.000    400.000    430.000    980.000    780.000    930.000      0.000      0.000      0.000
GR   594.000      0.000    592.000    275.000    590.000    295.000    588.000    300.000    586.000    305.000
GR   584.000    310.000    582.000    315.000    580.000    325.000    580.000    390.000    578.000    393.000
GR   576.000    400.000    574.320    415.000    576.000    430.000    578.000    435.000    580.000    440.000
GR   582.000    452.000    584.000    462.000    584.000    830.000    586.000    845.000    588.000    890.000
GR   588.000   1060.000    590.000   1085.000    592.000   1110.000    594.000   1150.000      0.000      0.000
QT     4.000   1960.000   2900.000   3320.000   4620.000      0.000      0.000      0.000      0.000      0.000
NH     5.000       .050   1900.000       .070   1905.000       .040   1938.000       .070   1981.000       .050
NH  2277.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
ET     0.000      6.100      8.100      8.100      8.100   1880.000   2277.000   1200.000   2277.000      0.000

X1  3220.000     40.000   1900.000   1981.000    920.000    720.000    870.000      0.000      0.000      0.000
X3    10.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
GR   596.000      0.000    595.[illegible]00    100.000    595.100    200.000    594.900    300.000    594.[illegible]00    400.[illegible]00
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GR	594.200	500.000	593.700	600.000	591.300	700.000	588.300	800.000	587.700	900.000
GR	587.800	942.500	587.700	967.000	588.100	1000.000	589.200	1100.000	591.000	1200.000
GR	590.900	1300.000	589.300	1400.000	589.300	1400.000	589.300	1400.000	589.300	1400.000
GR	587.500	1600.000	583.100	1700.000	583.200	1800.000	584.300	1880.000	581.900	1900.000
GR	577.200	1905.000	575.700	1910.000	575.200	1915.000	574.900	1920.000	575.000	1925.000
GR	575.400	1930.000	575.700	1935.000	576.900	1938.000	581.200	1942.000	594.400	1981.000
GR	594.600	2000.000	594.900	2100.000	595.300	2175.000	595.100	2250.000	596.200	2277.000
NC	0.000	0.000	0.000	.500	1.000	0.000	0.000	0.000	0.000	0.000
NH	3.000	.055	2000.000	.040	2058.000	.055	2800.000	0.000	0.000	0.000
ET	0.000	6.100	8.100	8.100	6.100	1200.000	2400.000	1200.000	2072.000	0.000
X1	3268.000	55.000	2000.000	2058.000	48.000	48.000	48.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	596.000	0.000	595.500	100.000	595.100	200.000	594.900	300.000	594.800	400.000
GR	594.200	500.000	593.700	600.000	591.300	700.000	588.300	800.000	587.700	900.000
GR	587.800	942.500	586.100	942.500	583.600	944.000	582.600	945.000	581.000	950.000
GR	580.500	952.000	580.000	955.000	580.500	958.000	580.800	960.000	581.700	965.000
GR	586.100	967.000	587.700	967.000	588.100	1000.000	589.200	1100.000	591.000	1200.000
GR	590.900	1300.000	589.300	1400.000	587.600	1600.000	584.900	1800.000	585.500	1900.000
GR	587.000	1950.000	589.800	2000.000	587.000	2000.000	581.600	2002.000	580.700	2005.000
GR	580.000	2010.000	579.000	2015.000	576.500	2017.000	574.800	2020.000	574.400	2025.000
GR	575.000	2030.000	575.600	2035.000	575.900	2040.000	576.500	2045.000	579.800	2050.000
GR	582.400	2055.000	583.400	2058.000	589.900	2058.000	591.000	2100.000	593.300	2200.000
GR	596.200	2277.000	595.400	2300.000	596.700	2400.000	595.900	2600.000	595.200	2800.000
NC	.050	.050	.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	6.100	8.100	8.100	6.100	1200.000	2400.000	1200.000	2074.000	0.000
X1	3269.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BT	15.000	900.000	587.700	0.000	942.500	587.800	586.100	967.000	587.700	586.100
BT	1000.000	588.100	588.100	1100.000	589.200	589.200	1200.000	591.000	591.000	1300.000
BT	590.900	590.900	1400.000	589.300	589.300	1600.000	587.600	587.600	1800.000	584.900
BT	584.900	1900.000	585.500	585.500	1950.000	587.000	587.000	2000.000	589.800	586.900
BT	2058.000	589.900	586.900	2100.000	591.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	6.100	8.100	8.100	6.100	1200.000	2400.000	1200.000	2120.000	0.000
X1	3292.000	0.000	0.000	0.000	23.000	23.000	23.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	3.000	.055	2000.000	.040	2058.000	.055	2800.000	0.000	0.000	0.000
ET	0.000	6.100	8.100	8.100	6.100	1200.000	2400.000	1200.000	2122.000	0.000
X1	3293.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	7.000	.050	265.000	.075	500.000	.060	512.000	.045	536.000	.060
NH	544.000	.040	900.000	.030	1572.000	0.000	0.000	0.000	0.000	0.000
X1	5050.000	28.000	500.000	544.000	1450.000	1757.000	1757.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	200.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	594.500	0.000	593.700	100.000	594.500	200.000	593.200	265.000	581.100	303.000
GR	582.900	400.000	583.000	500.000	577.100	507.000	576.000	512.000	575.600	517.000
GR	575.600	522.000	575.700	527.000	575.900	532.000	576.800	536.000	582.100	544.000
GR	583.600	600.000	585.100	700.000	588.300	800.000	590.100	900.000	592.100	1000.000
GR	595.900	1100.000	596.700	1132.000	596.300	1200.000	597.800	1300.000	597.000	1400.000
GR	596.500	1500.000	596.100	1515.000	598.100	1572.000	0.000	0.000	0.000	0.000
NH	5.000	.050	500.000	.060	515.000	.045	534.500	.060	538.000	.040
NH	1572.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	6120.000	36.000	515.000	534.500	950.000	600.000	1070.000	0.000	0.000	0.000
X3	0.000	0.000	200.000	0.000	700.000	0.000	0.000	0.000	0.000	0.000
GR	594.500	0.000	593.700	100.000	594.500	200.000	593.200	265.000	584.000	294.000
GR	581.100	303.000	581.400	315.000	582.900	400.000	582.900	415.000	583.000	500.000
GR	583.000	515.000	579.100	515.000	577.400	518.000	576.800	523.000	576.700	528.000
GR	576.800	532.000	578.800	534.500	581.800	534.500	581.900	538.000	582.500	560.000
GR	583.500	595.000	583.600	600.000	584.500	660.000	584.600	670.000	585.100	700.000
GR	588.300	800.000	590.100	900.000	592.100	1000.000	595.900	1100.000	596.700	1132.000

GR	596.300	1200.000	597.800	1300.000	597.000	1400.000	596.500	1500.000	596.100	1515.000
GR	598.100	1572.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	1.530	3.040	0.000	19.500	0.000	197.800	0.000	576.700	576.700
X1	6134.000	0.000	0.000	0.000	14.000	14.000	14.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	587.400	588.200	0.000	0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	200.000	0.000	700.000	0.000	0.000	0.000	0.000
BT	22.000	200.000	594.500	0.000	200.000	594.500	0.000	200.000	594.500	0.000
BT	265.000	593.200	0.000	294.000	584.000	0.000	315.000	583.300	0.000	415.000
BT	584.200	0.000	515.000	588.200	579.100	515.000	588.200	587.400	534.500	588.300
BT	587.300	534.500	588.300	581.800	538.000	588.300	0.000	560.000	588.900	0.000
BT	595.000	589.400	0.000	660.000	597.400	0.000	670.000	597.300	0.000	1132.000
BT	596.700	0.000	1300.000	597.800	0.000	1400.000	597.000	0.000	1500.000	596.500
BT	0.000	1515.000	596.100	0.000	1572.000	598.100	0.000	0.000	0.000	0.000
NH	7.000	.050	800.000	.095	960.000	.045	1400.000	.070	1413.000	.050
NH	1440.000	.070	1448.000	.030	2600.000	0.000	0.000	0.000	0.000	0.000
X1	8150.000	42.000	1400.000	1448.000	1500.000	2016.000	2016.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	900.000	0.000	1650.000	0.000	0.000	0.000	0.000
GR	595.500	0.000	595.500	100.000	595.500	200.000	595.500	300.000	595.400	400.000
GR	595.100	500.000	595.300	600.000	595.900	700.000	596.800	800.000	596.800	900.000
GR	596.800	960.000	589.900	988.000	589.200	1000.000	587.200	1100.000	585.100	1200.000
GR	584.000	1300.000	583.400	1380.000	585.200	1400.000	576.700	1413.000	576.500	1420.000
GR	577.400	1430.000	577.000	1435.000	578.100	1440.000	585.200	1448.000	587.100	1500.000
GR	592.200	1570.000	592.500	1600.000	593.300	1633.000	596.600	1653.000	597.300	1700.000
GR	596.200	1800.000	594.500	1842.000	596.200	1868.000	596.100	2000.000	597.800	2020.000
GR	598.000	2100.000	598.500	2186.000	598.300	2230.000	597.700	2300.000	596.900	2400.000
GR	596.500	2500.000	596.500	2600.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
NH	5.000	.050	660.000	.070	680.000	.050	705.000	.070	730.000	.050
NH	752.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	8700.000	19.000	680.000	705.000	370.000	550.000	550.000	0.000	0.000	0.000
GR	596.000	0.000	594.000	15.000	592.000	60.000	590.300	135.000	592.000	210.000
GR	592.000	275.000	590.000	340.000	588.000	390.000	586.000	460.000	586.000	660.000
GR	584.000	670.000	582.000	673.000	580.000	680.000	576.360	692.000	580.000	705.000
GR	590.000	730.000	592.000	740.000	594.000	750.000	596.000	752.000	0.000	0.000
NH	5.000	.050	285.000	.070	300.000	.045	320.000	.070	340.000	.050
NH	620.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	9350.000	20.000	300.000	320.000	500.000	650.000	650.000	0.000	0.000	0.000
GR	596.000	0.000	594.000	20.000	592.000	70.000	590.000	185.000	588.000	195.000
GR	586.000	200.000	584.000	205.000	584.000	285.000	582.000	292.000	580.000	300.000
GR	576.300	310.000	580.000	320.000	582.000	330.000	584.000	340.000	586.000	505.000
GR	588.000	550.000	590.000	580.000	592.000	590.000	594.000	610.000	596.000	620.000
NH	8.000	.050	1700.000	.090	1769.000	.070	1777.000	.045	1795.000	.070
NH	1800.000	.050	1964.000	.035	2300.000	.040	2500.000	0.000	0.000	0.000
X1	10180.000	36.000	1765.000	1800.000	830.000	830.000	830.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	1200.000	0.000	2100.000	0.000	0.000	0.000	0.000
GR	597.100	0.000	596.600	100.000	596.400	200.000	596.400	300.000	596.100	400.000
GR	596.000	500.000	595.300	600.000	596.100	700.000	596.400	800.000	596.300	900.000
GR	597.300	1000.000	597.400	1100.000	597.400	1200.000	597.100	1300.000	594.900	1400.000
GR	591.800	1500.000	590.200	1600.000	586.300	1700.000	584.300	1765.000	580.400	1769.000
GR	578.300	1777.000	577.600	1780.000	576.000	1785.000	577.100	1790.000	578.600	1795.000
GR	584.200	1800.000	584.500	1900.000	585.100	1935.000	591.700	1964.000	594.200	2000.000
GR	597.600	2100.000	597.100	2200.000	597.600	2232.000	596.100	2300.000	595.900	2400.000
GR	596.100	2500.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	4.000	1970.000	2910.000	3340.000	4650.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.500	1.000	0.000	0.000	0.000	0.000	0.000
NH	6.000	.045	1600.000	.085	1765.000	.085	1769.000	.040	1800.000	.070
NH	1803.000	.050	2500.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	10880.000	42.000	1765.000	1803.000	750.000	700.000	700.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	1025.000	0.000	1803.000	590.000	0.000	0.000	0.000
	597.100	0.000	596.600	100.000	596.400	200.000	596.400	300.000	596.100	400.000

	596.000	500.000	595.300	600.000	596.100	700.000	596.400	800.000	596.300	00.000
GR	597.300	1000.000	597.400	1100.000	597.400	1200.000	597.100	1300.000	594.900	1400.000
GR	591.800	1500.000	590.200	1600.000	586.300	1700.000	584.300	1765.000	580.200	1765.000
GR	577.600	1769.000	577.600	1777.000	576.800	1785.000	577.100	1793.000	578.300	1800.000
GR	580.500	1803.000	584.200	1803.000	584.300	1822.000	584.400	1854.000	584.400	1865.000
GR	584.400	1883.000	584.500	1900.000	585.100	1935.000	591.700	1964.000	594.200	2000.000
GR	595.900	2050.000	597.600	2100.000	597.100	2200.000	597.600	2232.000	596.100	2300.000
GR	595.900	2400.000	596.100	2500.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	1.530	3.090	0.000	38.000	0.000	504.300	0.000	576.800	576.800
NC	.045	.050	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	10895.000	0.000	0.000	0.000	15.000	15.000	15.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	591.000	591.800	0.000	0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	1025.000	0.000	1803.000	590.000	0.000	0.000	0.000
BT	34.000	0.000	597.100	0.000	100.000	596.600	0.000	200.000	596.400	0.000
BT	300.000	596.400	0.000	400.000	596.100	0.000	500.000	596.000	0.000	600.000
BT	595.300	0.000	700.000	596.100	0.000	800.000	596.400	0.000	900.000	596.300
BT	0.000	1000.000	597.300	0.000	1100.000	597.400	0.000	1200.000	597.400	0.000
BT	1300.000	597.100	0.000	1400.000	594.900	0.000	1500.000	591.800	0.000	1600.000
BT	591.400	0.000	1700.000	591.500	0.000	1765.000	592.100	584.300	1765.000	592.100
BT	590.900	1803.000	592.200	591.000	1803.000	592.200	584.200	1822.000	592.000	0.000
BT	1854.000	593.800	0.000	1865.000	593.500	0.000	1883.000	593.500	0.000	1900.000
BT	595.900	0.000	2050.000	595.900	0.000	2100.000	597.600	0.000	2200.000	597.100
BT	0.000	2232.000	597.600	0.000	2300.000	596.100	0.000	2400.000	595.900	0.000
BT	2500.000	596.100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	6.100	8.100	8.100	8.100	320.000	1160.000	90.000	1160.000	0.000
X1	10965.000	22.000	653.000	700.000	120.000	90.000	100.000	0.000	-2.570	0.000
GR	597.300	0.000	596.100	100.000	588.400	200.000	586.500	300.000	585.900	400.000
GR	584.200	500.000	586.600	600.000	587.800	653.000	580.400	662.000	579.600	670.000
GR	579.600	682.000	579.600	689.000	580.400	694.000	586.300	700.000	587.000	744.000
GR	596.300	773.000	597.800	787.000	597.500	800.000	598.200	900.000	597.500	1000.000
GR	597.400	1100.000	597.200	1200.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	11275.000	32.000	561.900	584.400	380.000	380.000	380.000	0.000	0.000	0.000
GR	597.300	0.000	596.100	115.500	588.400	230.900	586.500	346.400	585.900	461.900
GR	586.400	511.900	587.600	548.900	588.000	557.900	584.200	561.900	581.900	561.900
GR	580.600	563.900	580.100	566.900	579.000	569.900	577.900	573.900	578.700	578.900
GR	578.800	581.900	579.900	584.400	584.700	584.400	588.100	586.900	587.900	588.900
GR	587.500	599.900	586.600	661.900	587.800	754.000	586.300	808.300	587.000	859.100
GR	596.300	892.600	597.800	908.700	597.500	923.800	598.200	1039.200	597.500	1154.700
GR	597.400	1270.200	597.200	1385.600	0.000	0.000	0.000	0.000	0.000	0.000
NC	.040	.020	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	11276.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	26.000	0.000	597.300	0.000	115.500	596.100	0.000	230.900	588.400	0.000
BT	346.400	586.500	0.000	461.900	585.900	0.000	511.900	586.400	0.000	548.900
BT	587.600	0.000	557.900	588.000	0.000	561.900	588.200	584.200	561.900	588.200
BT	587.200	584.400	588.300	587.300	584.400	588.300	584.700	586.900	588.100	0.000
BT	588.900	587.900	0.000	599.900	587.500	0.000	661.900	586.600	0.000	754.000
BT	587.800	0.000	808.300	586.300	0.000	859.100	587.000	0.000	892.600	596.300
BT	0.000	908.700	597.800	0.000	923.800	597.500	0.000	1039.200	598.200	0.000
BT	1154.700	597.500	0.000	1270.200	597.400	0.000	1385.600	597.200	0.000	0.000
X1	11290.000	0.000	0.000	0.000	14.000	14.000	14.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NH	3.000	.090	561.900	.045	584.400	.090	1385.600	0.000	0.000	0.000
X1	11291.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
NH	7.000	.040	500.000	.090	653.000	.050	662.000	.045	689.000	.050
NH	700.000	.080	773.000	.050	1200.000	0.000	0.000	0.000	0.000	0.000
X1	11700.000	22.000	653.000	700.000	100.000	350.000	409.000	0.000	0.000	0.000
GR	597.300	0.000	596.100	100.000	588.400	200.000	586.500	300.000	585.900	400.000
GR	584.200	500.000	586.600	600.000	587.800	653.000	580.400	662.000	579.600	670.000
GR	579.600	682.000	579.600	689.000	[illegible]	[illegible]	[illegible]	700.000	[illegible]	[illegible]

GR	596.300	773.000	597.800	787.000	597.500	800.000	598.200	[illegible]	597.500	1000.000
GR	597.400	1100.000	597.200	1200.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	4.000	1370.000	2020.000	2310.000	3210.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
NH	7.000	.040	250.000	.090	308.000	.050	320.000	.045	342.000	.050
NH	355.000	.080	400.000	.050	585.000	0.000	0.000	0.000	0.000	0.000
X1	12750.000	19.000	320.000	342.000	650.000	1600.000	1050.000	0.000	0.000	0.000
GR	596.000	0.000	594.000	230.000	592.000	250.000	590.000	260.000	588.000	275.000
GR	586.000	308.000	584.000	310.000	582.000	320.000	579.820	331.000	582.000	342.000
GR	584.000	350.000	586.000	355.000	588.000	360.000	589.400	370.000	588.000	400.000
GR	588.000	535.000	590.000	555.000	592.000	565.000	594.000	585.000	0.000	0.000
NH	7.000	.050	1000.000	.090	1268.000	.050	1277.000	.040	1293.000	.050
NH	1300.000	.070	1340.000	.050	2000.000	0.000	0.000	0.000	0.000	0.000
X1	14540.000	29.000	1268.000	1300.000	1350.000	900.000	1790.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	400.000	0.000	1400.000	0.000	0.000	0.000	0.000
GR	598.100	0.000	597.200	100.000	596.100	200.000	596.300	300.000	596.900	400.000
GR	596.800	500.000	596.300	600.000	596.300	700.000	596.100	800.000	591.600	900.000
GR	588.600	1000.000	587.700	1100.000	587.400	1200.000	589.500	1255.000	588.000	1268.000
GR	582.300	1277.000	580.900	1281.000	580.200	1284.000	581.100	1289.000	582.700	1293.000
GR	589.800	1300.000	597.300	1340.000	597.600	1400.000	596.500	1500.000	597.100	1600.000
GR	598.100	1700.000	598.500	1800.000	596.600	1900.000	597.200	2000.000	0.000	0.000
NH	6.000	.090	240.000	.050	260.000	.040	280.000	.050	290.000	.070
NH	355.000	.050	580.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	15300.000	16.000	260.000	280.000	650.000	760.000	760.000	0.000	0.000	0.000
GR	596.000	0.000	594.000	30.000	592.000	50.000	590.000	75.000	588.000	105.000
GR	588.000	240.000	586.000	250.000	584.000	260.000	580.660	270.000	584.000	280.000
GR	586.000	290.000	588.000	355.000	590.000	420.000	592.000	455.000	594.000	485.000
GR	592.000	580.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	4.000	1380.000	2040.000	2340.000	3250.000	0.000	0.000	0.000	0.000	0.000
NH	8.000	.030	200.000	.050	769.000	.060	778.000	.040	795.000	.060
NH	800.000	.040	1200.000	.030	1400.000	.050	2000.000	0.000	0.000	0.000
X1	16690.000	27.000	769.000	800.000	1350.000	1040.000	1390.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	714.000	0.000	855.000	0.000	0.000	0.000	0.000
GR	597.200	0.000	596.500	100.000	592.300	200.000	590.500	300.000	588.700	400.000
GR	589.700	500.000	588.800	600.000	589.500	700.000	589.500	769.000	584.200	778.000
GR	583.200	781.000	581.500	789.000	583.200	795.000	589.800	800.000	588.000	850.000
GR	588.200	900.000	588.400	1000.000	589.300	1100.000	596.200	1200.000	598.700	1300.000
GR	597.500	1400.000	598.600	1500.000	598.900	1600.000	597.500	1700.000	598.000	1800.000
GR	598.600	1900.000	599.600	2000.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.500	1.000	0.000	0.000	0.000	0.000	0.000
NH	5.000	.040	830.000	.060	1400.000	.040	1530.000	.060	1830.000	.040
NH	2630.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	16730.000	48.000	1400.000	1530.000	40.000	40.000	40.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	1400.000	0.000	1530.000	0.000	0.000	0.000	0.000
GR	599.200	0.000	599.400	200.000	599.400	400.000	599.400	600.000	597.200	630.000
GR	596.500	730.000	592.300	830.000	590.500	930.000	588.700	1030.000	589.700	1130.000
GR	588.800	1230.000	589.500	1330.000	589.500	1397.500	589.500	1400.000	589.500	1422.000
GR	586.000	1430.000	585.500	1440.000	585.800	1444.400	596.500	1444.400	596.500	1445.600
GR	585.800	1445.600	586.400	1450.000	588.000	1455.000	583.900	1458.000	582.000	1460.000
GR	580.800	1470.000	583.100	1480.000	583.900	1483.000	585.200	1489.400	596.500	1489.400
GR	596.500	1490.600	585.200	1490.600	587.100	1500.000	587.000	1510.000	588.100	1513.000
GR	588.200	1530.000	588.200	1532.500	588.400	1630.000	589.300	1730.000	596.200	1830.000
GR	598.700	1930.000	597.500	2030.000	598.600	2130.000	598.900	2230.000	597.500	2330.000
GR	598.000	2430.000	598.600	2530.000	599.200	2630.000	0.000	0.000	0.000	0.000
SB	0.000	1.860	3.040	0.000	130.000	0.000	1302.700	0.000	580.800	580.800
X1	16771.000	0.000	0.000	0.000	41.000	41.000	41.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	596.500	599.200	0.000	0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	1400.000	0.000	1530.000	0.000	0.000	0.000	0.000
BT	27.000	0.000	599.200	0.000	200.000	599.400	0.000	400.000	599.400	0.000
	600.000	599.400	0.000	630.000	599.400	0.000	730.000	599.500	0.000	830.000

	599.500	0.000	930.000	599.400	0.000	1030.000	599.300	0.000	1130.000	599.300
BT	0.000	1230.000	599.300	0.000	1330.000	599.400	0.000	1397.500	599.400	0.000
BT	1397.500	600.200	0.000	1400.000	600.200	589.500	1400.000	600.200	596.500	1444.400
BT	600.200	596.500	1445.600	600.200	596.500	1489.400	600.200	596.500	1490.600	600.200
BT	596.500	1530.000	600.200	596.500	1530.000	600.200	588.200	1532.500	600.200	0.000
BT	1532.500	599.600	0.000	2230.000	599.600	0.000	2430.000	599.300	0.000	2630.000
BT	599.200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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HEC2 VERSION UPDATED JAN 1976
ERROR CORRECTIONS 01,02,03,04,05,06,07,08,09
MODIFICATIONS 52,53,54,55,56,57,58
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T1      CLINTON TOWNSHIP-JOB NO. 5670-02   PROJECT MANAGER  WILLIAM C. ROSSOW
T2      100 YEAR FLOW = 3390
T3      MIDDLE BRANCH OF THE CLINTON RIVER

J1  ICHECK      INQ      NINV      IDIR      STRT      METRIC     HVINS      Q        WSEL      FQ
       -1.        4.        0.        0.  0.000000      0.00       0.0       0.    593.100     0.000
J2  NPROF      IPLOT     PRFVS     XSECV     XSECH       FN       ALLDC      IBW      CHNIM     ITRACE
      3.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
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CCHV=     .100 CEHV=     .300
1490 NH CARD USED
3280 CROSS SECTION      0.00 EXTENDED      1.40 FEET

      SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
      Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
      TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
      SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

       0.00     20.30    593.10      0.00    593.10    593.10       .00      0.00      0.00    573.70
      3390.      718.      502.     2170.     2366.      596.     4532.        0.        0.     573.70
       0.00       .30       .84       .48      .070      .040      .050     0.000    572.80      0.00
    .000010        0.        0.        0.         0         0         1      0.00    815.00    815.00

1490 NH CARD USED
3280 CROSS SECTION    450.00 EXTENDED      1.10 FEET

     450.00     20.00    593.10      0.00      0.00    593.11       .00       .00       .00    574.00
      3390.      710.      510.     2170.     2254.      587.     4412.       76.        8.     574.00
        .24       .31       .87       .49      .070      .040      .050      .030    573.10      0.00
    .000010      450.      450.      450.         0         0         1      0.00    815.00    815.00

1490 NH CARD USED

3470 ENCROACHMENT STATIONS=         1.0     1700.0  TYPE=      1  TARGET=    1699.000

                 VALLEY SECTION A                                            109

    1420.00     19.42    593.12      0.00      0.00    593.12       .00       .01       .00    582.10
      3390.     1713.      508.     1168.     6510.      855.     3971.      283.       31.     582.80
       1.08       .26       .59       .29      .070      .044      .070      .030    573.70      1.00
    .000007      970.      970.      970.         0         0         1      0.00   1196.11   1197.11

1490 NH CARD USED
    2350.00     18.80    593.12      0.00      0.00    593.13       .00       .01       .00    576.00
      3390.      713.      490.     2187.     1401.      539.     5192.      469.       53.     576.00
       1.55       .51       .91       .42      .052      .040      .051      .031    574.32    120.72
    .000013      980.      930.      780.         0         0         1      0.00   1011.72   1132.44

1490 NH CARD USED

3470 ENCROACHMENT STATIONS=    1200.0     2277.0  TYPE=      1  TARGET=    1077.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      581.90 ELREA=      594.40

                 VALLEY SECTION B                                            110

    3220.00     18.24    593.14      0.00      0.00    593.14       .01       .02       .00    581.90
      3320.     2427.      893.        0.     4199.      916.        0.      586.       70.     594.40
       1.90       .58       .98      0.00      .050      .045      .051      .031    574.90   1200.00
    .000027      920.      870.      720.         0         0         1      0.00    777.25   1977.25

CCHV=     .500 CEHV=    1.000
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1490 NH CARD USED
     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS     BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA      LEFT/RIGHT
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN       SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID      ENDST


3470 ENCROACHMENT STATIONS=     1200.0      2072.0  TYPE=       1  TARGET=       872.000
   3268.00      18.74     593.14       0.00       0.00     593.15        .01        .00        .00     589.80
    3320.       2171.     1135.        14.       4208.       880.        43.        591.        71.      589.90
      1.91        .52       1.29        .33       .055       .040       .055       .031     574.40    1200.00
   .000035        48.        48.        48.          0          0          1       0.00     872.00    2072.00


NORMAL BRIDGE,NRD=15 MIN ELTRD=  584.90 MAX ELLC=  591.00

3470 ENCROACHMENT STATIONS=     1200.0      2074.0  TYPE=       1  TARGET=       874.000
   3269.00      18.74     593.14       0.00       0.00     593.15        .01        .00        .00     589.80
    3320.       2518.      784.        19.       4208.       709.        48.        591.        71.      589.90
      1.91        .60       1.10        .39       .050       .020       .050       .031     574.40    1200.00
   .000038         1.         1.         1.          0          0          1    -171.00     874.00    2074.00


NORMAL BRIDGE,NRD=15 MIN ELTRD=  584.90 MAX ELLC=  591.00

3470 ENCROACHMENT STATIONS=     1200.0      2120.0  TYPE=       1  TARGET=       920.000

                BRIDGE SECTION C  HEYDENREICH ROAD  UPSTREAM FACE             111

   3292.00      18.74     593.14       0.00       0.00     593.15        .01        .00        .00     589.80
    3320.       2494.      776.        50.       4208.       709.       151.        594.        72.      589.90
      1.92        .59       1.09        .33       .050       .020       .050       .031     574.40    1200.00
   .000038        23.        23.        23.          0          0          1    -171.00     920.00    2120.00

1490 NH CARD USED

3470 ENCROACHMENT STATIONS=     1200.0      2122.0  TYPE=       1  TARGET=       922.000
   3293.00      18.74     593.14       0.00       0.00     593.15        .01        .00        .00     589.80
    3320.       2151.     1125.        44.       4208.       880.       154.        594.        72.      589.90
      1.92        .51       1.28        .29       .055       .040       .055       .031     574.40    1200.00
   .000034         1.         1.         1.          0          0          1       0.00     922.00    2122.00

1490 NH CARD USED

3470 ENCROACHMENT STATIONS=      200.0      1572.0  TYPE=       1  TARGET=      -200.000

                VALLEY SECTION D                                              112

   5050.00      17.59     593.19       0.00       0.00     593.20        .01        .04        .00     583.00
    3320.        993.      591.      1736.       2339.       702.      2736.        793.       102.      582.10
      2.66        .42        .84        .63       .075       .049       .040       .028     575.60     265.03
   .000021      1450.      1757.      1757.          0          0          1       0.00     763.70    1028.73

1490 NH CARD USED

3470 ENCROACHMENT STATIONS=      200.0       700.0  TYPE=       1  TARGET=       500.000
   6120.00      16.51     593.21       0.00       0.00     593.22        .01        .02        .00     583.00
    3320.       1709.      288.      1303.       2495.       312.      1576.        808.       113.      581.80
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```
     2.95       .69       .92       .83      .051      .045      .040      .0.8    576.70     64.23
 .000025       950.     1070.      600.        0         0         1      0.00    435.77    700.00

SPECIAL BRIDGE
SB  XK        XKOR       COFQ       RDLEN      BWC        BWP       BAREA       SS        ELCHU      ELCHD
     0.00      1.53       3.04       0.00     19.50       0.00     197.80      0.00     576.70     576.70

PRESSURE AND WEIR FLOW

   EGPRS      EGLWC       H3        QWEIR       QPR       BAREA      ELLC      ELTRD      CLASS

   599.90     593.22      0.00      2851.      467.       198.     587.40     588.20     30.00

3470 ENCROACHMENT STATIONS=      200.0      700.0  TYPE=      1  TARGET=      500.000

                BRIDGE SECTION E                                                 112A

  6134.00     16.63    593.33      0.00      0.00    593.34       .01       .12      0.00    583.00
    3320.     1729.      286.     1305.     2527.      315.     1597.      890.      113.    581.80
     2.96       .68       .91       .82      .051      .045      .040      .027    576.70    257.86
  .000024       14.       14.       14.        0         0         6      0.00    442.14    700.00

1490 NH CARD USED
   SECNO     DEPTH     CWSEL     CRIWS     WSELK       EG        HV        HL       OLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB       ACH       AROB      VOL       TWA   LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL        XNCH      XNR       WTN      ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL     IDC       ICONT     CORAR    TOPWID      ENDST

3470 ENCROACHMENT STATIONS=      900.0     1650.0  TYPE=      1  TARGET=      750.000

                VALLEY SECTION F                                                  113

  8150.00     16.88    593.38      0.00      0.00    593.39       .01       .04       .00    585.20
    3320.     2193.      580.      547.     3154.      698.      685.     1064.      134.    585.20
     3.60       .70       .83       .80      .045      .055      .030      .027    576.50    973.85
  .000028     1500.     2016.     2016.        0         0         1      0.00    659.68   1633.53
                new
CCHV=    .100 CEHV=     .300
1490 NH CARD USED
  8700.00     17.03    593.39      0.00      0.00    593.41       .02       .02       .00    580.00
    3320.     2536.      613.      171.     2957.      381.      239.     1102.      141.    580.00
     3.72       .86      1.61       .72      .051      .050      .069      .027    576.36     28.49
  .000082      370.      550.      550.        0         0         1      0.00    718.51    747.00
                   new
1490 NH CARD USED
  9350.00     17.13    593.43      0.00      0.00    593.45       .01       .04       .00    580.00
    3320.     1092.      446.     1781.     1351.      306.     2077.     1149.      149.    580.00
     3.89       .81      1.46       .86      .053      .045      .052      .026    576.30     34.16
  .000056      500.      650.      650.        0         0         1      0.00    570.17    604.33

1490 NH CARD USED

3470 ENCROACHMENT STATIONS=     1200.0     2100.0  TYPE=      1  TARGET=      900.000
```

10180.00	17.49	593.49	0.00	0.00	593.51	.02	.06	.00	584.30
3320.	923.	781.	1616.	1352.	511.	1389.	1216.	159.	584.20
4.10	.68	1.53	1.16	.065	.052	.050	.026	576.00	1445.46
.000090	830.	830.	830.	0	0	1	0.00	544.33	1989.79

CCHV= .500 CEHV= 1.000
1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 1025.0 1803.0 TYPE= 1 TARGET= 778.000

10880.00	16.77	593.57	0.00	0.00	593.64	.07	.09	.05	584.30
3340.	1127.	1705.	509.	1379.	604.	576.	1264.	168.	590.00
4.20	.82	2.82	.88	.077	.042	.050	.025	576.80	1442.76
.000178	750.	700.	700.	2	0	1	0.00	548.23	1990.99

SPECIAL BRIDGE

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
0.00	1.53	3.09	0.00	38.00	0.00	504.30	0.00	576.80	576.80

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
594.62	593.64	0.00	1958.	1382.	504.	591.00	591.80	30.00

3470 ENCROACHMENT STATIONS= 1025.0 1803.0 TYPE= 1 TARGET= 778.000

BRIDGE SECTION H 114A

10895.00	16.92	593.72	0.00	0.00	593.75	.04	.11	0.00	584.30
3340.	1638.	1256.	446.	1425.	610.	603.	1265.	169.	590.00
4.21	1.15	2.06	.74	.045	.040	.050	.025	576.80	1438.16
.000119	15.	15.	15.	2	0	7	0.00	554.88	1993.04

3470 ENCROACHMENT STATIONS= 90.0 1160.0 TYPE= 1 TARGET= 1070.000

10965.00	16.74	593.77	0.00	0.00	593.77	.00	.00	.02	585.23
3340.	2579.	526.	235.	5019.	718.	562.	1277.	170.	583.73
4.26	.51	.73	.42	.045	.040	.050	.025	577.03	90.00
.000012	120.	100.	90.	2	0	1	0.00	683.34	773.34

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
11275.00	15.87	593.77	0.00	0.00	593.78	.01	.01	.00	584.20
3340.	1778.	356.	1207.	2542.	328.	1931.	1325.	176.	584.70
4.41	.70	1.08	.62	.045	.040	.050	.026	577.90	150.23
.000036	380.	380.	380.	1	0	1	0.00	733.31	883.53

NORMAL BRIDGE,NRD=26 MIN ELTRD= 585.90 MAX ELLC= 587.30

```
 11276.00     15.87    593.77      0.00      0.00    593.78       .01       .00       .00    584.20
  3340.     1285.      110.     1945.     2534.      302.     1930.     1325.      176.     584.70
     4.41      .51      .36      1.01      .040      .040      .020      .026    577.90    150.22
  .000015       1.        1.        1.         0         0         1    -34.75    733.31    883.53

 NORMAL BRIDGE,NRD=26 MIN ELTRD=  585.90 MAX ELLC=  587.30

                BRIDGE SECTION I                                                  114B

 11290.00     15.87    593.77      0.00      0.00    593.79       .01       .00       .00    584.20
  3340.     1285.      110.     1945.     2534.      303.     1930.     1327.      177.     584.70
     4.42      .51      .36      1.01      .040      .040      .020      .026    577.90    150.22
  .000015      14.       14.       14.         0         0         1    -34.75    733.32    883.53

 1490 NH CARD USED
 11291.00     15.87    593.77      0.00      0.00    593.79       .01       .00       .00    584.20
  3340.     1554.      613.     1173.     2542.      328.     1932.     1327.      177.     584.70
     4.42      .61      1.87       .61      .090      .045      .090      .026    577.90    150.22
  .000110       1.        1.        1.         0         0         1      0.00    733.32    883.53

 1490 NH CARD USED

                VALLEY SECTION J                                                   115

 11700.00     14.20    593.80      0.00      0.00    593.80       .01       .01       .00    587.80
  3340.     2566.      623.      151.     3650.      599.      387.     1348.      180.     586.30
     4.49      .70      1.04       .39      .049      .046      .080      .027    579.60    129.85
  .000037     100.      409.      350.         0         0         1      0.00    635.36    765.21

 CCHV=     .100 CEHV=     .300
 1490 NH CARD USED
 12750.00     14.02    593.84      0.00      0.00    593.87       .03       .06       .01    582.00
  2310.      404.      577.     1329.      470.      284.     1301.     1420.      191.     582.00
     4.73      .86      2.03      1.02      .070      .045      .053      .028    579.82    231.59
  .000128     650.     1050.     1600.         2         0         1      0.00    351.82    583.41

 1490 NH CARD USED

 3470 ENCROACHMENT STATIONS=      400.0      1400.0  TYPE=      1  TARGET=     1000.000

                VALLEY SECTION K                                                   116

 14540.00     13.84    594.04      0.00      0.00    594.07       .03       .20       .00    588.00
  2310.     1568.      720.       22.     2074.      340.       48.     1486.      202.     589.80
     5.04      .76      2.12       .45      .080      .043      .070      .031    580.20    845.82
  .000171    1350.     1790.      900.         2         0         1      0.00    476.78   1322.60

 1490 NH CARD USED
 3280 CROSS SECTION  15300.00 EXTENDED       2.15 FEET

      SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
      Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
      TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
      SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST

 15300.00     13.49    594.15      0.00      0.00    594.17       .02       .10       .00    584.00
```

2310.	840.	484.	986.	1249.	236.	1144.	1526.	211.	[illegible]4.00
5.23	.67	2.05	.86	.080	.040	.058	.031	580.66	27.81
.000121	650.	760.	760.	0	0	1	0.00	552.19	580.00

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 714.0 855.0 TYPE= 1 TARGET= 141.000

VALLEY SECTION L 117

16690.00	12.84	594.34	0.00	0.00	594.47	.13	.27	.03	589.50
2340.	509.	1037.	793.	266.	306.	304.	1576.	220.	589.80
5.35	1.91	3.39	2.61	.050	.044	.040	.033	581.50	714.00
.000507	1350.	1390.	1040.	1	0	1	0.00	141.00	855.00

CCHV= .500 CEHV= 1.000

1490 NH CARD USED

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 1400.0 1530.0 TYPE= 1 TARGET= 130.000

16730.00	13.63	594.43	0.00	0.00	594.51	.08	.01	.02	589.50
2340.	0.	2340.	0.	0.	1039.	0.	1577.	220.	100000.00
5.36	.00	2.25	0.00	.060	.040	.040	.033	580.80	1400.00
.000258	40.	40.	40.	2	0	1	0.00	127.60	1530.00

SPECIAL BRIDGE

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
0.00	1.86	3.04	0.00	130.00	0.00	1302.70	0.00	580.80	580.80

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS= 0.000 EGLWC= 594.510 ELLC= 596.500 PCWSE= 594.432 ELTRD= 599.200

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD=27 MIN ELTRD= 599.20 MAX ELLC= 596.50

3470 ENCROACHMENT STATIONS= 1400.0 1530.0 TYPE= 1 TARGET= 130.000

BRIDGE SECTION M 117A

* 16771.00	13.64	594.44	0.00	0.00	594.52	.08	.01	.00	589.50
2340.	0.	2340.	0.	0.	1040.	0.	1578.	220.	100000.00
5.36	0.00	2.25	0.00	.060	.040	.040	.033	580.80	1400.00
.000257	41.	41.	41.	1	0	1	-.00	127.60	1530.00

* st. W.S. @ 0.00 = 593.10
(594.44-593.10) = 1.34 ft

SUMMARY PRINTOUT FOR MULTIPLE PROFILES

MIDDLE BRANCH OF THE CLI

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	HV	HL	OLOSS	QCH	DEPTH	TOPWID
0.00	0.00	0.00	0.00	572.80	2000.00	588.15	.01	0.00	0.00	412.00	15.35	548.50
0.00	0.00	0.00	0.00	572.80	2960.00	591.88	.00	0.00	0.00	471.25	19.08	815.00
0.00	0.00	0.00	0.00	572.80	3390.00	593.10	.00	0.00	0.00	501.58	20.30	815.00
0.00	0.00	0.00	0.00	572.80	4710.00	595.82	.00	0.00	0.00	606.58	23.02	815.00
450.00	450.00	0.00	0.00	573.10	2000.00	588.16	.01	.01	.00	422.33	15.06	539.73
450.00	450.00	0.00	0.00	573.10	2960.00	591.88	.00	.00	.00	480.00	18.78	802.32
450.00	450.00	0.00	0.00	573.10	3390.00	593.10	.00	.00	.00	510.26	20.00	815.00
450.00	450.00	0.00	0.00	573.10	4710.00	595.82	.01	.00	.00	614.83	22.72	815.00
1420.00	970.00	0.00	0.00	573.70	2000.00	588.18	.00	.02	.00	473.70	14.48	951.32
1420.00	970.00	0.00	0.00	573.70	2960.00	591.90	.00	.01	.00	479.90	18.20	1155.20
1420.00	970.00	0.00	0.00	573.70	3390.00	593.12	.00	.01	.00	508.38	19.42	1196.11
1420.00	970.00	0.00	0.00	573.70	4710.00	595.84	.00	.01	.00	607.33	22.14	1699.00
2350.00	930.00	0.00	0.00	574.32	2000.00	588.20	.01	.02	.00	516.54	13.88	762.88
2350.00	930.00	0.00	0.00	574.32	2960.00	591.90	.01	.01	.00	479.13	17.58	832.84
2350.00	930.00	0.00	0.00	574.32	3390.00	593.12	.00	.01	.00	490.24	18.80	1011.72
2350.00	930.00	0.00	0.00	574.32	4710.00	595.84	.00	.01	.00	543.34	21.52	1150.00
3220.00	870.00	0.00	0.00	574.90	1960.00	588.18	.14	.08	.04	1788.71	13.28	82.63
3220.00	870.00	0.00	0.00	574.90	2900.00	591.92	.01	.02	.00	885.96	17.02	773.66
3220.00	870.00	0.00	0.00	574.90	3320.00	593.14	.01	.02	.00	892.94	18.24	777.25
3220.00	870.00	0.00	0.00	574.90	4620.00	595.85	.01	.01	.00	997.00	20.95	1068.35
3268.00	48.00	0.00	0.00	574.40	1960.00	588.20	.17	.02	.03	1960.00	13.80	58.00
3268.00	48.00	0.00	0.00	574.40	2900.00	591.92	.02	.00	.01	1166.90	17.52	872.00
3268.00	48.00	0.00	0.00	574.40	3320.00	593.14	.01	.00	.00	1134.96	18.74	872.00
3268.00	48.00	0.00	0.00	574.40	4620.00	595.85	.01	.00	.00	1153.84	21.45	1115.02
3269.00	1.00	584.90	591.00	574.40	1960.00	588.20	.22	.00	.05	1960.00	13.80	58.00
3269.00	1.00	584.90	591.00	574.40	2900.00	591.93	.01	.00	.00	804.46	17.53	874.00
3269.00	1.00	584.90	591.00	574.40	3320.00	593.14	.01	.00	.00	783.58	18.74	874.00
3269.00	1.00	584.90	591.00	574.40	4620.00	595.85	.01	.00	.00	809.48	21.45	1115.03
3292.00	23.00	584.90	591.00	574.40	1960.00	588.21	.22	.01	.00	1960.00	13.81	58.00
3292.00	23.00	584.90	591.00	574.40	2900.00	591.93	.01	.00	.00	801.34	17.53	920.00
3292.00	23.00	584.90	591.00	574.40	3320.00	593.14	.01	.00	.00	775.97	18.74	920.00
3292.00	23.00	584.90	591.00	574.40	4620.00	595.85	.01	.00	.00	809.44	21.45	1115.09
3293.00	1.00	0.00	0.00	574.40	1960.00	588.29	.17	.00	.03	1960.00	13.89	58.00
3293.00	1.00	0.00	0.00	574.40	2900.00	591.93	.02	.00	.00	1161.63	17.53	922.00
3293.00	1.00	0.00	0.00	574.40	3320.00	593.14	.01	.00	.00	1124.57	18.74	922.00
3293.00	1.00	0.00	0.00	574.40	4620.00	595.85	.01	.00	.00	1153.79	21.45	1115.09
5050.00	1757.00	0.00	0.00	575.60	1960.00	588.72	.01	.20	.08	578.84	13.12	544.47
5050.00	1757.00	0.00	0.00	575.60	2900.00	592.00	.01	.06	.00	580.95	16.40	726.44
5050.00	1757.00	0.00	0.00	575.60	3320.00	593.19	.01	.04	.00	591.00	17.59	763.70
5050.00	1757.00	0.00	0.00	575.60	4620.00	595.89	.01	.03	.00	652.35	20.29	899.57

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	HV	HL	OLOSS	QCH	DEPTH	TOPWID
6120.00	1070.00	0.00	0.00	576.70	1960.00	588.77	.01	.05	.00	249.09	12.07	421.04
6120.00	1070.00	0.00	0.00	576.70	2900.00	592.02	.01	.02	.00	270.97	15.32	431.30
6120.00	1070.00	0.00	0.00	576.70	3320.00	593.21	.01	.02	.00	287.88	16.51	435.77
6120.00	1070.00	0.00	0.00	576.70	4620.00	595.90	.01	.01	.00	349.32	19.20	500.00
6134.00	14.00	588.20	587.40	576.70	1960.00	588.89	.01	.12	0.00	244.90	12.19	421.46
6134.00	14.00	588.20	587.40	576.70	2900.00	592.14	.01	.12	0.00	268.76	15.44	431.68
6134.00	14.00	588.20	587.40	576.70	3320.00	593.33	.01	.12	0.00	285.76	16.63	442.14
6134.00	14.00	588.20	587.40	576.70	4620.00	596.03	.01	.13	0.00	347.14	19.33	500.00
8150.00	2016.00	0.00	0.00	576.50	1960.00	589.02	.02	.12	.01	637.20	12.52	516.64
8150.00	2016.00	0.00	0.00	576.50	2900.00	592.19	.01	.05	.00	578.85	15.69	591.32
8150.00	2016.00	0.00	0.00	576.50	3320.00	593.38	.01	.04	.00	580.22	16.88	659.68
8150.00	2016.00	0.00	0.00	576.50	4620.00	596.07	.01	.03	.00	635.25	19.57	686.92
8700.00	550.00	0.00	0.00	576.36	1960.00	589.07	.06	.08	.01	774.42	12.71	364.06
8700.00	550.00	0.00	0.00	576.36	2900.00	592.21	.02	.03	.00	646.72	15.85	685.91
8700.00	550.00	0.00	0.00	576.36	3320.00	593.39	.02	.02	.00	612.98	17.03	718.51
8700.00	550.00	0.00	0.00	576.36	4620.00	596.08	.01	.01	.00	606.32	19.72	752.00
9350.00	650.00	0.00	0.00	576.30	1960.00	589.25	.03	.14	.00	441.70	12.95	379.97
9350.00	650.00	0.00	0.00	576.30	2900.00	592.27	.02	.05	.00	440.83	15.97	529.17
9350.00	650.00	0.00	0.00	576.30	3320.00	593.43	.01	.04	.00	446.42	17.13	570.17
9350.00	650.00	0.00	0.00	576.30	4620.00	596.11	.01	.02	.00	493.11	19.81	620.00
10180.00	830.00	0.00	0.00	576.00	1960.00	589.40	.04	.16	.00	773.13	13.40	333.40
10180.00	830.00	0.00	0.00	576.00	2900.00	592.34	.02	.07	.00	779.24	16.34	490.70
10180.00	830.00	0.00	0.00	576.00	3320.00	593.49	.02	.06	.00	781.31	17.49	544.33
10180.00	830.00	0.00	0.00	576.00	4620.00	596.14	.02	.04	.00	829.04	20.14	713.80
10880.00	700.00	0.00	0.00	576.80	1970.00	589.62	.17	.22	.13	1632.25	12.82	188.24
10880.00	700.00	0.00	0.00	576.80	2910.00	592.45	.09	.11	.07	1749.81	15.65	495.89
10880.00	700.00	0.00	0.00	576.80	3340.00	593.57	.07	.09	.05	1704.52	16.77	548.23
10880.00	700.00	0.00	0.00	576.80	4650.00	596.20	.04	.06	.02	1669.34	19.40	921.18
10895.00	15.00	591.80	591.00	576.80	1970.00	589.63	.29	.01	.12	1970.00	12.83	188.24
10895.00	15.00	591.80	591.00	576.80	2910.00	592.72	.05	.22	0.00	1275.43	15.92	508.45
10895.00	15.00	591.80	591.00	576.80	3340.00	593.72	.04	.11	0.00	1255.70	16.92	554.88
10895.00	15.00	591.80	591.00	576.80	4650.00	596.30	.02	.08	0.00	1236.23	19.50	934.01
10965.00	100.00	0.00	0.00	577.03	1970.00	590.07	.01	.01	.14	475.12	13.04	441.58
10965.00	100.00	0.00	0.00	577.03	2910.00	592.79	.00	.00	.02	484.63	15.76	660.40
10965.00	100.00	0.00	0.00	577.03	3340.00	593.77	.00	.00	.02	525.67	16.74	683.34
10965.00	100.00	0.00	0.00	577.03	4650.00	596.33	.01	.00	.01	638.92	19.30	1070.00
11275.00	380.00	0.00	0.00	577.90	1970.00	590.09	.02	.02	.01	416.64	12.19	664.59
11275.00	380.00	0.00	0.00	577.90	2910.00	592.79	.01	.01	.00	353.30	14.89	714.93
11275.00	380.00	0.00	0.00	577.90	3340.00	593.77	.01	.01	.00	355.54	15.87	733.31
11275.00	380.00	0.00	0.00	577.90	4650.00	596.33	.01	.01	.00	384.58	18.43	800.77

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	HV	HL	OLOSS	QCH	DEPTH	TOPWID
11276.00	1.00	585.90	587.30	577.90	1970.00	590.09	.02	.00	.00	135.88	12.19	664.59
11276.00	1.00	585.90	587.30	577.90	2910.00	592.79	.01	.00	.00	109.43	14.89	714.93
11276.00	1.00	585.90	587.30	577.90	3340.00	593.77	.01	.00	.00	109.79	15.87	733.31
11276.00	1.00	585.90	587.30	577.90	4650.00	596.33	.01	.00	.00	118.98	18.43	800.77
11290.00	14.00	585.90	587.30	577.90	1970.00	590.09	.02	.00	.00	135.82	12.19	664.62
11290.00	14.00	585.90	587.30	577.90	2910.00	592.79	.01	.00	.00	109.43	14.89	714.94
11290.00	14.00	585.90	587.30	577.90	3340.00	593.77	.01	.00	.00	109.78	15.87	733.32
11290.00	14.00	585.90	587.30	577.90	4650.00	596.33	.01	.00	.00	118.98	18.43	800.80
11291.00	1.00	0.00	0.00	577.90	1970.00	590.09	.04	.00	.03	664.95	12.19	664.62
11291.00	1.00	0.00	0.00	577.90	2910.00	592.79	.02	.00	.01	602.49	14.89	714.94
11291.00	1.00	0.00	0.00	577.90	3340.00	593.77	.01	.00	.00	613.08	15.87	733.32
11291.00	1.00	0.00	0.00	577.90	4650.00	596.33	.01	.00	.00	674.96	18.43	800.80
11700.00	409.00	0.00	0.00	579.60	1970.00	590.17	.01	.04	.01	563.93	10.57	576.87
11700.00	409.00	0.00	0.00	579.60	2910.00	592.82	.01	.02	.00	592.96	13.22	619.50
11700.00	409.00	0.00	0.00	579.60	3340.00	593.80	.01	.01	.00	623.49	14.20	635.36
11700.00	409.00	0.00	0.00	579.60	4650.00	596.34	.01	.01	.00	729.13	16.74	694.69
12750.00	1050.00	0.00	0.00	579.82	1370.00	590.28	.06	.14	.01	580.18	10.46	297.78
12750.00	1050.00	0.00	0.00	579.82	2020.00	592.88	.03	.07	.01	564.93	13.06	332.50
12750.00	1050.00	0.00	0.00	579.82	2310.00	593.84	.03	.06	.01	577.40	14.02	351.82
12750.00	1050.00	0.00	0.00	579.82	3210.00	596.38	.02	.04	.00	610.18	16.56	585.00
14540.00	1790.00	0.00	0.00	580.20	1370.00	590.90	.08	.64	.00	720.18	10.70	382.63
14540.00	1790.00	0.00	0.00	580.20	2020.00	593.13	.03	.25	.00	713.56	12.93	451.68
14540.00	1790.00	0.00	0.00	580.20	2310.00	594.04	.03	.20	.00	720.09	13.84	476.78
14540.00	1790.00	0.00	0.00	580.20	3210.00	596.50	.02	.12	.00	767.27	16.30	774.96
15300.00	760.00	0.00	0.00	580.66	1370.00	591.20	.04	.26	.00	450.63	10.54	381.32
15300.00	760.00	0.00	0.00	580.66	2020.00	593.27	.03	.13	.00	476.95	12.61	496.68
15300.00	760.00	0.00	0.00	580.66	2310.00	594.15	.02	.10	.00	484.03	13.49	552.19
15300.00	760.00	0.00	0.00	580.66	3210.00	596.56	.02	.06	.00	510.25	15.90	580.00
16690.00	1390.00	0.00	0.00	581.50	1380.00	591.69	.16	.57	.04	848.81	10.19	141.00
16690.00	1390.00	0.00	0.00	581.50	2040.00	593.53	.13	.34	.03	980.00	12.03	141.00
16690.00	1390.00	0.00	0.00	581.50	2340.00	594.34	.13	.27	.03	1037.50	12.84	141.00
16690.00	1390.00	0.00	0.00	581.50	3250.00	596.66	.12	.17	.03	1218.29	15.16	141.00
16730.00	40.00	0.00	0.00	580.80	1380.00	591.86	.06	.02	.05	1380.00	11.06	127.60
16730.00	40.00	0.00	0.00	580.80	2040.00	593.63	.07	.02	.03	2040.00	12.83	127.60
16730.00	40.00	0.00	0.00	580.80	2340.00	594.43	.08	.01	.02	2340.00	13.63	127.60
16730.00	40.00	0.00	0.00	580.80	3250.00	596.71	.09	.01	.01	3250.00	15.91	130.00
16771.00	41.00	599.20	596.50	580.80	1380.00	591.87	.06	.01	.00	1380.00	11.07	127.60
16771.00	41.00	599.20	596.50	580.80	2040.00	593.64	.07	.01	.00	2040.00	12.84	127.60
16771.00	41.00	599.20	596.50	580.80	2340.00	594.44	.08	.01	.00	2340.00	13.64	127.60
16771.00	41.00	599.20	596.50	580.80	3250.00	596.80	.09	.09	0.00	3250.00	16.00	130.00

SECTION NUMBER	DISCHARGE CFS	CWSEL	CWSEL DIFF EACH Q	CWSEL DIFF EACH SECTION	CWSEL-WSELK	TOPWID	T.W. DIFF	LENGTH
0.000	2000.000	588.150	0.000	0.000	0.000	548.500	0.000	0.000
0.000	2960.000	591.880	3.730	0.000	0.000	815.000	-266.500	0.000
0.000	3390.000	593.100	1.220	0.000	0.000	815.000	-266.500	0.000
0.000	4710.000	595.820	2.720	0.000	0.000	815.001	-266.501	0.000
450.000	2000.000	588.158	0.000	.008	0.000	539.727	0.000	450.000
450.000	2960.000	591.885	3.727	.005	0.000	802.317	-262.590	450.000
450.000	3390.000	593.104	1.220	.004	0.000	815.000	-275.273	450.000
450.000	4710.000	595.824	2.720	.004	0.000	815.001	-275.274	450.000

1420.000	2000.000	588.178	0.000	.021	0.000	951.320	0.000	970.000
1420.000	2960.000	591.897	3.719	.012	0.000	1155.200	-203.880	970.000
1420.000	3390.000	593.116	1.219	.011	0.000	1196.113	-244.794	970.000
1420.000	4710.000	595.835	2.720	.011	0.000	1698.999	-747.679	970.000
2350.000	2000.000	588.197	0.000	.019	0.000	762.876	0.000	930.000
2350.000	2960.000	591.905	3.708	.007	0.000	832.844	-69.968	930.000
2350.000	3390.000	593.122	1.218	.006	0.000	1011.715	-248.839	930.000
2350.000	4710.000	595.841	2.719	.006	0.000	1150.000	-387.124	930.000
3220.000	1960.000	588.182	0.000	-.015	0.000	82.629	0.000	870.000
3220.000	2900.000	591.920	3.738	.016	0.000	773.655	-691.026	870.000
3220.000	3320.000	593.135	1.215	.013	0.000	777.249	-694.620	870.000
3220.000	4620.000	595.850	2.715	.009	0.000	1068.348	-985.719	870.000
3268.000	1960.000	588.200	0.000	.017	0.000	58.000	0.000	48.000
3268.000	2900.000	591.922	3.723	.002	0.000	871.999	-813.999	48.000
3268.000	3320.000	593.137	1.214	.001	0.000	871.999	-813.999	48.000
3268.000	4620.000	595.851	2.715	.001	0.000	1115.025	-1057.025	48.000
3269.000	1960.000	588.200	0.000	.000	0.000	58.000	0.000	1.000
3269.000	2900.000	591.929	3.729	.006	0.000	873.999	-815.999	1.000
3269.000	3320.000	593.141	1.212	.004	0.000	873.999	-815.999	1.000
3269.000	4620.000	595.853	2.712	.002	0.000	1115.028	-1057.028	1.000
3292.000	1960.000	588.209	0.000	.009	0.000	58.000	0.000	23.000
3292.000	2900.000	591.930	3.721	.002	0.000	919.999	-861.999	23.000
3292.000	3320.000	593.142	1.212	.001	0.000	919.999	-861.999	23.000
3292.000	4620.000	595.854	2.712	.000	0.000	1115.091	-1057.091	23.000
3293.000	1960.000	588.293	0.000	.084	0.000	58.000	0.000	1.000
3293.000	2900.000	591.930	3.637	.000	0.000	921.999	-863.999	1.000
3293.000	3320.000	593.142	1.212	.000	0.000	921.999	-863.999	1.000
3293.000	4620.000	595.854	2.712	.000	0.000	1115.094	-1057.094	1.000
5050.000	1960.000	588.724	0.000	.431	0.000	544.471	0.000	1757.000
5050.000	2900.000	591.998	3.275	.068	0.000	726.436	-181.965	1757.000
5050.000	3320.000	593.192	1.194	.050	0.000	763.699	-219.228	1757.000
5050.000	4620.000	595.885	2.693	.031	0.000	899.566	-355.095	1757.000
6120.000	1960.000	588.771	0.000	.048	0.000	421.039	0.000	1070.000
6120.000	2900.000	592.020	3.249	.022	0.000	431.305	-10.265	1070.000
6120.000	3320.000	593.210	1.190	.018	0.000	435.771	-14.732	1070.000
6120.000	4620.000	595.899	2.689	.014	0.000	499.999	-78.960	1070.000
6134.000	1960.000	588.895	0.000	.123	0.000	421.458	0.000	14.000
6134.000	2900.000	592.139	3.245	.119	0.000	431.683	-10.225	14.000
6134.000	3320.000	593.334	1.194	.124	0.000	442.138	-20.679	14.000
6134.000	4620.000	596.034	2.701	.135	0.000	499.999	-78.541	14.000
8150.000	1960.000	589.017	0.000	.122	0.000	516.645	0.000	2016.000
8150.000	2900.000	592.193	3.177	.054	0.000	591.321	-74.676	2016.000
8150.000	3320.000	593.379	1.186	.045	0.000	659.683	-143.038	2016.000
8150.000	4620.000	596.072	2.693	.038	0.000	686.917	-170.272	2016.000
8700.000	1960.000	589.066	0.000	.050	0.000	364.059	0.000	550.000
8700.000	2900.000	592.210	3.144	.017	0.000	685.912	-321.852	550.000
8700.000	3320.000	593.392	1.182	.013	0.000	718.508	-354.449	550.000
8700.000	4620.000	596.082	2.690	.009	0.000	752.000	-387.941	550.000
9350.000	1960.000	589.248	0.000	.182	0.000	379.967	0.000	650.000
9350.000	2900.000	592.269	3.021	.059	0.000	529.170	-149.203	650.000
9350.000	3320.000	593.433	1.164	.041	0.000	570.170	-190.203	650.000
9350.000	4620.000	596.106	2.672	.024	0.000	620.000	-240.033	650.000

10180.000	1960.000	589.[illegible]01	0.000	.152	0.000	333.405	0.000	830.000
10180.000	2900.000	592.338	2.937	.068	0.000	490.701	-157.297	830.000
10180.000	3320.000	593.487	1.149	.053	0.000	544.332	-210.928	830.000
10180.000	4620.000	596.143	2.656	.037	0.000	713.798	-380.394	830.000
10880.000	1970.000	589.624	0.000	.223	0.000	188.237	0.000	700.000
10880.000	2910.000	592.453	2.828	.115	0.000	495.885	-307.648	700.000
10880.000	3340.000	593.574	1.122	.088	0.000	548.234	-359.997	700.000
10880.000	4650.000	596.198	2.624	.055	0.000	921.176	-732.939	700.000
10895.000	1970.000	589.633	0.000	.008	0.000	188.237	0.000	15.000
10895.000	2910.000	592.722	3.089	.269	0.000	508.451	-320.213	15.000
10895.000	3340.000	593.717	.995	.142	0.000	554.879	-366.642	15.000
10895.000	4650.000	596.296	2.579	.098	0.000	934.011	-745.774	15.000
10965.000	1970.000	590.068	0.000	.436	0.000	441.582	0.000	100.000
10965.000	2910.000	592.786	2.718	.064	0.000	660.395	-218.813	100.000
10965.000	3340.000	593.767	.981	.050	0.000	683.345	-241.763	100.000
10965.000	4650.000	596.326	2.559	.030	0.000	1069.999	-628.417	100.000
11275.000	1970.000	590.086	0.000	.018	0.000	664.591	0.000	380.000
11275.000	2910.000	592.794	2.708	.008	0.000	714.928	-50.337	380.000
11275.000	3340.000	593.774	.980	.007	0.000	733.308	-68.717	380.000
11275.000	4650.000	596.332	2.558	.006	0.000	800.770	-136.179	380.000
11276.000	1970.000	590.087	0.000	.001	0.000	664.592	0.000	1.000
11276.000	2910.000	592.794	2.707	.000	0.000	714.928	-50.336	1.000
11276.000	3340.000	593.774	.980	.000	0.000	733.308	-68.716	1.000
11276.000	4650.000	596.332	2.558	.000	0.000	800.772	-136.179	1.000
11290.000	1970.000	590.088	0.000	.001	0.000	664.618	0.000	14.000
11290.000	2910.000	592.795	2.706	.000	0.000	714.936	-50.318	14.000
11290.000	3340.000	593.774	.980	.000	0.000	733.315	-68.697	14.000
11290.000	4650.000	596.332	2.558	.000	0.000	800.798	-136.179	14.000
11291.000	1970.000	590.088	0.000	.000	0.000	664.619	0.000	1.000
11291.000	2910.000	592.795	2.706	.000	0.000	714.937	-50.317	1.000
11291.000	3340.000	593.774	.980	.000	0.000	733.315	-68.696	1.000
11291.000	4650.000	596.332	2.558	.000	0.000	800.799	-136.179	1.000
11700.000	1970.000	590.170	0.000	.081	0.000	576.867	0.000	409.000
11700.000	2910.000	592.821	2.651	.026	0.000	619.498	-42.631	409.000
11700.000	3340.000	593.795	.974	.021	0.000	635.356	-58.489	409.000
11700.000	4650.000	596.345	2.550	.013	0.000	694.692	-117.825	409.000
12750.000	1370.000	590.277	0.000	.108	0.000	297.776	0.000	1050.000
12750.000	2020.000	592.875	2.598	.054	0.000	332.502	-34.726	1050.000
12750.000	2310.000	593.841	.966	.046	0.000	351.818	-54.042	1050.000
12750.000	3210.000	596.379	2.538	.034	0.000	585.000	-287.224	1050.000
14540.000	1370.000	590.903	0.000	.626	0.000	382.631	0.000	1790.000
14540.000	2020.000	593.127	2.224	.252	0.000	451.675	-69.044	1790.000
14540.000	2310.000	594.038	.911	.197	0.000	476.781	-94.150	1790.000
14540.000	3210.000	596.496	2.458	.117	0.000	774.963	-392.332	1790.000
15300.000	1370.000	591.202	0.000	.299	0.000	381.316	0.000	760.000
15300.000	2020.000	593.266	2.064	.139	0.000	496.681	-115.365	760.000
15300.000	2310.000	594.146	.880	.108	0.000	552.193	-170.877	760.000
15300.000	3210.000	596.560	2.414	.063	0.000	580.001	-198.685	760.000
16690.000	1380.000	591.690	0.000	.488	0.000	140.999	0.000	1390.000
16690.000	2040.000	593.527	1.836	.261	0.000	140.999	-.000	1390.000
16690.000	2340.000	594.345	.818	.199	0.000	140.999	-.000	1390.000
16690.000	3250.000	596.655	2.311	.096	0.000	140.999	-.000	1390.000
16730.000	1380.000	591.861	0.000	.171	0.000	127.599	0.000	40.000

16730.000	2040.000	593.631	1.769	.104	0.000	127.599	-.000	40.000
16730.000	2340.000	594.432	.801	.087	0.000	127.599	-.000	40.000
16730.000	3250.000	596.712	2.280	.056	0.000	129.999	-2.400	40.000
16771.000	1380.000	591.873	0.000	.011	0.000	127.599	0.000	41.000
16771.000	2040.000	593.642	1.769	.011	0.000	127.599	-.000	41.000
16771.000	2340.000	594.442	.800	.011	0.000	127.599	-.000	41.000
16771.000	3250.000	596.800	2.358	.089	0.000	129.999	-2.400	41.000

DATA FOR LAST CROSS SECTION

PROFILE	TYPE ENC	TARGET	TOP WIDTH AREA-ACRES	TOP WIDTH AREA-DIFF
1	1.000	130.000	146.968	0.000
2	1.000	130.000	207.051	60.084
3	1.000	130.000	220.254	73.286
4	1.000	130.000	269.875	122.908

J&A's DATA & Q5 only 3-20-78 [initials]

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HEC2 RELEASE DATED NOV 76 UPDATED AUG 1977
ERROR CORR = 01,02
MODIFICATION = 50,51,52,53
****

C
T1 CLINTON NEWTOWN SUB. FILES 2839=12 & 780372 ~~521201~~ (100=YEAR EXISTING CONDITIONS)
T2 RUN BASED ON FIS JWG 02=09=78
T3 MILLER DRAIN DA=5 SQ MI'S URBANIZED DISCHARGE FIS=~~[illegible]~~ 670 CFS

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	=1.	2.	0.	0.	0.000000	0.00	0.0	0.	584.200	0.000

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	0.000	1.000	0.000	0.000	0.000	0.000	=1.000	0.000	0.000	15.000

J3 VARIABLE CODES FOR SUMMARY PRINTOUT

1.000	10.000	11.000	12.000	14.000	8.000	4.000	0.000	0.000	0.000

QT	2.000	430.000	670.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	0.100	0.300	0.000	0.000	0.000	0.000	0.000
NH	5.000	0.050	250.000	0.090	259.000	0.050	269.000	0.090	280.000	0.050
NH	520.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

THE PROPOSED PLAT CLINTON NEWTOWN ALTER. ARE BASED ON THE DATA J&A

FURNISHED WITH THEIR FIS.

X1	0.000	16.000	250.000	280.000	0.000	0.000	0.000	0.000	=3.100	0.000
GR	593.100	0.000	591.600	50.000	589.400	150.000	586.800	200.000	585.000	250.000
GR	579.500	259.000	580.100	264.000	579.600	269.000	584.100	280.000	583.200	300.000
GR	585.000	350.000	590.500	427.000	590.400	450.000	590.800	461.000	590.900	488.000
GR	594.100	520.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	5.000	0.050	250.000	0.090	259.000	0.050	269.000	0.090	280.000	0.050
NH	520.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	850.000	0.000	0.000	0.000	850.000	850.000	850.000	0.000	3.100	0.000
NC	0.000	0.000	0.000	0.500	1.000	0.000	0.000	0.000	0.000	0.000
NH	3.000	0.050	886.000	0.045	909.000	0.050	2632.000	0.000	0.000	0.000

X1	989.000	55.000	942.500	967.000	200.000	0.000	139.000	0.940	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	1200.000	0.000	0.000	0.000	0.000
GR	596.000	0.000	595.500	100.000	595.100	200.000	594.900	300.000	594.800	400.000
GR	594.200	500.000	593.700	600.000	591.300	700.000	588.300	800.000	587.700	900.000
GR	587.800	942.500	586.100	942.500	583.600	944.000	582.600	945.000	581.000	950.000
GR	580.500	952.000	580.000	955.000	580.500	958.000	580.800	960.000	581.700	965.000
GR	586.100	967.000	587.700	967.000	588.100	1000.000	589.200	1100.000	591.000	1200.000
GR	590.900	1300.000	589.300	1400.000	587.600	1600.000	584.900	1800.000	585.500	1900.000
GR	587.000	1950.000	589.800	2000.000	587.000	2000.000	581.600	2002.000	580.700	2005.000
GR	580.000	2010.000	579.000	2015.000	576.500	2017.000	574.800	2020.000	574.400	2025.000
GR	575.000	2030.000	575.600	2035.000	575.900	2040.000	576.500	2045.000	579.800	2050.000
GR	582.400	2055.000	583.400	2058.000	589.900	2058.000	591.000	2100.000	593.300	2200.000
GR	596.200	2277.000	595.400	2300.000	596.700	2400.000	595.900	2600.000	595.200	2800.000
NC	0.050	0.050	0.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	990.000	55.000	942.500	967.000	1.000	1.000	1.000	0.940	0.000	0.000
X2	0.000	0.000	0.000	586.100	587.750	0.000	0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	1200.000	0.000	0.000	0.000	0.000
GR	596.000	0.000	595.500	100.000	595.100	200.000	594.900	300.000	594.800	400.000
GR	594.200	500.000	593.700	600.000	591.300	700.000	588.300	800.000	587.700	900.000
GR	587.800	942.500	586.100	942.500	583.600	944.000	582.600	945.000	581.000	950.000
GR	580.500	952.000	580.000	955.000	580.500	958.000	580.800	960.000	581.700	965.000
GR	586.100	967.000	587.700	967.000	588.100	1000.000	589.200	1100.000	591.000	1200.000
GR	590.900	1300.000	589.300	1400.000	587.600	1600.000	584.900	1800.000	585.500	1900.000
GR	587.000	1950.000	589.800	2000.000	587.000	2000.000	581.600	2002.000	580.700	2005.000
GR	580.000	2010.000	579.000	2015.000	576.500	2017.000	574.800	2020.000	574.400	2025.000
GR	575.000	2030.000	575.600	2035.000	575.900	2040.000	576.500	2045.000	579.800	2050.000
GR	582.400	2055.000	583.400	2058.000	589.900	2058.000	591.000	2100.000	593.300	2200.000
GR	596.200	2277.000	595.400	2300.000	596.700	2400.000	595.900	2600.000	595.200	2800.000
X1	1010.000	55.000	942.500	967.000	20.000	20.000	20.000	0.940	0.000	0.000
X2	0.000	0.000	0.000	586.100	587.750	0.000	0.000	0.000	0.940	0.000
X3	0.000	0.000	0.000	0.000	0.000	1200.000	0.000	0.000	0.000	0.000
GR	596.000	0.000	595.500	100.000	595.100	200.000	594.900	300.000	594.800	400.000
GR	594.200	500.000	593.700	600.000	591.300	700.000	588.300	800.000	587.700	900.000
GR	587.800	942.500	586.100	942.500	583.600	944.000	582.600	945.000	581.000	950.000
GR	580.500	952.000	580.000	955.000	580.500	958.000	580.800	960.000	581.700	965.000
GR	586.100	967.000	587.700	967.000	588.100	1000.000	589.200	1100.000	591.000	1200.000
GR	590.900	1300.000	589.300	1400.000	587.600	1600.000	584.900	1800.000	585.500	1900.000
GR	587.000	1950.000	589.800	2000.000	587.000	2000.000	581.600	2002.000	580.700	2005.000
GR	580.000	2010.000	579.000	2015.000	576.500	2017.000	574.800	2020.000	574.400	2025.000
GR	575.000	2030.000	575.600	2035.000	575.900	2040.000	576.500	2045.000	579.800	2050.000
GR	582.400	2055.000	583.400	2058.000	589.900	2058.000	591.000	2100.000	593.300	2200.000
GR	596.200	2277.000	595.400	2300.000	596.700	2400.000	595.900	2600.000	595.200	2800.000
NH	3.000	0.050	886.000	0.045	909.000	0.050	2632.000	0.000	0.000	0.000
X1	1011.000	55.000	942.500	967.000	1.000	1.000	1.000	0.940	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	1200.000	0.000	0.000	0.000	0.000
GR	596.000	0.000	595.500	100.000	595.100	200.000	594.900	300.000	594.800	400.000
GR	594.200	500.000	593.700	600.000	591.300	700.000	588.300	800.000	587.700	900.000
GR	587.800	942.500	586.100	942.500	583.600	944.000	582.600	945.000	581.000	950.000
GR	580.500	952.000	580.000	955.000	580.500	958.000	580.800	960.000	581.700	965.000
GR	586.100	967.000	587.700	967.000	588.100	1000.000	589.200	1100.000	591.000	1200.000
GR	590.900	1300.000	589.300	1400.000	587.600	1600.000	584.900	1800.000	585.500	1900.000
GR	587.000	1950.000	589.800	2000.000	587.000	2000.000	581.600	2002.000	580.700	2005.000
GR	580.000	2010.000	579.000	2015.000	576.500	2017.000	574.800	2020.000	574.400	2025.000
GR	575.000	2030.000	575.600	2035.000	575.900	2040.000	576.500	2045.000	579.800	2050.000
GR	582.400	2055.000	583.400	2058.000	589.900	2058.000	591.000	2100.000	593.300	2200.000
GR	596.200	2277.000	595.400	2300.000	596.700	2400.000	595.900	2600.000	595.200	2800.000
NH	5.000	0.055	900.000	0.090	908.000	0.050	920.000	0.090	927.000	0.055
NH	1600.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	2270.000	23.000	900.000	927.000	1400.000	1259.000	1100.000	0.000	0.000	0.000
GR	597.200	0.000	597.300	100.000	597.100	200.000	596.400	300.000	596.500	405.000
GR	596.500	500.000	595.200	600.000	595.000	700.000	593.100	800.000	588.700	875.000
GR	587.400	900.000	583.100	908.000	582.600	915.000	583.100	920.000	586.800	927.000
GR	586.900	1000.000	589.400	1040.000	588.000	1100.000	592.000	1200.000	595.400	1300.000
GR	595.600	1400.000	595.700	1500.000	595.300	1600.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	0.100	0.300	0.000	0.000	0.000	0.000	0.000
NH	7.000	0.035	400.000	0.055	900.000	0.090	910.000	0.050	923.000	0.095
NH	939.000	0.050	1900.000	0.095	2300.000	0.000	0.000	0.000	0.000	0.000
X1	3200.000	33.000	900.000	939.000	800.000	930.000	930.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	1100.000	0.000	0.000	0.000	0.000
GR	597.900	0.000	597.900	100.000	597.600	200.000	597.100	300.000	596.600	400.000
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]	[illegible].300	18[illegible].000	[illegible]80.600	900.000	[illegible]4[illegible]00	[illegible]10.000	[illegible]3.700	[illegible]15.000	5[illegible]4.700	[illegible]1[illegible].000
GR	584.400	923.000	587.200	939.000	587.500	974.000	592.100	1000.000	595.400	1028.000
GR	596.000	1100.000	595.800	1200.000	593.000	1300.000	593.900	1400.000	595.800	1500.000
GR	596.900	1600.000	595.700	1700.000	595.700	1800.000	596.900	1900.000	597.300	2000.000
GR	596.200	2100.000	596.500	2200.000	596.800	2300.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	0.400	0.800	0.000	0.000	0.000	0.000	0.000
NH	5.000	0.050	900.000	0.090	930.000	0.050	941.000	0.090	974.000	0.050
NH	1028.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	3662.000	20.000	930.000	941.000	462.000	462.000	462.000	0.000	0.000	0.000
GR	597.900	0.000	597.900	100.000	597.600	200.000	597.100	300.000	596.600	400.000
GR	596.200	500.000	596.500	583.000	595.700	603.000	594.300	700.000	590.000	800.000
GR	588.300	850.000	588.400	900.000	588.400	930.000	582.400	930.000	582.200	935.000
GR	582.400	941.000	588.400	941.000	588.400	974.000	592.100	1000.000	595.400	1028.000
NC	0.060	0.085	0.051	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	3663.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	9.000	700.000	594.300	0.000	800.000	590.000	0.000	850.000	588.300	0.000
BT	900.000	588.400	0.000	930.000	588.400	587.300	941.000	588.400	587.300	974.000
BT	588.400	0.000	1000.000	592.100	0.000	1028.000	595.400	0.000	0.000	0.000

X1	3675.000	0.000	0.000	0.000	12.000	12.000	12.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NH	5.000	0.050	900.000	0.090	930.000	0.050	941.000	0.090	974.000	0.050
NH	1028.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	3676.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
NH	3.000	0.095	200.000	0.050	228.000	0.095	700.000	0.000	0.000	0.000
ET	0.000	6.100	6.100	6.100	8.100	190.000	233.000	1.000	560.000	0.000

X1	4800.000	15.000	200.000	228.000	1074.000	1074.000	1124.000	0.000	0.000	0.000
GR	596.200	0.000	595.100	72.000	594.300	86.000	594.300	105.000	593.500	115.000
GR	588.900	200.000	586.300	203.000	584.800	211.000	585.500	221.000	589.800	228.000
GR	590.400	300.000	593.900	400.000	596.300	500.000	597.500	600.000	597.800	700.000
QT	2.000	410.000	650.000 L&D	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	6.100	6.100	6.100	8.100	900.000	922.000	1.000	1900.000	0.000
NC	0.095	0.095	0.050	0.500	1.000	0.000	0.000	0.000	0.000	0.000

X1	4892.000	31.000	900.000	922.000	34.000	34.000	34.000	0.985	0.000	0.000
GR	597.700	0.000	597.600	100.000	597.300	200.000	597.100	300.000	596.500	400.000
GR	596.700	500.000	597.000	600.000	595.500	700.000	595.100	772.000	594.300	786.000
GR	594.300	805.000	593.500	815.000	590.000	897.500	588.900	900.000	586.200	905.000
GR	585.700	910.000	585.100	914.000	585.500	918.000	588.600	922.000	589.800	922.000
GR	589.800	922.500	590.400	1000.000	593.900	1100.000	596.300	1200.000	597.500	1300.000
GR	597.800	1400.000	598.400	1500.000	598.000	1600.000	597.700	1700.000	597.300	1800.000
GR	596.900	1900.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.055	0.055	0.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	6.100	6.100	6.100	8.100	900.000	922.000	1.000	1900.000	0.000
SB	0.000	2.000	2.950	0.000	22.000	0.000	123.600	0.000	585.100	585.100

DUNHAM RD. ℄

X1	4926.000	31.000	900.000	922.000	36.000	36.000	36.000	0.985	0.000	0.000
X2	0.000	0.000	0.000	592.000	594.600	0.000	0.000	0.000	0.985	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	597.700	0.000	597.600	100.000	597.300	200.000	597.100	300.000	596.500	400.000
GR	596.700	500.000	597.000	600.000	595.500	700.000	595.100	772.000	594.300	786.000
GR	594.300	805.000	593.500	815.000	590.000	897.500	588.900	900.000	586.200	905.000
GR	585.700	910.000	585.100	914.000	585.500	918.000	588.600	922.000	589.800	922.000
GR	589.800	922.500	590.400	1000.000	593.900	1100.000	596.300	1200.000	597.500	1300.000
GR	[illegible]97.80[illegible]	1[illegible]0 0	59[illegible]400	1[illegible]0 00	598[illegible]	1[illegible]	597.700	1700[illegible]	[illegible]97.300	1[illegible]00.0[illegible]

G.	596.700	1900.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	3.000	0.055	200.000	0.050	228.000	0.055	700.000	0.000	0.000	0.000
X1	5101.000	15.000	200.000	228.000	175.000	175.000	175.000	0.000	0.270	0.000
GR	596.200	0.000	595.100	72.000	594.300	86.000	594.300	105.000	593.500	115.000
GR	588.900	200.000	586.300	203.000	584.800	211.000	585.500	221.000	589.800	228.000
GR	590.400	300.000	593.900	400.000	596.300	500.000	597.500	600.000	597.800	700.000
NC	0.000	0.000	0.000	0.100	0.300	0.000	0.000	0.000	0.000	0.000
NH	3.000	0.055	1000.000	0.050	1049.000	0.055	2000.000	0.000	0.000	0.000
		d/s Limits								
X1	6610.000	30.000	1000.000	1049.000	1407.000	1407.000	1509.000	0.000	0.000	0.000
GR	598.100	0.000	597.400	100.000	596.900	200.000	596.900	300.000	596.500	400.000
GR	596.000	500.000	596.100	600.000	597.200	700.000	597.000	800.000	597.100	852.000
GR	594.800	900.000	592.300	1000.000	586.200	1020.000	585.600	1022.000	585.000	1026.000
GR	584.800	1029.000	585.800	1033.000	592.000	1049.000	593.400	1100.000	595.500	1200.000
GR	596.000	1234.000	597.000	1259.000	597.000	1300.000	596.400	1400.000	595.900	1500.000
GR	596.700	1600.000	596.600	1700.000	597.600	1800.000	597.300	1900.000	598.100	2000.000
QT	2.000	300.000	~~500.000~~ 450	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	3.000	0.055	700.000	0.050	753.000	0.055	1400.000	0.000	0.000	0.000
X1	8510.000	20.000	700.000	753.000	1500.000	1800.000	1900.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	660.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	598.300	0.000	598.700	100.000	597.700	200.000	597.200	300.000	597.000	400.000
GR	596.200	500.000	595.900	600.000	596.700	660.000	594.200	700.000	587.100	720.000
GR	586.200	727.000	586.900	734.000	593.900	753.000	595.600	800.000	595.000	900.000
GR	595.300	1000.000	596.100	1100.000	596.800	1200.000	597.400	1300.000	599.500	1400.000
NH	3.000	0.040	1000.000	0.045	1060.000	0.050	1687.000	0.000	0.000	0.000
X1	10220.000	24.000	1000.000	1060.000	1500.000	1200.000	1710.000	0.000	0.000	0.000
GR	599.500	0.000	599.600	100.000	598.900	200.000	598.800	300.000	598.100	400.000
GR	598.200	500.000	599.200	600.000	598.500	700.000	597.500	800.000	596.000	900.000
GR	596.000	960.000	594.800	1000.000	588.100	1020.000	587.600	1023.000	586.600	1029.000
GR	587.600	1040.000	595.400	1060.000	597.000	1100.000	596.700	1200.000	595.800	1300.000
GR	596.500	1400.000	596.400	1500.000	597.800	1600.000	599.700	1687.000	0.000	0.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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*PROF 1

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=   0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO .000
   SECNO      DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
   Q          QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME       VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
   SLOPE      XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST


        THE PROPOSED PLAT CLINTON NEWTOWN ALTER. ARE BASED ON THE DATA J&A


        FURNISHED WITH THEIR FIS.

     0.00      7.80    584.20    579.68    584.20    584.21      0.01      0.00      0.00    581.90
     430.       38.      151.      241.       72.      180.      270.        0.        0.    581.00
     0.00      0.53      0.84      0.89     0.050     0.082     0.050     0.000    576.40    190.38
 0.000209        0.        0.        0.         0        11         0      0.00    191.82    382.20

FLOW DISTRIBUTION FOR SECNO=      0.00          CWSEL=    584.20

STA=      190.      200.      250.      280.      300.      350.      382.
  PER Q=       0.1       8.7      35.1      17.3      34.7       4.1
   AREA=       2.4      70.0     180.2      73.0     160.0      37.0
    VEL=       0.2       0.5       0.8       1.0       0.9       0.5

1490 NH CARD USED
*SECNO 850.000
   850.00      5.10    584.60    582.78      0.00    584.75      0.16      0.50      0.04    585.00
     430.        0.      342.       88.        0.       99.       46.        7.        3.    584.10
     0.08      0.00      3.45      1.90     0.050     0.085     0.050     0.000    579.50    250.66
 0.005540      850.      850.      850.         2        12         0      0.00     88.21    338.86

FLOW DISTRIBUTION FOR SECNO=    850.00          CWSEL=    584.60

STA=      251.      280.      300.      339.
  PER Q=      79.6       9.4      11.0
   AREA=      99.3      19.0      27.2
    VEL=       3.4       2.1       1.7

CCHV=   0.500 CEHV=    1.000
1490 NH CARD USED
*SECNO 989.000

3470 ENCROACHMENT STATIONS=       0.0    1128.0  TYPE=     1  TARGET=    1199.999
   989.00      5.24    585.24    583.51      0.00    585.63      0.39      0.65      0.23    587.80
     430.        0.      430.        0.        0.       86.        0.        7.        3.    587.70
     0.08      0.00      5.03      0.00     0.050     0.045     0.050     0.000    580.00    886.44
 0.004839      200.      139.        0.         2        19         0      0.00     22.18    908.61

FLOW DISTRIBUTION FOR SECNO=    989.00          CWSEL=    585.24

STA=      886.      909.
  PER Q=     100.0
   AREA=      85.5
    VEL=       5.0
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* ECNO 990.000

3370 NORMAL BRIDGE,NRD=  0 MIN ELTRD=  587.75 MAX ELLC=  586.10


3470 ENCROACHMENT STATIONS=       0.0     1128.0  TYPE=      1  TARGET=      1199.999
    990.00      5.25    585.25    583.51      0.00    585.64      0.39      0.00      0.00    587.80
     430.        0.      430.        0.        0.       86.        0.        7.        3.     587.70
     0.08      0.00      5.02      0.00     0.050     0.030     0.050     0.000    580.00    886.43
  0.002139       1.        1.        1.         0        15         0      0.00     22.18    908.62


FLOW DISTRIBUTION FOR SECNO=    990.00           CHSEL=    585.25

STA=       886.      909.
  PER Q=    100.0
   AREA=     85.7
    VEL=      5.0

*SECNO 1010.000
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      NXR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST



3370 NORMAL BRIDGE,NRD=  0 MIN ELTRD=  587.75 MAX ELLC=  586.10


3470 ENCROACHMENT STATIONS=       0.0     1128.0  TYPE=      1  TARGET=      1199.999
   1010.00      5.31    585.31    583.51      0.00    585.69      0.38      0.04      0.01    587.80
     430.        0.      430.        0.        0.       87.        0.        7.        3.     587.70
     0.08      0.00      4.93      0.00     0.050     0.030     0.050     0.001    580.00    886.39
  0.002030       20.       20.       20.         0        15         0      0.00     22.25    908.64


FLOW DISTRIBUTION FOR SECNO=   1010.00           CHSEL=    585.31

STA=       886.      909.
  PER Q=    100.0
   AREA=     87.3
    VEL=      4.9

1490 NH CARD USED
*SECNO 1011.000

3470 ENCROACHMENT STATIONS=       0.0     1128.0  TYPE=      1  TARGET=      1199.999
   1011.00      5.31    585.31    583.51      0.00    585.69      0.38      0.00      0.00    587.80
     430.        0.      430.        0.        0.       87.        0.        7.        3.     587.70
     0.08      0.00      4.93      0.00     0.050     0.045     0.050     0.001    580.00    886.40
  0.004586       1.        1.        1.         0        14         0      0.00     22.25    908.64


FLOW DISTRIBUTION FOR SECNO=   1011.00           CHSEL=    585.31

STA=       886.      909.
  PER Q=    100.0
   AREA=     87.1
    VEL=      4.9

1490 NH CARD USED
*SECNO 2270.000

3265 DIVIDED FLOW
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[illegible]70.00   [illegible]   [illegible]88.3[illegible]   [illegible].8[illegible]   0.00   88.44   0.06   [illegible]2.[illegible]9   0.16   [illegible]7.40
     430.        6.      258.      166.        9.      116.      135.       12.        6.    586.80
    0.26      0.62      2.23      1.23     0.055     0.085     0.055     0.016    582.60    881.00
 0.001369    1400.     1100.     1259.         4        14         0      0.00    169.13   1109.70

FLOW DISTRIBUTION FOR SECNO=  2270.00          CWSEL=    588.39

STA=     881.      900.      927.     1000.     1024.     1100.     1110.
  PER Q=      1.4      60.1      34.8       3.4       0.3       0.1
   AREA=      9.4     115.6     112.3      17.7       3.2       1.9
    VEL=      0.6       2.2       1.3       0.8       0.3       0.3

CCHV=   0.100 CEHV=   0.300
1490 NH CARD USED
*SECNO 3200.000

3470 ENCROACHMENT STATIONS=       0.0     1100.0  TYPE=      1  TARGET=    1099.999
  3200.00      5.82    589.52    586.84      0.00    589.56      0.03      1.11      0.00    588.60
     430.       65.      229.      136.       76.      158.       88.       18.        9.    587.20
     0.44      0.85      1.45      1.55     0.055     0.089     0.050     0.020    583.70    813.77
 0.001071      800.      930.      930.         3        11         0      0.00    171.71    985.48

FLOW DISTRIBUTION FOR SECNO=  3200.00          CWSEL=    589.52

STA=     814.      850.      900.      939.      974.      985.
  PER Q=      3.3      11.7      53.3      29.1       2.6
   AREA=     22.3      54.1     157.6      76.4      11.7
    VEL=      0.6       0.9       1.5       1.6       1.0

CCHV=   0.400 CEHV=   0.800
1490 NH CARD USED
*SECNO 3662.000
  3662.00      7.81    590.01    585.91      0.00    590.06      0.05      0.49      0.01    588.40
     430.      187.      196.       47.      175.       85.       62.       21.       11.    588.40
     0.52      1.07      2.31      0.75     0.058     0.050     0.084     0.021    582.20    799.68
 0.001061      462.      462.      462.         2        14         0      0.00    185.66    985.34

FLOW DISTRIBUTION FOR SECNO=  3662.00          CWSEL=    590.01

STA=     800.      850.      900.      930.      941.      974.      985.
  PER Q=      8.8      26.3       8.3      45.6       9.2       1.8
   AREA=     43.2      83.2      48.4      84.9      53.3       9.2
    VEL=      0.9       1.4       0.7       2.3       0.7       0.8

*SECNO 3663.000
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      NXR       WTN       ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST


3370 NORMAL BRIDGE,NRD=  9 MIN ELTRD=  588.30 MAX ELLC=  587.30

  3663.00      7.84    590.04    585.91      0.00    590.07      0.03      0.00      0.01    588.40
     430.      242.      126.       62.      178.       73.       63.       21.       11.    588.40
     0.52      1.36      1.72      0.98     0.060     0.051     0.085     0.021    582.20    799.16
 0.001832        1.        1.        1.         2        16         0    -12.10    186.33    985.50

8930,RDST NOT ON GR CARD    699.99
FLOW DISTRIBUTION FOR SECNO=  3663.00          CWSEL=    590.04
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 STA=     799.     850.     900.     930.     941.     974.     986.
  PER Q=      10.1      29.4      16.8      29.2      13.0       1.4
   AREA=      44.3      84.3      49.1      73.0      54.0       9.4
    VEL=       1.0       1.5       1.5       1.7       1.0       0.7

*SECNO 3675.000

3370 NORMAL BRIDGE,NRD=  9 MIN ELTRD=  588.30 MAX ELLC=  587.30

  3675.00      7.86   590.06   585.91     0.00   590.09     0.03     0.02     0.00   588.40
     430.      243.     124.      62.     180.      73.      64.      21.      11.   588.40
     0.52      1.35     1.70     0.97    0.060    0.051    0.085    0.022   582.20   798.76
 0.001777       12.      12.      12.        0       16        0   -12.10   186.86   985.62


8930,RDST NOT ON GR CARD    699.99
FLOW DISTRIBUTION FOR SECNO=   3675.00           CWSEL=    590.06

STA=     799.     850.     900.     930.     941.     974.     986.
  PER Q=      10.2      29.5      16.8      28.9      13.1       1.4
   AREA=      45.2      85.2      49.6      73.2      54.6       9.6
    VEL=       1.0       1.5       1.5       1.7       1.0       0.6

1490 NH CARD USED
*SECNO 3676.000
  3676.00      7.86   590.06   585.92     0.00   590.10     0.04     0.00     0.01   588.40
     430.      191.     191.      48.     181.      85.      64.      21.      11.   588.40
     0.92      1.05     2.24     0.74    0.058    0.050    0.083    0.022   582.20   798.59
 0.000991        1.       1.       1.        0       11        0     0.00   187.07   985.67


FLOW DISTRIBUTION FOR SECNO=   3676.00           CWSEL=    590.06

STA=     799.     850.     900.     930.     941.     974.     986.
  PER Q=       9.3      26.6       8.4      44.5       9.3       1.8
   AREA=      45.5      85.5      49.8      85.4      54.8       9.7
    VEL=       0.9       1.3       0.7       2.2       0.7       0.8

1490 NH CARD USED
*SECNO 4800.000

3470 ENCROACHMENT STATIONS=      190.0      233.0  TYPE=      1  TARGET=       43.000
  4800.00      6.44   591.24   587.84     0.00   591.37     0.12     1.20     0.06   588.90
     430.       16.     410.       4.      21.     142.       7.      27.      14.   589.80
     0.63      0.78     2.87     0.58    0.095    0.050    0.095    0.029   584.80   190.00
 0.001190     1074.    1124.    1074.        2       18        0     0.00    43.00   233.00


FLOW DISTRIBUTION FOR SECNO=   4800.00           CWSEL=    591.24

STA=     190.     200.     228.     233.
  PER Q=       3.8      95.3       1.0
   AREA=      20.7     142.5       7.1
    VEL=       0.8       2.9       0.6

CCHV=   0.500 CEHV=   1.000
*SECNO 4892.000

3470 ENCROACHMENT STATIONS=      886.5      908.2  TYPE=      1  TARGET=       22.000
  4892.00      6.20   591.30   588.48     0.00   591.52     0.22     0.06     0.10   588.90
     410.        0.     410.       0.       0.     108.       0.      28.      14. 100000.00
     0.64      0.00     3.78     0.00    0.095    0.050    0.095    0.029   585.10   886.50
 0.002750       34.      34.      34.        2       11        0     0.00    21.67   908.17


FLOW DISTRIBUTION FOR SECNO=   4892.00           CWSEL=    591.30
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STA=     886.      908.
  PER Q=   100.0
   AREA=   108.5
    VEL=     3.8

SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.00      2.00      2.95      0.00     22.00      0.00    123.60      0.00    585.10    585.10

*SECNO 4926.000
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      NXR       WTN       ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST


3370 NORMAL BRIDGE,NRD=  0 MIN ELTRD=  594.60 MAX ELLC=  592.00

3470 ENCROACHMENT STATIONS=      886.5     908.2  TYPE=      1  TARGET=      22.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      588.90 ELREA=   100000.00

  4926.00      6.31    591.41    588.48      0.00    591.62      0.21      0.10      0.00    588.90
     410.        0.      410.        0.        0.      111.        0.       28.       14. 100000.00
     0.64      0.00      3.70      0.00     0.055     0.050     0.055     0.029    585.10    886.50
 0.002584       36.       36.       36.         2        12         0      0.00     21.67    908.17

FLOW DISTRIBUTION FOR SECNO=   4926.00           CWSEL=     591.41

STA=     886.      908.
  PER Q=   100.0
   AREA=   110.9
    VEL=     3.7

1490 NH CARD USED
*SECNO 5101.000
  5101.00      6.76    591.83    588.04      0.00    591.87      0.04      0.16      0.09    589.17
     410.       45.      279.       85.       65.      151.      124.       29.       14.    590.07
     0.67      0.69      1.84      0.69     0.055     0.050     0.055     0.030    585.07    150.85
 0.000452      175.      175.      175.         2        14         0      0.00    182.29    333.14

FLOW DISTRIBUTION FOR SECNO=   5101.00           CWSEL=     591.83

STA=     151.      200.      228.      300.      333.
  PER Q=    11.1      68.1      18.9       1.9
   AREA=    65.4     151.4     105.1      19.2
    VEL=     0.7       1.8       0.7       0.4

CCHV=   0.100 CEHV=   0.300
1490 NH CARD USED
*SECNO 6610.000
  6610.00      7.77    592.57    588.16      0.00    592.62      0.05      0.79      0.00    592.30
     410.        0.      408.        2.        1.      220.        6.       38.       19.    592.00
     0.90      0.17      1.86      0.28     0.055     0.050     0.055     0.035    584.80    989.21
 0.000563     1407.     1509.     1407.         3         8         0      0.00     80.55   1069.76

FLOW DISTRIBUTION FOR SECNO=   6610.00           CWSEL=     592.57
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STA=     989.     1000.     1049.     1070.
  PER Q=       0.1      99.5       0.4
   AREA=       1.5     219.6       5.9
    VEL=       0.2       1.9       0.3

1490 NH CARD USED
*SECNO 8510.000

3470 ENCROACHMENT STATIONS=      660.0     1400.0  TYPE=      1  TARGET=      =660.000
  8510.00      7.26    593.46    588.83      0.00    593.49      0.03      0.87      0.00    594.20
     300.        0.      300.        0.        0.      211.        0.       48.       21.    593.90
     1.27      0.00      1.42      0.00     0.055     0.050     0.055     0.038    586.20    702.10
 0.000353     1500.     1900.     1800.         1        22         0      0.00     49.69    751.79


FLOW DISTRIBUTION FOR SECNO=   8510.00           CWSEL=     593.46

STA=      702.      753.
  PER Q=     100.0
   AREA=     211.2
    VEL=       1.4

1490 NH CARD USED
*SECNO 10220.000
 10220.00      7.33    593.93    589.09      0.00    593.96      0.02      0.46      0.00    594.80
     300.        0.      300.        0.        0.      237.        0.       56.       23.    595.40
     1.64      0.00      1.27      0.00     0.055     0.045     0.055     0.040    586.60   1002.59
 0.000216     1500.     1710.     1200.         2        22         0      0.00     53.64   1056.23


FLOW DISTRIBUTION FOR SECNO=  10220.00           CWSEL=     593.93

STA=     1003.     1060.
  PER Q=     100.0
   AREA=     236.5
    VEL=       1.3
```

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Clinton Twp.

3) WATERCOURSE: Middle Branch Clinton River

4) DOCUMENT TYPE: Multiple Run Profile Current

00BREAK00

4.25

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 $$$$$$   $$       $$$$$$$$ $$$$$$$$   $$$$$ $  $$$$$$$    $$$$$$
$$    $$  $$          $$         $$   $$     $  $$     $$ $$     $$
$$        $$          $$         $$   $$   $$$  $$     $$ $$
$$        $$          $$         $$   $$  $ $$  $$     $$ $$
$$        $$          $$         $$   $$ $$ $$  $$     $$ $$
$$        $$          $$         $$   $$ $  $$  $$$$$$$   $$
$$        $$          $$         $$   $$$   $$  $$  $$    $$
$$    $$  $$          $$    $$   $$    $    $$  $$   $$   $$     $$
 $$$$$$   $$$$$$$$ $$$$$$$$  $$$      $ $$$$$   $$     $$  $$$$$$
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12 '77

CLINTON TOWNSHIP

MIDDLE BRANCH OF THE CLINTON RIVER

MULTIPLE PROFILE RUN

current

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****************************************
HEC2 VERSION UPDATED JAN 1976
ERROR CORRECTIONS 01,02,03,04,05,06,07,08,09
MODIFICATIONS 52,53,54,55,56,57,58
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C
1          CLINTON TOWNSHIP-JOB NO. 5670-02   PROJECT MANAGER  WILLIAM C. ROSSOW
T2          10 YEAR FLOW = 2000
T3              MIDDLE BRANCH CLINTON RIVER

J1   ICHECK      INQ       NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

        -1.         2.        0.         0.   0.000000      0.00       0.0         0.   588.150     0.000

J2   NPROF      IPLOT      PRFVS      XSECV      XSECH        FN       ALLDC      IBW       CHNIM      ITRACE

      1.000      0.000     -1.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000

J3      1.000     10.000     11.000     12.000     14.000      8.000      4.000      0.000      0.000      0.000
QT      4.000   2000.000   2960.000   3390.000   4710.000      0.000      0.000      0.000      0.000      0.000
NC       .070       .070       .030       .100       .300      0.000      0.000      0.000      0.000      0.000
NH      3.000       .070    380.000       .040    410.000       .050    815.000      0.000      0.000      0.000

X1      0.000     21.000    380.000    410.000      0.000      0.000      0.000      0.000      -.300      0.000
GR    592.000      0.000    590.000    205.000    588.000    245.000    586.000    270.000    584.000    278.000
GR    582.000    285.000    580.000    300.000    578.000    360.000    576.000    370.000    574.000    380.000
GR    573.100    395.000    574.000    410.000    576.000    415.000    578.000    425.000    580.000    430.000
GR    582.000    715.000    584.000    735.000    586.000    760.000    588.000    780.000    590.000    800.000
GR    592.000    815.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
NH      3.000       .070    380.000       .040    410.000       .050    815.000      0.000      0.000      0.000

X1    450.000      0.000      0.000      0.000    450.000    450.000    450.000      0.000       .300      0.000
NH      4.000       .070    758.000       .040    792.000       .070   1153.000       .040   1700.000      0.000
ET      0.000      6.100      8.100      8.100      8.100     80.000   1060.000      1.000   1700.000      0.000

X1   1420.000     30.000    750.000    800.000    970.000    970.000    970.000      0.000      0.000      0.000
GR    588.600      0.000    587.400    100.000    587.800    300.000    588.500    360.000    579.700    382.000
GR    579.700    400.000    581.700    500.000    582.500    600.000    579.600    700.000    582.100    750.000
GR    577.300    758.000    575.900    762.000    574.000    768.000    573.700    774.000    573.800    780.000
GR    573.900    786.000    575.000    792.000    582.800    800.000    582.300    900.000    579.400   1000.000
GR    579.500   1085.000    582.500   1100.000    591.800   1153.000    593.200   1200.000    595.000   1260.000
GR    594.500   1300.000    595.100   1400.000    595.400   1500.000    595.500   1600.000    595.200   1700.000
NH      5.000       .050    390.000       .070    400.000       .040    430.000       .070    462.000       .050
NH   1150.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000

X1   2350.000     24.000    400.000    430.000    980.000    780.000    930.000      0.000      0.000      0.000
GR    594.000      0.000    592.000    275.000    590.000    295.000    588.000    300.000    586.000    305.000
GR    584.000    310.000    582.000    315.000    580.000    325.000    580.000    390.000    578.000    393.000
GR    576.000    400.000    574.320    415.000    576.000    430.000    578.000    435.000    580.000    440.000
GR    582.000    452.000    584.000    462.000    584.000    830.000    586.000    845.000    588.000    890.000
GR    588.000   1060.000    590.000   1085.000    592.000   1110.000    594.000   1150.000      0.000      0.000
QT      4.000   1960.000   2900.000   3320.000   4620.000      0.000      0.000      0.000      0.000      0.000
NH      5.000       .050   1900.000       .070   1905.000       .040   1938.000       .070   1981.000       .050
NH   2277.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
ET      0.000      6.100      8.100      8.100      8.100   1880.000   2277.000   1200.000   2277.000      0.000

X1   3220.000     40.000   1900.000   1981.000    920.000    720.000    870.000      0.000      0.000      0.000
X3     10.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
GR    596.000      0.000    595.500    100.000    595.100    200.000    594.900    300.000    594.800    400.000
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GR	594.200	500.000	593.700	600.000	591.300	700.000	588.300	800.000	587.700	900.000
GR	587.800	942.500	587.700	967.000	588.100	1000.000	589.200	1100.000	591.000	1200.000
GR	590.900	1300.000	589.300	1400.000	589.300	1400.000	589.300	1400.000	589.300	1400.000
GR	587.500	1600.000	583.100	1700.000	583.200	1800.000	584.300	1880.000	581.900	1900.000
GR	577.200	1905.000	575.700	1910.000	575.200	1915.000	574.900	1920.000	575.000	1925.000
GR	575.400	1930.000	575.700	1935.000	576.900	1938.000	581.200	1942.000	594.400	1981.000
GR	594.600	2000.000	594.900	2100.000	595.300	2175.000	595.100	2250.000	596.200	2277.000
NC	0.000	0.000	0.000	.500	1.000	0.000	0.000	0.000	0.000	0.000
NH	3.000	.055	2000.000	.040	2058.000	.055	2800.000	0.000	0.000	0.000
ET	0.000	6.100	8.100	8.100	6.100	1200.000	2400.000	1200.000	2072.000	0.000
X1	3268.000	55.000	2000.000	2058.000	48.000	48.000	48.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	596.000	0.000	595.500	100.000	595.100	200.000	594.900	300.000	594.800	400.000
GR	594.200	500.000	593.700	600.000	591.300	700.000	588.300	800.000	587.700	900.000
GR	587.800	942.500	586.100	942.500	583.600	944.000	582.600	945.000	581.000	950.000
GR	580.500	952.000	580.000	955.000	580.500	958.000	580.800	960.000	581.700	965.000
GR	586.100	967.000	587.700	967.000	588.100	1000.000	589.200	1100.000	591.000	1200.000
GR	590.900	1300.000	589.300	1400.000	587.600	1600.000	584.900	1800.000	585.500	1900.000
GR	587.000	1950.000	589.800	2000.000	587.000	2000.000	581.600	2002.000	580.700	2005.000
GR	580.000	2010.000	579.000	2015.000	576.500	2017.000	574.800	2020.000	574.400	2025.000
GR	575.000	2030.000	575.600	2035.000	575.900	2040.000	576.500	2045.000	579.800	2050.000
GR	582.400	2055.000	583.400	2058.000	589.900	2058.000	591.000	2100.000	593.300	2200.000
GR	596.200	2277.000	595.400	2300.000	596.700	2400.000	595.900	2600.000	595.200	2800.000
NC	.050	.050	.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	6.100	8.100	8.100	6.100	1200.000	2400.000	1200.000	2074.000	0.000
X1	3269.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BT	15.000	900.000	587.700	0.000	942.500	587.800	586.100	967.000	587.700	586.100
BT	1000.000	588.100	588.100	1100.000	589.200	589.200	1200.000	591.000	591.000	1300.000
BT	590.900	590.900	1400.000	589.300	589.300	1600.000	587.600	587.600	1800.000	584.900
BT	584.900	1900.000	585.500	585.500	1950.000	587.000	587.000	2000.000	589.800	586.900
BT	2058.000	589.900	586.900	2100.000	591.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	6.100	8.100	8.100	6.100	1200.000	2400.000	1200.000	2120.000	0.000
X1	3292.000	0.000	0.000	0.000	23.000	23.000	23.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	3.000	.055	2000.000	.040	2058.000	.055	2800.000	0.000	0.000	0.000
ET	0.000	6.100	8.100	8.100	6.100	1200.000	2400.000	1200.000	2122.000	0.000
X1	3293.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	7.000	.050	265.000	.075	500.000	.060	512.000	.045	536.000	.060
NH	544.000	.040	900.000	.030	1572.000	0.000	0.000	0.000	0.000	0.000
X1	5050.000	28.000	500.000	544.000	1450.000	1757.000	1757.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	200.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	594.500	0.000	593.700	100.000	594.500	200.000	593.200	265.000	581.100	303.000
GR	582.900	400.000	583.000	500.000	577.100	507.000	576.000	512.000	575.600	517.000
GR	575.600	522.000	575.700	527.000	575.900	532.000	576.800	536.000	582.100	544.000
GR	583.600	600.000	585.100	700.000	588.300	800.000	590.100	900.000	592.100	1000.000
GR	595.900	1100.000	596.700	1132.000	596.300	1200.000	597.800	1300.000	597.000	1400.000
GR	596.500	1500.000	596.100	1515.000	598.100	1572.000	0.000	0.000	0.000	0.000
NH	5.000	.050	500.000	.060	515.000	.045	534.500	.060	538.000	.040
NH	1572.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	6120.000	36.000	515.000	534.500	950.000	600.000	1070.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	200.000	0.000	700.000	0.000	0.000	0.000	0.000
GR	594.500	0.000	593.700	100.000	594.500	200.000	593.200	265.000	584.000	294.000
GR	581.100	303.000	581.400	315.000	582.900	400.000	582.900	415.000	583.000	500.000
GR	583.000	515.000	579.100	515.000	577.400	518.000	576.800	523.000	576.700	528.000
GR	576.800	532.000	578.800	534.500	581.800	534.500	581.900	538.000	582.500	560.000
GR	583.500	595.000	583.600	600.000	584.500	660.000	584.600	670.000	585.100	700.000
GR	588.300	800.000	590.100	900.000	592.100	1000.000	595.900	1100.000	596.700	1132.000

GR	596.300	1200.000	597.800	1300.000	597.000	1400.000	596.500	1500.000	596.100	1515.000
GR	598.100	1572.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	1.530	3.040	0.000	19.500	0.000	197.800	0.000	576.700	576.700
X1	6134.000	0.000	0.000	0.000	14.000	14.000	14.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	587.400	588.200	0.000	0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	200.000	0.000	700.000	0.000	0.000	0.000	0.000
BT	22.000	200.000	594.500	0.000	200.000	594.500	0.000	200.000	594.500	0.000
BT	265.000	593.200	0.000	294.000	584.000	0.000	315.000	583.300	0.000	415.000
BT	584.200	0.000	515.000	588.200	579.100	515.000	588.200	587.400	534.500	588.300
BT	587.300	534.500	588.300	581.800	538.000	588.300	0.000	560.000	588.900	0.000
BT	595.000	589.400	0.000	660.000	597.400	0.000	670.000	597.300	0.000	1132.000
BT	596.700	0.000	1300.000	597.800	0.000	1400.000	597.000	0.000	1500.000	596.500
BT	0.000	1515.000	596.100	0.000	1572.000	598.100	0.000	0.000	0.000	0.000
NH	7.000	.050	800.000	.095	960.000	.045	1400.000	.070	1413.000	.050
NH	1440.000	.070	1448.000	.030	2600.000	0.000	0.000	0.000	0.000	0.000
X1	8150.000	42.000	1400.000	1448.000	1500.000	2016.000	2016.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	900.000	0.000	1650.000	0.000	0.000	0.000	0.000
GR	595.500	0.000	595.500	100.000	595.500	200.000	595.500	300.000	595.400	400.000
GR	595.100	500.000	595.300	600.000	595.900	700.000	596.800	800.000	596.800	900.000
GR	596.800	960.000	589.900	988.000	589.200	1000.000	587.200	1100.000	585.100	1200.000
GR	584.000	1300.000	583.400	1380.000	585.200	1400.000	576.700	1413.000	576.500	1420.000
GR	577.400	1430.000	577.000	1435.000	578.100	1440.000	585.200	1448.000	587.100	1500.000
GR	592.200	1570.000	592.500	1600.000	593.300	1633.000	596.600	1653.000	597.300	1700.000
GR	596.200	1800.000	594.500	1842.000	596.200	1868.000	596.100	2000.000	597.800	2020.000
GR	598.000	2100.000	598.500	2186.000	598.300	2230.000	597.700	2300.000	596.900	2400.000
GR	596.500	2500.000	596.500	2600.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
NH	5.000	.050	660.000	.070	680.000	.050	705.000	.070	730.000	.050
NH	752.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	8700.000	19.000	680.000	705.000	370.000	550.000	550.000	0.000	0.000	0.000
GR	596.000	0.000	594.000	15.000	592.000	60.000	590.300	135.000	592.000	210.000
GR	592.000	275.000	590.000	340.000	588.000	390.000	586.000	460.000	586.000	660.000
GR	584.000	670.000	582.000	673.000	580.000	680.000	576.360	692.000	580.000	705.000
GR	590.000	730.000	592.000	740.000	594.000	750.000	596.000	752.000	0.000	0.000
NH	5.000	.050	285.000	.070	300.000	.045	320.000	.070	340.000	.050
NH	620.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	9350.000	20.000	300.000	320.000	500.000	650.000	650.000	0.000	0.000	0.000
GR	596.000	0.000	594.000	20.000	592.000	70.000	590.000	185.000	588.000	195.000
GR	586.000	200.000	584.000	205.000	584.000	285.000	582.000	292.000	580.000	300.000
GR	576.300	310.000	580.000	320.000	582.000	330.000	584.000	340.000	586.000	505.000
GR	588.000	550.000	590.000	580.000	592.000	590.000	594.000	610.000	596.000	620.000
NH	8.000	.050	1700.000	.090	1769.000	.070	1777.000	.045	1795.000	.070
NH	1800.000	.050	1964.000	.035	2300.000	.040	2500.000	0.000	0.000	0.000
X1	10180.000	36.000	1765.000	1800.000	830.000	830.000	830.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	1200.000	0.000	2100.000	0.000	0.000	0.000	0.000
GR	597.100	0.000	596.600	100.000	596.400	200.000	596.400	300.000	596.100	400.000
GR	596.000	500.000	595.300	600.000	596.100	700.000	596.400	800.000	596.300	900.000
GR	597.300	1000.000	597.400	1100.000	597.400	1200.000	597.100	1300.000	594.900	1400.000
GR	591.800	1500.000	590.200	1600.000	586.300	1700.000	584.300	1765.000	580.400	1769.000
GR	578.300	1777.000	577.600	1780.000	576.000	1785.000	577.100	1790.000	578.600	1795.000
GR	584.200	1800.000	584.500	1900.000	585.100	1935.000	591.700	1964.000	594.200	2000.000
GR	597.600	2100.000	597.100	2200.000	597.600	2232.000	596.100	2300.000	595.900	2400.000
GR	596.100	2500.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	4.000	1970.000	2910.000	3340.000	4650.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.500	1.000	0.000	0.000	0.000	0.000	0.000
NH	6.000	.045	1600.000	.085	1765.000	.085	1769.000	.040	1800.000	.070
NH	1803.000	.050	2500.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	10880.000	42.000	1765.000	1803.000	750.000	700.000	700.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	1025.000	0.000	1803.000	590.000	0.000	0.000	0.000
	597.100	0.000	596.600	100.000	596.400	200.000	596.400	300.000	596.100	400.000

	596.000	500.000	595.300	600.000	596.100	700.000	596.400	800.000	596.300	900.000
GR	597.300	1000.000	597.400	1100.000	597.400	1200.000	597.100	1300.000	594.900	1400.000
GR	591.800	1500.000	590.200	1600.000	586.300	1700.000	584.300	1765.000	580.200	1765.000
GR	577.600	1769.000	577.600	1777.000	576.800	1785.000	577.100	1793.000	578.300	1800.000
GR	580.500	1803.000	584.200	1803.000	584.300	1822.000	584.400	1854.000	584.400	1865.000
GR	584.400	1883.000	584.500	1900.000	585.100	1935.000	591.700	1964.000	594.200	2000.000
GR	595.900	2050.000	597.600	2100.000	597.100	2200.000	597.600	2232.000	596.100	2300.000
GR	595.900	2400.000	596.100	2500.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	1.530	3.090	0.000	38.000	0.000	504.300	0.000	576.800	576.800
NC	.045	.050	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	10895.000	0.000	0.000	0.000	15.000	15.000	15.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	591.000	591.800	0.000	0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	1025.000	0.000	1803.000	590.000	0.000	0.000	0.000
BT	34.000	0.000	597.100	0.000	100.000	596.600	0.000	200.000	596.400	0.000
BT	300.000	596.400	0.000	400.000	596.100	0.000	500.000	596.000	0.000	600.000
BT	595.300	0.000	700.000	596.100	0.000	800.000	596.400	0.000	900.000	596.300
BT	0.000	1000.000	597.300	0.000	1100.000	597.400	0.000	1200.000	597.400	0.000
BT	1300.000	597.100	0.000	1400.000	594.900	0.000	1500.000	591.800	0.000	1600.000
BT	591.400	0.000	1700.000	591.500	0.000	1765.000	592.100	584.300	1765.000	592.100
BT	590.900	1803.000	592.200	591.000	1803.000	592.200	584.200	1822.000	592.000	0.000
BT	1854.000	593.800	0.000	1865.000	593.500	0.000	1883.000	593.500	0.000	1900.000
BT	595.900	0.000	2050.000	595.900	0.000	2100.000	597.600	0.000	2200.000	597.100
BT	0.000	2232.000	597.600	0.000	2300.000	596.100	0.000	2400.000	595.900	0.000
BT	2500.000	596.100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	6.100	8.100	8.100	8.100	320.000	1160.000	90.000	1160.000	0.000
X1	10965.000	22.000	653.000	700.000	120.000	90.000	100.000	0.000	-2.570	0.000
GR	597.300	0.000	596.100	100.000	588.400	200.000	586.500	300.000	585.900	400.000
GR	584.200	500.000	586.600	600.000	587.800	653.000	580.400	662.000	579.600	670.000
GR	579.600	682.000	579.600	689.000	580.400	694.000	586.300	700.000	587.000	744.000
GR	596.300	773.000	597.800	787.000	597.500	800.000	598.200	900.000	597.500	1000.000
GR	597.400	1100.000	597.200	1200.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	11275.000	32.000	561.900	584.400	380.000	380.000	380.000	0.000	0.000	0.000
GR	597.300	0.000	596.100	115.500	588.400	230.900	586.500	346.400	585.900	461.900
GR	586.400	511.900	587.600	548.900	588.000	557.900	584.200	561.900	581.900	561.900
GR	580.600	563.900	580.100	566.900	579.000	569.900	577.900	573.900	578.700	578.900
GR	578.800	581.900	579.900	584.400	584.700	584.400	588.100	586.900	587.900	588.900
GR	587.500	599.900	586.600	661.900	587.800	754.000	586.300	808.300	587.000	859.100
GR	596.300	892.600	597.800	908.700	597.500	923.800	598.200	1039.200	597.500	1154.700
GR	597.400	1270.200	597.200	1385.600	0.000	0.000	0.000	0.000	0.000	0.000
NC	.040	.020	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	11276.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	26.000	0.000	597.300	0.000	115.500	596.100	0.000	230.900	588.400	0.000
BT	346.400	586.500	0.000	461.900	585.900	0.000	511.900	586.400	0.000	548.900
BT	587.600	0.000	557.900	588.000	0.000	561.900	588.200	584.200	561.900	588.200
BT	587.200	584.400	588.300	587.300	584.400	588.300	584.700	586.900	588.100	0.000
BT	588.900	587.900	0.000	599.900	587.500	0.000	661.900	586.600	0.000	754.000
BT	587.800	0.000	808.300	586.300	0.000	859.100	587.000	0.000	892.600	596.300
BT	0.000	908.700	597.800	0.000	923.800	597.500	0.000	1039.200	598.200	0.000
BT	1154.700	597.500	0.000	1270.200	597.400	0.000	1385.600	597.200	0.000	0.000
X1	11290.000	0.000	0.000	0.000	14.000	14.000	14.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NH	3.000	.090	561.900	.045	584.400	.090	1385.600	0.000	0.000	0.000
X1	11291.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
NH	7.000	.040	500.000	.090	653.000	.050	662.000	.045	689.000	.050
NH	700.000	.080	773.000	.050	1200.000	0.000	0.000	0.000	0.000	0.000
X1	11700.000	22.000	653.000	700.000	100.000	350.000	409.000	0.000	0.000	0.000
GR	597.300	0.000	596.100	100.000	588.400	200.000	586.500	300.000	585.900	400.000
GR	584.200	500.000	586.600	600.000	587.800	653.000	580.400	662.000	579.600	670.000
GR	579.600	682.000	579.600	689.000	580.400	694.000	586.300	700.000	587.000	744.000

GR	596.300	773.000	597.800	787.000	597.500	800.000	598.200	900.000	597.500	1000.000
GR	597.400	1100.000	597.200	1200.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	4.000	1370.000	2020.000	2310.000	3210.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
NH	7.000	.040	250.000	.090	308.000	.050	320.000	.045	342.000	.050
NH	355.000	.080	400.000	.050	585.000	0.000	0.000	0.000	0.000	0.000
X1	12750.000	19.000	320.000	342.000	650.000	1600.000	1050.000	0.000	0.000	0.000
GR	596.000	0.000	594.000	230.000	592.000	250.000	590.000	260.000	588.000	275.000
GR	586.000	308.000	584.000	310.000	582.000	320.000	579.820	331.000	582.000	342.000
GR	584.000	350.000	586.000	355.000	588.000	360.000	589.400	370.000	588.000	400.000
GR	588.000	535.000	590.000	555.000	592.000	565.000	594.000	585.000	0.000	0.000
NH	7.000	.050	1000.000	.090	1268.000	.050	1277.000	.040	1293.000	.050
NH	1300.000	.070	1340.000	.050	2000.000	0.000	0.000	0.000	0.000	0.000
X1	14540.000	29.000	1268.000	1300.000	1350.000	900.000	1790.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	400.000	0.000	1400.000	0.000	0.000	0.000	0.000
GR	598.100	0.000	597.200	100.000	596.100	200.000	596.300	300.000	596.900	400.000
GR	596.800	500.000	596.300	600.000	596.300	700.000	596.100	800.000	591.600	900.000
GR	588.600	1000.000	587.700	1100.000	587.400	1200.000	589.500	1255.000	588.000	1268.000
GR	582.300	1277.000	580.900	1281.000	580.200	1284.000	581.100	1289.000	582.700	1293.000
GR	589.800	1300.000	597.300	1340.000	597.600	1400.000	596.500	1500.000	597.100	1600.000
GR	598.100	1700.000	598.500	1800.000	596.600	1900.000	597.200	2000.000	0.000	0.000
NH	6.000	.090	240.000	.050	260.000	.040	280.000	.050	290.000	.070
NH	355.000	.050	580.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	15300.000	16.000	260.000	280.000	650.000	760.000	760.000	0.000	0.000	0.000
GR	596.000	0.000	594.000	30.000	592.000	50.000	590.000	75.000	588.000	105.000
GR	588.000	240.000	586.000	250.000	584.000	260.000	580.660	270.000	584.000	280.000
GR	586.000	290.000	588.000	355.000	590.000	420.000	592.000	455.000	594.000	485.000
GR	592.000	580.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	4.000	1380.000	2040.000	2340.000	3250.000	0.000	0.000	0.000	0.000	0.000
NH	8.000	.030	200.000	.050	769.000	.060	778.000	.040	795.000	.060
NH	800.000	.040	1200.000	.030	1400.000	.050	2000.000	0.000	0.000	0.000
X1	16690.000	27.000	769.000	800.000	1350.000	1040.000	1390.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	714.000	0.000	855.000	0.000	0.000	0.000	0.000
GR	597.200	0.000	596.500	100.000	592.300	200.000	590.500	300.000	588.700	400.000
GR	589.700	500.000	588.800	600.000	589.500	700.000	589.500	769.000	584.200	778.000
GR	583.200	781.000	581.500	789.000	583.200	795.000	589.800	800.000	588.000	850.000
GR	588.200	900.000	588.400	1000.000	589.300	1100.000	596.200	1200.000	598.700	1300.000
GR	597.500	1400.000	598.600	1500.000	598.900	1600.000	597.500	1700.000	598.000	1800.000
GR	598.600	1900.000	599.600	2000.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.500	1.000	0.000	0.000	0.000	0.000	0.000
NH	5.000	.040	830.000	.060	1400.000	.040	1530.000	.060	1830.000	.040
NH	2630.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	16730.000	48.000	1400.000	1530.000	40.000	40.000	40.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	1400.000	0.000	1530.000	0.000	0.000	0.000	0.000
GR	599.200	0.000	599.400	200.000	599.400	400.000	599.400	600.000	597.200	630.000
GR	596.500	730.000	592.300	830.000	590.500	930.000	588.700	1030.000	589.700	1130.000
GR	588.800	1230.000	589.500	1330.000	589.500	1397.500	589.500	1400.000	589.500	1422.000
GR	586.000	1430.000	585.500	1440.000	585.800	1444.400	596.500	1444.400	596.500	1445.600
GR	585.800	1445.600	586.400	1450.000	588.000	1455.000	583.900	1458.000	582.000	1460.000
GR	580.800	1470.000	583.100	1480.000	583.900	1483.000	585.200	1489.400	596.500	1489.400
GR	596.500	1490.600	585.200	1490.600	587.100	1500.000	587.000	1510.000	588.100	1513.000
GR	588.200	1530.000	588.200	1532.500	588.400	1630.000	589.300	1730.000	596.200	1830.000
GR	598.700	1930.000	597.500	2030.000	598.600	2130.000	598.900	2230.000	597.500	2330.000
GR	598.000	2430.000	598.600	2530.000	599.200	2630.000	0.000	0.000	0.000	0.000
SB	0.000	1.860	3.040	0.000	130.000	0.000	1302.700	0.000	580.800	580.800
X1	16771.000	0.000	0.000	0.000	41.000	41.000	41.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	596.500	599.200	0.000	0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	1400.000	0.000	1530.000	0.000	0.000	0.000	0.000
BT	27.000	0.000	599.200	0.000	200.000	599.400	0.000	400.000	599.400	0.000
	600.000	599.400	0.000	630.000	599.400	0.000	730.000	599.500	0.000	830.000

	599.500	0.000	930.000	599.400	0.000	1030.000	599.300	0.000	1130.000	599.300
BT	0.000	1230.000	599.300	0.000	1330.000	599.400	0.000	1397.500	599.400	0.000
BT	1397.500	600.200	0.000	1400.000	600.200	589.500	1400.000	600.200	596.500	1444.400
BT	600.200	596.500	1445.600	600.200	596.500	1489.400	600.200	596.500	1490.600	600.200
BT	596.500	1530.000	600.200	596.500	1530.000	600.200	588.200	1532.500	600.200	0.000
BT	1532.500	599.600	0.000	2230.000	599.600	0.000	2430.000	599.300	0.000	2630.000
BT	599.200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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HEC2 VERSION UPDATED JAN 1976
ERROR CORRECTIONS 01,02,03,04,05,06,07,08,09
MODIFICATIONS 52,53,54,55,56,57,58
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T1        CLINTON TOWNSHIP-JOB NO. 5670-02   PROJECT MANAGER  WILLIAM C. ROSSOW
T2        100 YEAR FLOW = 3390
T3        MIDDLE BRANCH OF THE CLINTON RIVER

J1   ICHECK     INQ       NINV      IDIR      STRT       METRIC     HVINS     Q        WSEL       FQ
       -1.       4.        0.        0.     0.000000     0.00       0.0       0.     593.100     0.000

J2   NPROF      IPLOT     PRFVS     XSECV     XSECH      FN         ALLDC     IBW      CHNIM      ITRACE
      3.000     0.000    -1.000     0.000     0.000      0.000      0.000     0.000    0.000      0.000
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CCHV= .100 CEHV= .300
1490 NH CARD USED
3280 CROSS SECTION 0.00 EXTENDED 1.40 FEET

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
0.00	20.30	593.10	0.00	593.10	593.10	.00	0.00	0.00	573.70
3390.	718.	502.	2170.	2366.	596.	4532.	0.	0.	573.70
0.00	.30	.84	.48	.070	.040	.050	0.000	572.80	0.00
.000010	0.	0.	0.	0	0	1	0.00	815.00	815.00

1490 NH CARD USED
3280 CROSS SECTION 450.00 EXTENDED 1.10 FEET

450.00	20.00	593.10	0.00	0.00	593.11	.00	.00	.00	574.00
3390.	710.	510.	2170.	2254.	587.	4412.	76.	8.	574.00
.24	.31	.87	.49	.070	.040	.050	.030	573.10	0.00
.000010	450.	450.	450.	0	0	1	0.00	815.00	815.00

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 1.0 1700.0 TYPE= 1 TARGET= 1699.000

VALLEY SECTION A 109

1420.00	19.42	593.12	0.00	0.00	593.12	.00	.01	.00	582.10
3390.	1713.	508.	1168.	6510.	855.	3971.	283.	31.	582.80
1.08	.26	.59	.29	.070	.044	.070	.030	573.70	1.00
.000007	970.	970.	970.	0	0	1	0.00	1196.11	1197.11

1490 NH CARD USED

2350.00	18.80	593.12	0.00	0.00	593.13	.00	.01	.00	576.00
3390.	713.	490.	2187.	1401.	539.	5192.	469.	53.	576.00
1.55	.51	.91	.42	.052	.040	.051	.031	574.32	120.72
.000013	980.	930.	780.	0	0	1	0.00	1011.72	1132.44

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 1200.0 2277.0 TYPE= 1 TARGET= 1077.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 581.90 ELREA= 594.40

VALLEY SECTION B 110

3220.00	18.24	593.14	0.00	0.00	593.14	.01	.02	.00	581.90
3320.	2427.	893.	0.	4199.	916.	0.	586.	70.	594.40
1.90	.58	.98	0.00	.050	.045	.051	.031	574.90	1200.00
.000027	920.	870.	720.	0	0	1	0.00	777.25	1977.25

CCHV= .500 CEHV= 1.000

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1490 NH CARD USED
     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


 3470 ENCROACHMENT STATIONS=     1200.0     2072.0  TYPE=       1  TARGET=      872.000
    3268.00     18.74    593.14      0.00      0.00    593.15       .01       .00       .00    589.80
     3320.      2171.     1135.       14.     4208.      880.       43.      591.       71.     589.90
       1.91       .52      1.29       .33      .055      .040      .055      .031    574.40   1200.00
    .000035       48.       48.       48.         0         0         1      0.00    872.00   2072.00


 NORMAL BRIDGE,NRD=15 MIN ELTRD=   584.90 MAX ELLC=   591.00


 3470 ENCROACHMENT STATIONS=     1200.0     2074.0  TYPE=       1  TARGET=      874.000
    3269.00     18.74    593.14      0.00      0.00    593.15       .01       .00       .00    589.80
     3320.      2518.      784.       19.     4208.      709.       48.      591.       71.     589.90
       1.91       .60      1.10       .39      .050      .020      .050      .031    574.40   1200.00
    .000038        1.        1.        1.         0         0         1   -171.00    874.00   2074.00


 NORMAL BRIDGE,NRD=15 MIN ELTRD=   584.90 MAX ELLC=   591.00

 3470 ENCROACHMENT STATIONS=     1200.0     2120.0  TYPE=       1  TARGET=      920.000

                BRIDGE SECTION C  HEYDENREICH ROAD  UPSTREAM FACE          111

    3292.00     18.74    593.14      0.00      0.00    593.15       .01       .00       .00    589.80
     3320.      2494.      776.       50.     4208.      709.      151.      594.       72.     589.90
       1.92       .59      1.09       .33      .050      .020      .050      .031    574.40   1200.00
    .000038       23.       23.       23.         0         0         1   -171.00    920.00   2120.00

 1490 NH CARD USED

 3470 ENCROACHMENT STATIONS=     1200.0     2122.0  TYPE=       1  TARGET=      922.000
    3293.00     18.74    593.14      0.00      0.00    593.15       .01       .00       .00    589.80
     3320.      2151.     1125.       44.     4208.      880.      154.      594.       72.     589.90
       1.92       .51      1.28       .29      .055      .040      .055      .031    574.40   1200.00
    .000034        1.        1.        1.         0         0         1      0.00    922.00   2122.00

 1490 NH CARD USED

 3470 ENCROACHMENT STATIONS=      200.0     1572.0  TYPE=       1  TARGET=     -200.000

                VALLEY SECTION D                                           112

    5050.00     17.59    593.19      0.00      0.00    593.20       .01       .04       .00    583.00
     3320.       993.      591.     1736.     2339.      702.     2736.      793.      102.     582.10
       2.66       .42       .84       .63      .075      .049      .040      .028    575.60    265.03
    .000021     1450.     1757.     1757.         0         0         1      0.00    763.70   1028.73

 1490 NH CARD USED

 3470 ENCROACHMENT STATIONS=      200.0      700.0  TYPE=       1  TARGET=      500.000
    6120.00     16.51    593.21      0.00      0.00    593.22       .01       .02       .00    583.00
     3320.      1729.      288.     1303.     2495.      312.     1576.      888.      113.     581.80
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    2.95       .69       .92       .83      .051      .045      .040      .028    576.70    264.23
 .000025      950.     1070.      600.         0         0         1      0.00    435.77    700.00

SPECIAL BRIDGE
SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
      0.00      1.53      3.04      0.00     19.50      0.00    197.80      0.00    576.70    576.70

PRESSURE AND WEIR FLOW

   EGPRS     EGLWC        H3     QWEIR       QPR     BAREA      ELLC     ELTRD     CLASS

  599.90    593.22      0.00     2851.      467.      198.    587.40    588.20     30.00


3470 ENCROACHMENT STATIONS=      200.0     700.0  TYPE=     1  TARGET=      500.000

                BRIDGE SECTION E                                           112A

 6134.00     16.63    593.33      0.00      0.00    593.34       .01       .12      0.00    583.00
   3320.     1729.      286.     1305.     2527.      315.     1597.      890.      113.    581.80
    2.96       .68       .91       .82      .051      .045      .040      .027    576.70    257.86
 .000024       14.       14.       14.         0         0         6      0.00    442.14    700.00


1490 NH CARD USED
   SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS  BANK ELEV
       Q      QLOB       QCH      QROB      ALOB       ACH      AROB       VOL       TWA  LEFT/RIGHT
    TIME      VLOB       VCH      VROB       XNL      XNCH       XNR       WTN     ELMIN      SSTA
   SLOPE     XLOBL      XLCH     XLOBR    ITRIAL       IDC     ICONT     CORAR    TOPWID     ENDST


3470 ENCROACHMENT STATIONS=      900.0    1650.0  TYPE=     1  TARGET=      750.000

                VALLEY SECTION F                                            113

 8150.00     16.88    593.38      0.00      0.00    593.39       .01       .04       .00    585.20
   3320.     2193.      580.      547.     3154.      698.      685.     1064.      134.    585.20
    3.60       .70       .83       .80      .045      .055      .030      .027    576.50    973.85
 .000028     1500.     2016.     2016.         0         0         1      0.00    659.68   1633.53
               new

CCHV=    .100 CEHV=     .300
1490 NH CARD USED
 8700.00     17.03    593.39      0.00      0.00    593.41       .02       .02       .00    580.00
   3320.     2536.      613.      171.     2957.      381.      239.     1102.      141.    580.00
    3.72       .86      1.61       .72      .051      .050      .069      .027    576.36     28.49
 .000082      370.      550.      550.         0         0         1      0.00    718.51    747.00
                 new

1490 NH CARD USED
 9350.00     17.13    593.43      0.00      0.00    593.45       .01       .04       .00    580.00
   3320.     1092.      446.     1781.     1351.      306.     2077.     1149.      149.    580.00
    3.89       .81      1.46       .86      .053      .045      .052      .026    576.30     34.16
 .000056      500.      650.      650.         0         0         1      0.00    570.17    604.33

1490 NH CARD USED
3470 ENCROACHMENT STATIONS=     1200.0    2100.0  TYPE=     1  TARGET=      900.000
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VALLEY SECTION G 114

10180.00	17.49	593.49	0.00	0.00	593.51	.02	.06	.00	584.30
3320.	923.	781.	1616.	1352.	511.	1389.	1216.	159.	584.20
4.10	.68	1.53	1.16	.065	.052	.050	.026	576.00	1445.46
.000090	830.	830.	830.	0	0	1	0.00	544.33	1989.79

CCHV= .500 CEHV= 1.000
1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 1025.0 1803.0 TYPE= 1 TARGET= 778.000

10880.00	16.77	593.57	0.00	0.00	593.64	.07	.09	.05	584.30
3340.	1127.	1705.	509.	1379.	604.	576.	1264.	168.	590.00
4.20	.82	2.82	.88	.077	.042	.050	.025	576.80	1442.76
.000178	750.	700.	700.	2	0	1	0.00	548.23	1990.99

SPECIAL BRIDGE

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
0.00	1.53	3.09	0.00	38.00	0.00	504.30	0.00	576.80	576.80

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
594.62	593.64	0.00	1958.	1382.	504.	591.00	591.80	30.00

3470 ENCROACHMENT STATIONS= 1025.0 1803.0 TYPE= 1 TARGET= 778.000

BRIDGE SECTION H 114A

10895.00	16.92	593.72	0.00	0.00	593.75	.04	.11	0.00	584.30
3340.	1638.	1256.	446.	1425.	610.	603.	1265.	169.	590.00
4.21	1.15	2.06	.74	.045	.040	.050	.025	576.80	1438.16
.000119	15.	15.	15.	2	0	7	0.00	554.88	1993.04

3470 ENCROACHMENT STATIONS= 90.0 1160.0 TYPE= 1 TARGET= 1070.000

10965.00	16.74	593.77	0.00	0.00	593.77	.00	.00	.02	585.23
3340.	2579.	526.	235.	5019.	718.	562.	1277.	170.	583.73
4.26	.51	.73	.42	.045	.040	.050	.025	577.03	90.00
.000012	120.	100.	90.	2	0	1	0.00	683.34	773.34

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
11275.00	15.87	593.77	0.00	0.00	593.78	.01	.01	.00	584.20
3340.	1778.	356.	1207.	2542.	328.	1931.	1325.	176.	584.70
4.41	.70	1.08	.62	.045	.040	.050	.026	577.90	150.23
.000036	380.	380.	380.	1	0	1	0.00	733.31	883.53

NORMAL BRIDGE,NRD=26 MIN ELTRD= 585.90 MAX ELLC= 587.30

11276.00	15.87	593.77	0.00	0.00	593.78	.01	.00	.00	584.20
3340.	1285.	110.	1945.	2534.	302.	1930.	1325.	176.	584.70
4.41	.51	.36	1.01	.040	.040	.020	.026	577.90	150.22
.000015	1.	1.	1.	0	0	1	-34.75	733.31	883.53

NORMAL BRIDGE,NRD=26 MIN ELTRD= 585.90 MAX ELLC= 587.30

BRIDGE SECTION I 114B

11290.00	15.87	593.77	0.00	0.00	593.79	.01	.00	.00	584.20
3340.	1285.	110.	1945.	2534.	303.	1930.	1327.	177.	584.70
4.42	.51	.36	1.01	.040	.040	.020	.026	577.90	150.22
.000015	14.	14.	14.	0	0	1	-34.75	733.32	883.53

1490 NH CARD USED

11291.00	15.87	593.77	0.00	0.00	593.79	.01	.00	.00	584.20
3340.	1554.	613.	1173.	2542.	328.	1932.	1327.	177.	584.70
4.42	.61	1.87	.61	.090	.045	.090	.026	577.90	150.22
.000110	1.	1.	1.	0	0	1	0.00	733.32	883.53

1490 NH CARD USED

VALLEY SECTION J 115

11700.00	14.20	593.80	0.00	0.00	593.80	.01	.01	.00	587.80
3340.	2566.	623.	151.	3650.	599.	387.	1348.	180.	586.30
4.49	.70	1.04	.39	.049	.046	.080	.027	579.60	129.85
.000037	100.	409.	350.	0	0	1	0.00	635.36	765.21

CCHV= .100 CEHV= .300

1490 NH CARD USED

12750.00	14.02	593.84	0.00	0.00	593.87	.03	.06	.01	582.00
2310.	404.	577.	1329.	470.	284.	1301.	1420.	191.	582.00
4.73	.86	2.03	1.02	.070	.045	.053	.028	579.82	231.59
.000128	650.	1050.	1600.	2	0	1	0.00	351.82	583.41

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 400.0 1400.0 TYPE= 1 TARGET= 1000.000

VALLEY SECTION K 116

14540.00	13.84	594.04	0.00	0.00	594.07	.03	.20	.00	588.00
2310.	1568.	720.	22.	2074.	340.	48.	1486.	202.	589.80
5.04	.76	2.12	.45	.080	.043	.070	.031	580.20	845.82
.000171	1350.	1790.	900.	2	0	1	0.00	476.78	1322.60

1490 NH CARD USED
3280 CROSS SECTION 15300.00 EXTENDED 2.15 FEET

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

15300.00	13.49	594.15	0.00	0.00	594.17	.02	.10	.00	584.00

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    2310.      840.      484.      986.     1249.      236.     1144.     1526.      211.    584.00
    5.23       .67      2.05       .86      .080      .040      .058      .031    580.66     27.81
 .000121      650.      760.      760.         0         0         1      0.00    552.19    580.00

 1490 NH CARD USED

 3470 ENCROACHMENT STATIONS=      714.0      855.0  TYPE=      1  TARGET=      141.000

                VALLEY SECTION L                                                117

  16690.00     12.84    594.34      0.00      0.00    594.47       .13       .27       .03    589.50
     2340.      509.     1037.      793.      266.      306.      304.     1576.      220.    589.80
      5.35      1.91      3.39      2.61      .050      .044      .040      .033    581.50    714.00
   .000507     1350.     1390.     1040.         1         0         1      0.00    141.00    855.00


 CCHV=     .500 CEHV=    1.000
 1490 NH CARD USED

 3265 DIVIDED FLOW

 3470 ENCROACHMENT STATIONS=     1400.0     1530.0  TYPE=      1  TARGET=      130.000
  16730.00     13.63    594.43      0.00      0.00    594.51       .08       .01       .02    589.50
     2340.        0.     2340.        0.        0.     1039.        0.     1577.      220. 100000.00
      5.36       .00      2.25      0.00      .060      .040      .040      .033    580.80   1400.00
   .000258       40.       40.       40.         2         0         1      0.00    127.60   1530.00


 SPECIAL BRIDGE

 SB   XK         XKOR      COFQ      RDLEN       BWC       BWP      BAREA        SS       ELCHU     ELCHD
       0.00      1.86      3.04       0.00    130.00      0.00    1302.70      0.00     580.80    580.80


 6070,LOW FLOW BY NORMAL BRIDGE

 EGPRS=     0.000  EGLWC=    594.510  ELLC=    596.500  PCWSE=   594.432  ELTRD=   599.200

 3265 DIVIDED FLOW

 NORMAL BRIDGE,NRD=27 MIN ELTRD=  599.20 MAX ELLC=  596.50

 3470 ENCROACHMENT STATIONS=     1400.0     1530.0  TYPE=      1  TARGET=      130.000

                        BRIDGE SECTION M                                        117A

* 16771.00     13.64    594.44      0.00      0.00    594.52       .08       .01       .00    589.50    * st. W.S. @ 0.00 = 593.10
     2340.        0.     2340.        0.        0.     1040.        0.     1578.      220. 100000.00    (594.44-593.10) = 1.34 ft
      5.36      0.00      2.25      0.00      .060      .040      .040      .033    580.80   1400.00
   .000257       41.       41.       41.         1         0         1      -.00    127.60   1530.00
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SUMMARY PRINTOUT FOR MULTIPLE PROFILES

MIDDLE BRANCH OF THE CLI

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	HV	HL	OLOSS	QCH	DEPTH	TOPWID
0.00	0.00	0.00	0.00	572.80	2000.00	588.15	.01	0.00	0.00	412.00	15.35	548.50
0.00	0.00	0.00	0.00	572.80	2960.00	591.88	.00	0.00	0.00	471.25	19.08	815.00
0.00	0.00	0.00	0.00	572.80	3390.00	593.10	.00	0.00	0.00	501.58	20.30	815.00
0.00	0.00	0.00	0.00	572.80	4710.00	595.82	.00	0.00	0.00	606.58	23.02	815.00
450.00	450.00	0.00	0.00	573.10	2000.00	588.16	.01	.01	.00	422.33	15.06	539.73
450.00	450.00	0.00	0.00	573.10	2960.00	591.88	.00	.00	.00	480.00	18.78	802.32
450.00	450.00	0.00	0.00	573.10	3390.00	593.10	.00	.00	.00	510.26	20.00	815.00
450.00	450.00	0.00	0.00	573.10	4710.00	595.82	.01	.00	.00	614.83	22.72	815.00
1420.00	970.00	0.00	0.00	573.70	2000.00	588.18	.00	.02	.00	473.70	14.48	951.32
1420.00	970.00	0.00	0.00	573.70	2960.00	591.90	.00	.01	.00	479.90	18.20	1155.20
1420.00	970.00	0.00	0.00	573.70	3390.00	593.12	.00	.01	.00	508.38	19.42	1196.11
1420.00	970.00	0.00	0.00	573.70	4710.00	595.84	.00	.01	.00	607.33	22.14	1699.00
2350.00	930.00	0.00	0.00	574.32	2000.00	588.20	.01	.02	.00	516.54	13.88	762.88
2350.00	930.00	0.00	0.00	574.32	2960.00	591.90	.01	.01	.00	479.13	17.58	832.84
2350.00	930.00	0.00	0.00	574.32	3390.00	593.12	.00	.01	.00	490.24	18.80	1011.72
2350.00	930.00	0.00	0.00	574.32	4710.00	595.84	.00	.01	.00	543.34	21.52	1150.00
3220.00	870.00	0.00	0.00	574.90	1960.00	588.18	.14	.08	.04	1788.71	13.28	82.63
3220.00	870.00	0.00	0.00	574.90	2900.00	591.92	.01	.02	.00	885.96	17.02	773.66
3220.00	870.00	0.00	0.00	574.90	3320.00	593.14	.01	.02	.00	892.94	18.24	777.25
3220.00	870.00	0.00	0.00	574.90	4620.00	595.85	.01	.01	.00	997.00	20.95	1068.35
3268.00	48.00	0.00	0.00	574.40	1960.00	588.20	.17	.02	.03	1960.00	13.80	58.00
3268.00	48.00	0.00	0.00	574.40	2900.00	591.92	.02	.00	.01	1166.90	17.52	872.00
3268.00	48.00	0.00	0.00	574.40	3320.00	593.14	.01	.00	.00	1134.96	18.74	872.00
3268.00	48.00	0.00	0.00	574.40	4620.00	595.85	.01	.00	.00	1153.84	21.45	1115.02
3269.00	1.00	584.90	591.00	574.40	1960.00	588.20	.22	.00	.05	1960.00	13.80	58.00
3269.00	1.00	584.90	591.00	574.40	2900.00	591.93	.01	.00	.00	804.46	17.53	874.00
3269.00	1.00	584.90	591.00	574.40	3320.00	593.14	.01	.00	.00	783.58	18.74	874.00
3269.00	1.00	584.90	591.00	574.40	4620.00	595.85	.01	.00	.00	809.48	21.45	1115.03
3292.00	23.00	584.90	591.00	574.40	1960.00	588.21	.22	.01	.00	1960.00	13.81	58.00
3292.00	23.00	584.90	591.00	574.40	2900.00	591.93	.01	.00	.00	801.34	17.53	920.00
3292.00	23.00	584.90	591.00	574.40	3320.00	593.14	.01	.00	.00	775.97	18.74	920.00
3292.00	23.00	584.90	591.00	574.40	4620.00	595.85	.01	.00	.00	809.44	21.45	1115.09
3293.00	1.00	0.00	0.00	574.40	1960.00	588.29	.17	.00	.03	1960.00	13.89	58.00
3293.00	1.00	0.00	0.00	574.40	2900.00	591.93	.02	.00	.00	1161.63	17.53	922.00
3293.00	1.00	0.00	0.00	574.40	3320.00	593.14	.01	.00	.00	1124.57	18.74	922.00
3293.00	1.00	0.00	0.00	574.40	4620.00	595.85	.01	.00	.00	1153.79	21.45	1115.09
5050.00	1757.00	0.00	0.00	575.60	1960.00	588.72	.01	.20	.08	578.84	13.12	544.47
5050.00	1757.00	0.00	0.00	575.60	2900.00	592.00	.01	.06	.00	580.95	16.40	726.44
5050.00	1757.00	0.00	0.00	575.60	3320.00	593.19	.01	.04	.00	591.00	17.59	763.70
5050.00	1757.00	0.00	0.00	575.60	4620.00	595.89	.01	.03	.00	652.35	20.29	899.57

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	HV	HL	OLOSS	QCH	DEPTH	TOPWID
6120.00	1070.00	0.00	0.00	576.70	1960.00	588.77	.01	.05	.00	249.09	12.07	421.04
6120.00	1070.00	0.00	0.00	576.70	2900.00	592.02	.01	.02	.00	270.97	15.32	431.30
6120.00	1070.00	0.00	0.00	576.70	3320.00	593.21	.01	.02	.00	287.88	16.51	435.77
6120.00	1070.00	0.00	0.00	576.70	4620.00	595.90	.01	.01	.00	349.32	19.20	500.00
6134.00	14.00	588.20	587.40	576.70	1960.00	588.89	.01	.12	0.00	244.90	12.19	421.46
6134.00	14.00	588.20	587.40	576.70	2900.00	592.14	.01	.12	0.00	268.76	15.44	431.68
6134.00	14.00	588.20	587.40	576.70	3320.00	593.33	.01	.12	0.00	285.76	16.63	442.14
6134.00	14.00	588.20	587.40	576.70	4620.00	596.03	.01	.13	0.00	347.14	19.33	500.00
8150.00	2016.00	0.00	0.00	576.50	1960.00	589.02	.02	.12	.01	637.20	12.52	516.64
8150.00	2016.00	0.00	0.00	576.50	2900.00	592.19	.01	.05	.00	578.85	15.69	591.32
8150.00	2016.00	0.00	0.00	576.50	3320.00	593.38	.01	.04	.00	580.22	16.88	659.68
8150.00	2016.00	0.00	0.00	576.50	4620.00	596.07	.01	.03	.00	635.25	19.57	686.92
8700.00	550.00	0.00	0.00	576.36	1960.00	589.07	.06	.08	.01	774.42	12.71	364.06
8700.00	550.00	0.00	0.00	576.36	2900.00	592.21	.02	.03	.00	646.72	15.85	685.91
8700.00	550.00	0.00	0.00	576.36	3320.00	593.39	.02	.02	.00	612.98	17.03	718.51
8700.00	550.00	0.00	0.00	576.36	4620.00	596.08	.01	.01	.00	606.32	19.72	752.00
9350.00	650.00	0.00	0.00	576.30	1960.00	589.25	.03	.14	.00	441.70	12.95	379.97
9350.00	650.00	0.00	0.00	576.30	2900.00	592.27	.02	.05	.00	440.83	15.97	529.17
9350.00	650.00	0.00	0.00	576.30	3320.00	593.43	.01	.04	.00	446.42	17.13	570.17
9350.00	650.00	0.00	0.00	576.30	4620.00	596.11	.01	.02	.00	493.11	19.81	620.00
10180.00	830.00	0.00	0.00	576.00	1960.00	589.40	.04	.16	.00	773.13	13.40	333.40
10180.00	830.00	0.00	0.00	576.00	2900.00	592.34	.02	.07	.00	779.24	16.34	490.70
10180.00	830.00	0.00	0.00	576.00	3320.00	593.49	.02	.06	.00	781.31	17.49	544.33
10180.00	830.00	0.00	0.00	576.00	4620.00	596.14	.02	.04	.00	829.04	20.14	713.80
10880.00	700.00	0.00	0.00	576.80	1970.00	589.62	.17	.22	.13	1632.25	12.82	188.24
10880.00	700.00	0.00	0.00	576.80	2910.00	592.45	.09	.11	.07	1749.81	15.65	495.89
10880.00	700.00	0.00	0.00	576.80	3340.00	593.57	.07	.09	.05	1704.52	16.77	548.23
10880.00	700.00	0.00	0.00	576.80	4650.00	596.20	.04	.06	.02	1669.34	19.40	921.18
10895.00	15.00	591.80	591.00	576.80	1970.00	589.63	.29	.01	.12	1970.00	12.83	188.24
10895.00	15.00	591.80	591.00	576.80	2910.00	592.72	.05	.22	0.00	1275.43	15.92	508.45
10895.00	15.00	591.80	591.00	576.80	3340.00	593.72	.04	.11	0.00	1255.70	16.92	554.88
10895.00	15.00	591.80	591.00	576.80	4650.00	596.30	.02	.08	0.00	1236.23	19.50	934.01
10965.00	100.00	0.00	0.00	577.03	1970.00	590.07	.01	.01	.14	475.12	13.04	441.58
10965.00	100.00	0.00	0.00	577.03	2910.00	592.79	.00	.00	.02	484.63	15.76	660.40
10965.00	100.00	0.00	0.00	577.03	3340.00	593.77	.00	.00	.02	525.67	16.74	683.34
10965.00	100.00	0.00	0.00	577.03	4650.00	596.33	.01	.00	.01	638.92	19.30	1070.00
11275.00	380.00	0.00	0.00	577.90	1970.00	590.09	.02	.02	.01	416.64	12.19	664.59
11275.00	380.00	0.00	0.00	577.90	2910.00	592.79	.01	.01	.00	353.30	14.89	714.93
11275.00	380.00	0.00	0.00	577.90	3340.00	593.77	.01	.01	.00	355.54	15.87	733.31
11275.00	380.00	0.00	0.00	577.90	4650.00	596.33	.01	.01	.00	384.58	18.43	800.77

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	HV	HL	OLOSS	QCH	DEPTH	TOPWID
11276.00	1.00	585.90	587.30	577.90	1970.00	590.09	.02	.00	.00	135.88	12.19	664.59
11276.00	1.00	585.90	587.30	577.90	2910.00	592.79	.01	.00	.00	109.43	14.89	714.93
11276.00	1.00	585.90	587.30	577.90	3340.00	593.77	.01	.00	.00	109.79	15.87	733.31
11276.00	1.00	585.90	587.30	577.90	4650.00	596.33	.01	.00	.00	118.98	18.43	800.77
11290.00	14.00	585.90	587.30	577.90	1970.00	590.09	.02	.00	.00	135.82	12.19	664.62
11290.00	14.00	585.90	587.30	577.90	2910.00	592.79	.01	.00	.00	109.43	14.89	714.94
11290.00	14.00	585.90	587.30	577.90	3340.00	593.77	.01	.00	.00	109.78	15.87	733.32
11290.00	14.00	585.90	587.30	577.90	4650.00	596.33	.01	.00	.00	118.98	18.43	800.80
11291.00	1.00	0.00	0.00	577.90	1970.00	590.09	.04	.00	.03	664.95	12.19	664.62
11291.00	1.00	0.00	0.00	577.90	2910.00	592.79	.02	.00	.01	602.49	14.89	714.94
11291.00	1.00	0.00	0.00	577.90	3340.00	593.77	.01	.00	.00	613.08	15.87	733.32
11291.00	1.00	0.00	0.00	577.90	4650.00	596.33	.01	.00	.00	674.96	18.43	800.80
11700.00	409.00	0.00	0.00	579.60	1970.00	590.17	.01	.04	.01	563.93	10.57	576.87
11700.00	409.00	0.00	0.00	579.60	2910.00	592.82	.01	.02	.00	592.96	13.22	619.50
11700.00	409.00	0.00	0.00	579.60	3340.00	593.80	.01	.01	.00	623.49	14.20	635.36
11700.00	409.00	0.00	0.00	579.60	4650.00	596.34	.01	.01	.00	729.13	16.74	694.69
12750.00	1050.00	0.00	0.00	579.82	1370.00	590.28	.06	.14	.01	580.18	10.46	297.78
12750.00	1050.00	0.00	0.00	579.82	2020.00	592.88	.03	.07	.01	564.93	13.06	332.50
12750.00	1050.00	0.00	0.00	579.82	2310.00	593.84	.03	.06	.01	577.40	14.02	351.82
12750.00	1050.00	0.00	0.00	579.82	3210.00	596.38	.02	.04	.00	610.18	16.56	585.00
14540.00	1790.00	0.00	0.00	580.20	1370.00	590.90	.08	.64	.00	720.18	10.70	382.63
14540.00	1790.00	0.00	0.00	580.20	2020.00	593.13	.03	.25	.00	713.56	12.93	451.68
14540.00	1790.00	0.00	0.00	580.20	2310.00	594.04	.03	.20	.00	720.09	13.84	476.78
14540.00	1790.00	0.00	0.00	580.20	3210.00	596.50	.02	.12	.00	767.27	16.30	774.96
15300.00	760.00	0.00	0.00	580.66	1370.00	591.20	.04	.26	.00	450.63	10.54	381.32
15300.00	760.00	0.00	0.00	580.66	2020.00	593.27	.03	.13	.00	476.95	12.61	496.68
15300.00	760.00	0.00	0.00	580.66	2310.00	594.15	.02	.10	.00	484.03	13.49	552.19
15300.00	760.00	0.00	0.00	580.66	3210.00	596.56	.02	.06	.00	510.25	15.90	580.00
16690.00	1390.00	0.00	0.00	581.50	1380.00	591.69	.16	.57	.04	848.81	10.19	141.00
16690.00	1390.00	0.00	0.00	581.50	2040.00	593.53	.13	.34	.03	980.00	12.03	141.00
16690.00	1390.00	0.00	0.00	581.50	2340.00	594.34	.13	.27	.03	1037.50	12.84	141.00
16690.00	1390.00	0.00	0.00	581.50	3250.00	596.66	.12	.17	.03	1218.29	15.16	141.00
16730.00	40.00	0.00	0.00	580.80	1380.00	591.86	.06	.02	.05	1380.00	11.06	127.60
16730.00	40.00	0.00	0.00	580.80	2040.00	593.63	.07	.02	.03	2040.00	12.83	127.60
16730.00	40.00	0.00	0.00	580.80	2340.00	594.43	.08	.01	.02	2340.00	13.63	127.60
16730.00	40.00	0.00	0.00	580.80	3250.00	596.71	.09	.01	.01	3250.00	15.91	130.00
16771.00	41.00	599.20	596.50	580.80	1380.00	591.87	.06	.01	.00	1380.00	11.07	127.60
16771.00	41.00	599.20	596.50	580.80	2040.00	593.64	.07	.01	.00	2040.00	12.84	127.60
16771.00	41.00	599.20	596.50	580.80	2340.00	594.44	.08	.01	.00	2340.00	13.64	127.60
16771.00	41.00	599.20	596.50	580.80	3250.00	596.80	.09	.09	0.00	3250.00	16.00	130.00

SECTION NUMBER	DISCHARGE CFS	CWSEL	CWSEL DIFF EACH Q	CWSEL DIFF EACH SECTION	CWSEL-WSELK	TOPWID	T.W. DIFF	LENGTH
0.000	2000.000	588.150	0.000	0.000	0.000	548.500	0.000	0.000
0.000	2960.000	591.880	3.730	0.000	0.000	815.000	-266.500	0.000
0.000	3390.000	593.100	1.220	0.000	0.000	815.000	-266.500	0.000
0.000	4710.000	595.820	2.720	0.000	0.000	815.001	-266.501	0.000
450.000	2000.000	588.158	0.000	.008	0.000	539.727	0.000	450.000
450.000	2960.000	591.885	3.727	.005	0.000	802.317	-262.590	450.000
450.000	3390.000	593.104	1.220	.004	0.000	815.000	-275.273	450.000
450.000	4710.000	595.824	2.720	.004	0.000	815.001	-275.274	450.000

1420.000	2000.000	588.178	0.000	.021	0.000	951.320	0.000	970.000
1420.000	2960.000	591.897	3.719	.012	0.000	1155.200	-203.880	970.000
1420.000	3390.000	593.116	1.219	.011	0.000	1196.113	-244.794	970.000
1420.000	4710.000	595.835	2.720	.011	0.000	1698.999	-747.679	970.000
2350.000	2000.000	588.197	0.000	.019	0.000	762.876	0.000	930.000
2350.000	2960.000	591.905	3.708	.007	0.000	832.844	-69.968	930.000
2350.000	3390.000	593.122	1.218	.006	0.000	1011.715	-248.839	930.000
2350.000	4710.000	595.841	2.719	.006	0.000	1150.000	-387.124	930.000
3220.000	1960.000	588.182	0.000	-.015	0.000	82.629	0.000	870.000
3220.000	2900.000	591.920	3.738	.016	0.000	773.655	-691.026	870.000
3220.000	3320.000	593.135	1.215	.013	0.000	777.249	-694.620	870.000
3220.000	4620.000	595.850	2.715	.009	0.000	1068.348	-985.719	870.000
3268.000	1960.000	588.200	0.000	.017	0.000	58.000	0.000	48.000
3268.000	2900.000	591.922	3.723	.002	0.000	871.999	-813.999	48.000
3268.000	3320.000	593.137	1.214	.001	0.000	871.999	-813.999	48.000
3268.000	4620.000	595.851	2.715	.001	0.000	1115.025	-1057.025	48.000
3269.000	1960.000	588.200	0.000	.000	0.000	58.000	0.000	1.000
3269.000	2900.000	591.929	3.729	.006	0.000	873.999	-815.999	1.000
3269.000	3320.000	593.141	1.212	.004	0.000	873.999	-815.999	1.000
3269.000	4620.000	595.853	2.712	.002	0.000	1115.028	-1057.028	1.000
3292.000	1960.000	588.209	0.000	.009	0.000	58.000	0.000	23.000
3292.000	2900.000	591.930	3.721	.002	0.000	919.999	-861.999	23.000
3292.000	3320.000	593.142	1.212	.001	0.000	919.999	-861.999	23.000
3292.000	4620.000	595.854	2.712	.000	0.000	1115.091	-1057.091	23.000
3293.000	1960.000	588.293	0.000	.084	0.000	58.000	0.000	1.000
3293.000	2900.000	591.930	3.637	.000	0.000	921.999	-863.999	1.000
3293.000	3320.000	593.142	1.212	.000	0.000	921.999	-863.999	1.000
3293.000	4620.000	595.854	2.712	.000	0.000	1115.094	-1057.094	1.000
5050.000	1960.000	588.724	0.000	.431	0.000	544.471	0.000	1757.000
5050.000	2900.000	591.998	3.275	.068	0.000	726.436	-181.965	1757.000
5050.000	3320.000	593.192	1.194	.050	0.000	763.699	-219.228	1757.000
5050.000	4620.000	595.885	2.693	.031	0.000	899.566	-355.095	1757.000
6120.000	1960.000	588.771	0.000	.048	0.000	421.039	0.000	1070.000
6120.000	2900.000	592.020	3.249	.022	0.000	431.305	-10.265	1070.000
6120.000	3320.000	593.210	1.190	.018	0.000	435.771	-14.732	1070.000
6120.000	4620.000	595.899	2.689	.014	0.000	499.999	-78.960	1070.000
6134.000	1960.000	588.895	0.000	.123	0.000	421.458	0.000	14.000
6134.000	2900.000	592.139	3.245	.119	0.000	431.683	-10.225	14.000
6134.000	3320.000	593.334	1.194	.124	0.000	442.138	-20.679	14.000
6134.000	4620.000	596.034	2.701	.135	0.000	499.999	-78.541	14.000
8150.000	1960.000	589.017	0.000	.122	0.000	516.645	0.000	2016.000
8150.000	2900.000	592.193	3.177	.054	0.000	591.321	-74.676	2016.000
8150.000	3320.000	593.379	1.186	.045	0.000	659.683	-143.038	2016.000
8150.000	4620.000	596.072	2.693	.038	0.000	686.917	-170.272	2016.000
8700.000	1960.000	589.066	0.000	.050	0.000	364.059	0.000	550.000
8700.000	2900.000	592.210	3.144	.017	0.000	685.912	-321.852	550.000
8700.000	3320.000	593.392	1.182	.013	0.000	718.508	-354.449	550.000
8700.000	4620.000	596.082	2.690	.009	0.000	752.000	-387.941	550.000
9350.000	1960.000	589.248	0.000	.182	0.000	379.967	0.000	650.000
9350.000	2900.000	592.269	3.021	.059	0.000	529.170	-149.203	650.000
9350.000	3320.000	593.433	1.164	.041	0.000	570.170	-190.203	650.000
9350.000	4620.000	596.106	2.672	.024	0.000	620.000	-240.033	650.000

10180.000	1960.000	589.401	0.000	.152	0.000	333.405	0.000	830.000
10180.000	2900.000	592.338	2.937	.068	0.000	490.701	-157.297	830.000
10180.000	3320.000	593.487	1.149	.053	0.000	544.332	-210.928	830.000
10180.000	4620.000	596.143	2.656	.037	0.000	713.798	-380.394	830.000
10880.000	1970.000	589.624	0.000	.223	0.000	188.237	0.000	700.000
10880.000	2910.000	592.453	2.828	.115	0.000	495.885	-307.648	700.000
10880.000	3340.000	593.574	1.122	.088	0.000	548.234	-359.997	700.000
10880.000	4650.000	596.198	2.624	.055	0.000	921.176	-732.939	700.000
10895.000	1970.000	589.633	0.000	.008	0.000	188.237	0.000	15.000
10895.000	2910.000	592.722	3.089	.269	0.000	508.451	-320.213	15.000
10895.000	3340.000	593.717	.995	.142	0.000	554.879	-366.642	15.000
10895.000	4650.000	596.296	2.579	.098	0.000	934.011	-745.774	15.000
10965.000	1970.000	590.068	0.000	.436	0.000	441.582	0.000	100.000
10965.000	2910.000	592.786	2.718	.064	0.000	660.395	-218.813	100.000
10965.000	3340.000	593.767	.981	.050	0.000	683.345	-241.763	100.000
10965.000	4650.000	596.326	2.559	.030	0.000	1069.999	-628.417	100.000
11275.000	1970.000	590.086	0.000	.018	0.000	664.591	0.000	380.000
11275.000	2910.000	592.794	2.708	.008	0.000	714.928	-50.337	380.000
11275.000	3340.000	593.774	.980	.007	0.000	733.308	-68.717	380.000
11275.000	4650.000	596.332	2.558	.006	0.000	800.770	-136.179	380.000
11276.000	1970.000	590.087	0.000	.001	0.000	664.592	0.000	1.000
11276.000	2910.000	592.794	2.707	.000	0.000	714.928	-50.336	1.000
11276.000	3340.000	593.774	.980	.000	0.000	733.308	-68.716	1.000
11276.000	4650.000	596.332	2.558	.000	0.000	800.772	-136.179	1.000
11290.000	1970.000	590.088	0.000	.001	0.000	664.618	0.000	14.000
11290.000	2910.000	592.795	2.706	.000	0.000	714.936	-50.318	14.000
11290.000	3340.000	593.774	.980	.000	0.000	733.315	-68.697	14.000
11290.000	4650.000	596.332	2.558	.000	0.000	800.798	-136.179	14.000
11291.000	1970.000	590.088	0.000	.000	0.000	664.619	0.000	1.000
11291.000	2910.000	592.795	2.706	.000	0.000	714.937	-50.317	1.000
11291.000	3340.000	593.774	.980	.000	0.000	733.315	-68.696	1.000
11291.000	4650.000	596.332	2.558	.000	0.000	800.799	-136.179	1.000
11700.000	1970.000	590.170	0.000	.081	0.000	576.867	0.000	409.000
11700.000	2910.000	592.821	2.651	.026	0.000	619.498	-42.631	409.000
11700.000	3340.000	593.795	.974	.021	0.000	635.356	-58.489	409.000
11700.000	4650.000	596.345	2.550	.013	0.000	694.692	-117.825	409.000
12750.000	1370.000	590.277	0.000	.108	0.000	297.776	0.000	1050.000
12750.000	2020.000	592.875	2.598	.054	0.000	332.502	-34.726	1050.000
12750.000	2310.000	593.841	.966	.046	0.000	351.818	-54.042	1050.000
12750.000	3210.000	596.379	2.538	.034	0.000	585.000	-287.224	1050.000
14540.000	1370.000	590.903	0.000	.626	0.000	382.631	0.000	1790.000
14540.000	2020.000	593.127	2.224	.252	0.000	451.675	-69.044	1790.000
14540.000	2310.000	594.038	.911	.197	0.000	476.781	-94.150	1790.000
14540.000	3210.000	596.496	2.458	.117	0.000	774.963	-392.332	1790.000
15300.000	1370.000	591.202	0.000	.299	0.000	381.316	0.000	760.000
15300.000	2020.000	593.266	2.064	.139	0.000	496.681	-115.365	760.000
15300.000	2310.000	594.146	.880	.108	0.000	552.193	-170.877	760.000
15300.000	3210.000	596.560	2.414	.063	0.000	580.001	-198.685	760.000
16690.000	1380.000	591.690	0.000	.488	0.000	140.999	0.000	1390.000
16690.000	2040.000	593.527	1.836	.261	0.000	140.999	-.000	1390.000
16690.000	2340.000	594.345	.818	.199	0.000	140.999	-.000	1390.000
16690.000	3250.000	596.655	2.311	.096	0.000	140.999	-.000	1390.000
16730.000	1380.000	591.861	0.000	.171	0.000	127.599	0.000	40.000

16730.000	2040.000	593.631	1.769	.104	0.000	127.599	-.000	40.000
16730.000	2340.000	594.432	.801	.087	0.000	127.599	-.000	40.000
16730.000	3250.000	596.712	2.280	.056	0.000	129.999	-2.400	40.000
16771.000	1380.000	591.873	0.000	.011	0.000	127.599	0.000	41.000
16771.000	2040.000	593.642	1.769	.011	0.000	127.599	-.000	41.000
16771.000	2340.000	594.442	.800	.011	0.000	127.599	-.000	41.000
16771.000	3250.000	596.800	2.358	.089	0.000	129.999	-2.400	41.000

DATA FOR LAST CROSS SECTION

PROFILE	TYPE ENC	TARGET	TOP WIDTH AREA-ACRES	TOP WIDTH AREA-DIFF
1	1.000	130.000	146.968	0.000
2	1.000	130.000	207.051	60.084
3	1.000	130.000	220.254	73.286
4	1.000	130.000	269.875	122.908

J & A's DATA & Q5 only 3-20-78

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED AUG 1977
  ERROR CORR - 01,02
  MODIFICATION - 50,51,52,53
**************************************************

C
                                                       780372
T1 CLINTON NEWTOWN SUB. FILES 2839-12 & ~~521201~~ (100-YEAR EXISTING CONDITIONS)
T2 RUN BASED ON FIS                                        JWG       02-09-78
T3       MILLER DRAIN  DA=5 SQ MI'S   URBANIZED DISCHARGE  FIS=[illegible] CFS
                                                                 670

J1  ICHECK      INQ       NINV      IDIR       STRT      METRIC      HVINS       Q        WSEL       FQ

     -1.         2.        0.         0.   0.000000      0.00        0.0        0.    584.200     0.000

J2  NPROF      IPLOT     PRFVS     XSECV      XSECH        FN       ALLDC       IBW      CHNIM     ITRACE

     0.000     1.000     0.000     0.000      0.000      0.000     -1.000      0.000     0.000    15.000

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

     1.000    10.000    11.000    12.000     14.000      8.000      4.000      0.000     0.000     0.000

QT     2.000   430.000   670.000     0.000      0.000      0.000      0.000      0.000      0.000      0.000
NC     0.000     0.000     0.000     0.100      0.300      0.000      0.000      0.000      0.000      0.000
NH     5.000     0.050   250.000     0.090    259.000      0.050    269.000      0.090    280.000      0.050
NH   520.000     0.000     0.000     0.000      0.000      0.000      0.000      0.000      0.000      0.000

       THE PROPOSED PLAT CLINTON NEWTOWN ALTER. ARE BASED ON THE DATA J&A

       FURNISHED WITH THEIR FIS.

X1     0.000    16.000   250.000   280.000      0.000      0.000      0.000      0.000     -3.100      0.000
GR   593.100     0.000   591.600    50.000    589.400    150.000    586.800    200.000    585.000    250.000
GR   579.500   259.000   580.100   264.000    579.600    269.000    584.100    280.000    583.200    300.000
GR   585.000   350.000   590.500   427.000    590.400    450.000    590.800    461.000    590.900    488.000
GR   594.100   520.000     0.000     0.000      0.000      0.000      0.000      0.000      0.000      0.000
NH     5.000     0.050   250.000     0.090    259.000      0.050    269.000      0.090    280.000      0.050
NH   520.000     0.000     0.000     0.000      0.000      0.000      0.000      0.000      0.000      0.000

X1   850.000     0.000     0.000     0.000    850.000    850.000    850.000      0.000      3.100      0.000
NC     0.000     0.000     0.000     0.500      1.000      0.000      0.000      0.000      0.000      0.000
NH     3.000     0.050   886.000     0.045    909.000      0.050   2632.000      0.000      0.000      0.000

X1   989.000    55.000   942.500   967.000    200.000      0.000    139.000      0.940      0.000      0.000
X3     0.000     0.000     0.000     0.000      0.000   1200.000      0.000      0.000      0.000      0.000
GR   596.000     0.000   595.500   100.000    595.100    200.000    594.900    300.000    594.800    400.000
GR   594.200   500.000   593.700   600.000    591.300    700.000    588.300    800.000    587.700    900.000
GR   587.800   942.500   586.100   942.500    583.600    944.000    582.600    945.000    581.000    950.000
GR   580.500   952.000   580.000   955.000    580.500    958.000    580.800    960.000    581.700    965.000
GR   586.100   967.000   587.700   967.000    588.100   1000.000    589.200   1100.000    591.000   1200.000
GR   590.900  1300.000   589.300  1400.000    587.600   1600.000    584.900   1800.000    585.500   1900.000
GR   587.000  1950.000   589.800  2000.000    587.000   2000.000    581.600   2002.000    580.700   2005.000
GR   580.000  2010.000   579.000  2015.000    576.500   2017.000    574.800   2020.000    574.400   2025.000
GR   575.000  2030.000   575.600  2035.000    575.900   2040.000    576.500   2045.000    579.800   2050.000
GR   582.400  2055.000   583.400  2058.000    589.900   2058.000    591.000   2100.000    593.300   2200.000
GR   596.200  2277.000   595.400  2300.000    596.700   2400.000    595.900   2600.000    595.200   2800.000
NC     0.050     0.050     0.030     0.000      0.000      0.000      0.000      0.000      0.000      0.000
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X1	990.000	55.000	942.500	967.000	1.000	1.000	1.000	0.940	0.000	0.000
X2	0.000	0.000	0.000	586.100	587.750	0.000	0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	1200.000	0.000	0.000	0.000	0.000
GR	596.000	0.000	595.500	100.000	595.100	200.000	594.900	300.000	594.800	400.000
GR	594.200	500.000	593.700	600.000	591.300	700.000	588.300	800.000	587.700	900.000
GR	587.800	942.500	586.100	942.500	583.600	944.000	582.600	945.000	581.000	950.000
GR	580.500	952.000	580.000	955.000	580.500	958.000	580.800	960.000	581.700	965.000
GR	586.100	967.000	587.700	967.000	588.100	1000.000	589.200	1100.000	591.000	1200.000
GR	590.900	1300.000	589.300	1400.000	587.600	1600.000	584.900	1800.000	585.500	1900.000
GR	587.000	1950.000	589.800	2000.000	587.000	2000.000	581.600	2002.000	580.700	2005.000
GR	580.000	2010.000	579.000	2015.000	576.500	2017.000	574.800	2020.000	574.400	2025.000
GR	575.000	2030.000	575.600	2035.000	575.900	2040.000	576.500	2045.000	579.800	2050.000
GR	582.400	2055.000	583.400	2058.000	589.900	2058.000	591.000	2100.000	593.300	2200.000
GR	596.200	2277.000	595.400	2300.000	596.700	2400.000	595.900	2600.000	595.200	2800.000

X1	1010.000	55.000	942.500	967.000	20.000	20.000	20.000	0.940	0.000	0.000
X2	0.000	0.000	0.000	586.100	587.750	0.000	0.000	0.000	0.940	0.000
X3	0.000	0.000	0.000	0.000	0.000	1200.000	0.000	0.000	0.000	0.000
GR	596.000	0.000	595.500	100.000	595.100	200.000	594.900	300.000	594.800	400.000
GR	594.200	500.000	593.700	600.000	591.300	700.000	588.300	800.000	587.700	900.000
GR	587.800	942.500	586.100	942.500	583.600	944.000	582.600	945.000	581.000	950.000
GR	580.500	952.000	580.000	955.000	580.500	958.000	580.800	960.000	581.700	965.000
GR	586.100	967.000	587.700	967.000	588.100	1000.000	589.200	1100.000	591.000	1200.000
GR	590.900	1300.000	589.300	1400.000	587.600	1600.000	584.900	1800.000	585.500	1900.000
GR	587.000	1950.000	589.800	2000.000	587.000	2000.000	581.600	2002.000	580.700	2005.000
GR	580.000	2010.000	579.000	2015.000	576.500	2017.000	574.800	2020.000	574.400	2025.000
GR	575.000	2030.000	575.600	2035.000	575.900	2040.000	576.500	2045.000	579.800	2050.000
GR	582.400	2055.000	583.400	2058.000	589.900	2058.000	591.000	2100.000	593.300	2200.000
GR	596.200	2277.000	595.400	2300.000	596.700	2400.000	595.900	2600.000	595.200	2800.000
NH	3.000	0.050	886.000	0.045	909.000	0.050	2632.000	0.000	0.000	0.000

X1	1011.000	55.000	942.500	967.000	1.000	1.000	1.000	0.940	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	1200.000	0.000	0.000	0.000	0.000
GR	596.000	0.000	595.500	100.000	595.100	200.000	594.900	300.000	594.800	400.000
GR	594.200	500.000	593.700	600.000	591.300	700.000	588.300	800.000	587.700	900.000
GR	587.800	942.500	586.100	942.500	583.600	944.000	582.600	945.000	581.000	950.000
GR	580.500	952.000	580.000	955.000	580.500	958.000	580.800	960.000	581.700	965.000
GR	586.100	967.000	587.700	967.000	588.100	1000.000	589.200	1100.000	591.000	1200.000
GR	590.900	1300.000	589.300	1400.000	587.600	1600.000	584.900	1800.000	585.500	1900.000
GR	587.000	1950.000	589.800	2000.000	587.000	2000.000	581.600	2002.000	580.700	2005.000
GR	580.000	2010.000	579.000	2015.000	576.500	2017.000	574.800	2020.000	574.400	2025.000
GR	575.000	2030.000	575.600	2035.000	575.900	2040.000	576.500	2045.000	579.800	2050.000
GR	582.400	2055.000	583.400	2058.000	589.900	2058.000	591.000	2100.000	593.300	2200.000
GR	596.200	2277.000	595.400	2300.000	596.700	2400.000	595.900	2600.000	595.200	2800.000
NH	5.000	0.055	900.000	0.090	908.000	0.050	920.000	0.090	927.000	0.055
NH	1600.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	2270.000	23.000	900.000	927.000	1400.000	1259.000	1100.000	0.000	0.000	0.000
GR	597.200	0.000	597.300	100.000	597.100	200.000	596.400	300.000	596.500	405.000
GR	596.500	500.000	595.200	600.000	595.000	700.000	593.100	800.000	588.700	875.000
GR	587.400	900.000	583.100	908.000	582.600	915.000	583.100	920.000	586.800	927.000
GR	586.900	1000.000	589.400	1040.000	588.000	1100.000	592.000	1200.000	595.400	1300.000
GR	595.600	1400.000	595.700	1500.000	595.300	1600.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	0.100	0.300	0.000	0.000	0.000	0.000	0.000
NH	7.000	0.035	400.000	0.055	900.000	0.090	910.000	0.050	923.000	0.095
NH	939.000	0.050	1900.000	0.095	2300.000	0.000	0.000	0.000	0.000	0.000

X1	3200.000	33.000	900.000	939.000	800.000	930.000	930.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	1100.000	0.000	0.000	0.000	0.000
GR	597.900	0.000	597.900	100.000	597.600	200.000	597.100	300.000	596.600	400.000
GR	596.200	500.000	596.500	583.000	595.700	603.000	594.300	700.000	590.000	800.000

GR	588.300	850.000	588.600	900.000	584.500	910.000	583.700	915.000	584.700	918.000
GR	584.400	923.000	587.200	939.000	587.500	974.000	592.100	1000.000	595.400	1028.000
GR	596.000	1100.000	595.800	1200.000	593.000	1300.000	593.900	1400.000	595.800	1500.000
GR	596.900	1600.000	595.700	1700.000	595.700	1800.000	596.900	1900.000	597.300	2000.000
GR	596.200	2100.000	596.500	2200.000	596.800	2300.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	0.400	0.800	0.000	0.000	0.000	0.000	0.000
NH	5.000	0.050	900.000	0.090	930.000	0.050	941.000	0.090	974.000	0.050
NH	1028.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	3662.000	20.000	930.000	941.000	462.000	462.000	462.000	0.000	0.000	0.000
GR	597.900	0.000	597.900	100.000	597.600	200.000	597.100	300.000	596.600	400.000
GR	596.200	500.000	596.500	583.000	595.700	603.000	594.300	700.000	590.000	800.000
GR	588.300	850.000	588.400	900.000	588.400	930.000	582.400	930.000	582.200	935.000
GR	582.400	941.000	588.400	941.000	588.400	974.000	592.100	1000.000	595.400	1028.000
NC	0.060	0.085	0.051	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	3663.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	9.000	700.000	594.300	0.000	800.000	590.000	0.000	850.000	588.300	0.000
BT	900.000	588.400	0.000	930.000	588.400	587.300	941.000	588.400	587.300	974.000
BT	588.400	0.000	1000.000	592.100	0.000	1028.000	595.400	0.000	0.000	0.000
X1	3675.000	0.000	0.000	0.000	12.000	12.000	12.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NH	5.000	0.050	900.000	0.090	930.000	0.050	941.000	0.090	974.000	0.050
NH	1028.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	3676.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
NH	3.000	0.095	200.000	0.050	228.000	0.095	700.000	0.000	0.000	0.000
ET	0.000	6.100	6.100	6.100	8.100	190.000	233.000	1.000	560.000	0.000
X1	4800.000	15.000	200.000	228.000	1074.000	1074.000	1124.000	0.000	0.000	0.000
GR	596.200	0.000	595.100	72.000	594.300	86.000	594.300	105.000	593.500	115.000
GR	588.900	200.000	586.300	203.000	584.800	211.000	585.500	221.000	589.800	228.000
GR	590.400	300.000	593.900	400.000	596.300	500.000	597.500	600.000	597.800	700.000
QT	2.000	410.000	650.000 680	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	6.100	6.100	6.100	8.100	900.000	922.000	1.000	1900.000	0.000
NC	0.095	0.095	0.050	0.500	1.000	0.000	0.000	0.000	0.000	0.000
X1	4892.000	31.000	900.000	922.000	34.000	34.000	34.000	0.985	0.000	0.000
GR	597.700	0.000	597.600	100.000	597.300	200.000	597.100	300.000	596.500	400.000
GR	596.700	500.000	597.000	600.000	595.500	700.000	595.100	772.000	594.300	786.000
GR	594.300	805.000	593.500	815.000	590.000	897.500	588.900	900.000	586.200	905.000
GR	585.700	910.000	585.100	914.000	585.500	918.000	588.600	922.000	589.800	922.000
GR	589.800	922.500	590.400	1000.000	593.900	1100.000	596.300	1200.000	597.500	1300.000
GR	597.800	1400.000	598.400	1500.000	598.000	1600.000	597.700	1700.000	597.300	1800.000
GR	596.900	1900.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.055	0.055	0.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	6.100	6.100	6.100	8.100	900.000	922.000	1.000	1900.000	0.000
SB	0.000	2.000	2.950	0.000	22.000	0.000	123.600	0.000	585.100	585.100

DUNHAM RD. E

X1	4926.000	31.000	900.000	922.000	36.000	36.000	36.000	0.985	0.000	0.000
X2	0.000	0.000	0.000	592.000	594.600	0.000	0.000	0.000	0.985	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	597.700	0.000	597.600	100.000	597.300	200.000	597.100	300.000	596.500	400.000
GR	596.700	500.000	597.000	600.000	595.500	700.000	595.100	772.000	594.300	786.000
GR	594.300	805.000	593.500	815.000	590.000	897.500	588.900	900.000	586.200	905.000
GR	585.700	910.000	585.100	914.000	585.500	918.000	588.600	922.000	589.800	922.000
GR	589.800	922.500	590.400	1000.000	593.900	1100.000	596.300	1200.000	597.500	1300.000
GR	597.800	1400.000	598.400	1500.000	598.000	1600.000	597.700	1700.000	597.300	1800.000

GR	596.900	1900.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	3.000	0.055	200.000	0.050	228.000	0.055	700.000	0.000	0.000	0.000

X1	5101.000	15.000	200.000	228.000	175.000	175.000	175.000	0.000	0.270	0.000
GR	596.200	0.000	595.100	72.000	594.300	86.000	594.300	105.000	593.500	115.000
GR	588.900	200.000	586.300	203.000	584.800	211.000	585.500	221.000	589.800	228.000
GR	590.400	300.000	593.900	400.000	596.300	500.000	597.500	600.000	597.800	700.000
NC	0.000	0.000	0.000	0.100	0.300	0.000	0.000	0.000	0.000	0.000
NH	3.000	0.055	1000.000	0.050	1049.000	0.055	2000.000	0.000	0.000	0.000

d/s Limits

X1	6610.000	30.000	1000.000	1049.000	1407.000	1407.000	1509.000	0.000	0.000	0.000
GR	598.100	0.000	597.400	100.000	596.900	200.000	596.900	300.000	596.500	400.000
GR	596.000	500.000	596.100	600.000	597.200	700.000	597.000	800.000	597.100	852.000
GR	594.800	900.000	592.300	1000.000	586.200	1020.000	585.600	1022.000	585.000	1026.000
GR	584.800	1029.000	585.800	1033.000	592.000	1049.000	593.400	1100.000	595.500	1200.000
GR	596.000	1234.000	597.000	1259.000	597.000	1300.000	596.400	1400.000	595.900	1500.000
GR	596.700	1600.000	596.600	1700.000	597.600	1800.000	597.300	1900.000	598.100	2000.000
QT	2.000	300.000	~~540.000~~ 450	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	3.000	0.055	700.000	0.050	753.000	0.055	1400.000	0.000	0.000	0.000

X1	8510.000	20.000	700.000	753.000	1500.000	1800.000	1900.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	660.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	598.300	0.000	598.700	100.000	597.700	200.000	597.200	300.000	597.000	400.000
GR	596.200	500.000	595.900	600.000	596.700	660.000	594.200	700.000	587.100	720.000
GR	586.200	727.000	586.900	734.000	593.900	753.000	595.600	800.000	595.000	900.000
GR	595.300	1000.000	596.100	1100.000	596.800	1200.000	597.400	1300.000	599.500	1400.000
NH	3.000	0.040	1000.000	0.045	1060.000	0.050	1687.000	0.000	0.000	0.000

X1	10220.000	24.000	1000.000	1060.000	1500.000	1200.000	1710.000	0.000	0.000	0.000
GR	599.500	0.000	599.600	100.000	598.900	200.000	598.800	300.000	598.100	400.000
GR	598.200	500.000	599.200	600.000	598.500	700.000	597.500	800.000	596.000	900.000
GR	596.000	960.000	594.800	1000.000	588.100	1020.000	587.600	1023.000	586.600	1029.000
GR	587.600	1040.000	595.400	1060.000	597.000	1100.000	596.700	1200.000	595.800	1300.000
GR	596.500	1400.000	596.400	1500.000	597.800	1600.000	599.700	1687.000	0.000	0.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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*PROF 1

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=   0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO .000
    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL       XNCH      NXR       WTN       ELMIN       SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


         THE PROPOSED PLAT CLINTON NEWTOWN ALTER. ARE BASED ON THE DATA J&A


         FURNISHED WITH THEIR FIS.

      0.00      7.80    584.20    579.68    584.20    584.21      0.01      0.00      0.00    581.90
      430.       38.      151.      241.       72.      180.      270.        0.        0.    581.00
      0.00      0.53      0.84      0.89     0.050     0.082     0.050     0.000    576.40    190.38
  0.000209        0.        0.        0.         0        11         0      0.00    191.82    382.20

FLOW DISTRIBUTION FOR SECNO=      0.00          CWSEL=     584.20

STA=      190.      200.      250.      280.      300.      350.      382.
  PER Q=       0.1       8.7      35.1      17.3      34.7       4.1
   AREA=       2.4      70.0     180.2      73.0     160.0      37.0
    VEL=       0.2       0.5       0.8       1.0       0.9       0.5

1490 NH CARD USED
*SECNO 850.000
    850.00      5.10    584.60    582.78      0.00    584.75      0.16      0.50      0.04    585.00
      430.        0.      342.       88.        0.       99.       46.        7.        3.    584.10
      0.08      0.00      3.45      1.90     0.050     0.085     0.050     0.000    579.50    250.66
  0.005540      850.      850.      850.         2        12         0      0.00     88.21    338.86

FLOW DISTRIBUTION FOR SECNO=    850.00          CWSEL=     584.60

STA=      251.      280.      300.      339.
  PER Q=      79.6       9.4      11.0
   AREA=      99.3      19.0      27.2
    VEL=       3.4       2.1       1.7

CCHV=   0.500 CEHV=    1.000
1490 NH CARD USED
*SECNO 989.000

3470 ENCROACHMENT STATIONS=       0.0    1128.0  TYPE=      1  TARGET=     1199.999
    989.00      5.24    585.24    583.51      0.00    585.63      0.39      0.65      0.23    587.80
      430.        0.      430.        0.        0.       86.        0.        7.        3.    587.70
      0.08      0.00      5.03      0.00     0.050     0.045     0.050     0.000    580.00    886.44
  0.004839      200.      139.        0.         2        19         0      0.00     22.18    908.61

FLOW DISTRIBUTION FOR SECNO=    989.00          CWSEL=     585.24

STA=      886.      909.
  PER Q=     100.0
   AREA=      85.5
    VEL=       5.0
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*SECNO 990.000

3370 NORMAL BRIDGE,NRD=  0 MIN ELTRD=  587.75 MAX ELLC=  586.10


3470 ENCROACHMENT STATIONS=        0.0      1128.0  TYPE=      1  TARGET=     1199.999
   990.00      5.25    585.25    583.51      0.00    585.64      0.39      0.00      0.00    587.80
     430.        0.      430.        0.        0.       86.        0.        7.        3.    587.70
     0.08      0.00      5.02      0.00     0.050     0.030     0.050     0.000    580.00    886.43
 0.002139        1.        1.        1.         0        15         0      0.00     22.18    908.62


FLOW DISTRIBUTION FOR SECNO=     990.00           CWSEL=     585.25

STA=      886.      909.
  PER Q=     100.0
   AREA=      85.7
    VEL=       5.0

*SECNO 1010.000
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      NXR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


3370 NORMAL BRIDGE,NRD=  0 MIN ELTRD=  587.75 MAX ELLC=  586.10


3470 ENCROACHMENT STATIONS=        0.0      1128.0  TYPE=      1  TARGET=     1199.999
  1010.00      5.31    585.31    583.51      0.00    585.69      0.38      0.04      0.01    587.80
     430.        0.      430.        0.        0.       87.        0.        7.        3.    587.70
     0.08      0.00      4.93      0.00     0.050     0.030     0.050     0.001    580.00    886.39
 0.002030       20.       20.       20.         0        15         0      0.00     22.25    908.64


FLOW DISTRIBUTION FOR SECNO=   1010.00           CWSEL=     585.31

STA=      886.      909.
  PER Q=     100.0
   AREA=      87.3
    VEL=       4.9

1490 NH CARD USED
*SECNO 1011.000

3470 ENCROACHMENT STATIONS=        0.0      1128.0  TYPE=      1  TARGET=     1199.999
  1011.00      5.31    585.31    583.51      0.00    585.69      0.38      0.00      0.00    587.80
     430.        0.      430.        0.        0.       87.        0.        7.        3.    587.70
     0.08      0.00      4.93      0.00     0.050     0.045     0.050     0.001    580.00    886.40
 0.004586        1.        1.        1.         0        14         0      0.00     22.25    908.64


FLOW DISTRIBUTION FOR SECNO=   1011.00           CWSEL=     585.31

STA=      886.      909.
  PER Q=     100.0
   AREA=      87.1
    VEL=       4.9

1490 NH CARD USED
*SECNO 2270.000

3265 DIVIDED FLOW
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  2270.00      5.79    588.39    585.85      0.00    588.44      0.06      2.59      0.16    587.40
    430.         6.      258.      166.         9.      116.      135.       12.        6.    586.80
     0.26      0.62      2.23      1.23     0.055     0.085     0.055     0.016    582.60    881.00
 0.001369     1400.     1100.     1259.         4        14         0      0.00    169.13   1109.70


 FLOW DISTRIBUTION FOR SECNO=   2270.00          CWSEL=     588.39

 STA=     881.      900.      927.      1000.     1024.     1100.     1110.
   PER Q=      1.4      60.1      34.8       3.4       0.3       0.1
    AREA=      9.4     115.6     112.3      17.7       3.2       1.9
     VEL=      0.6       2.2       1.3       0.8       0.3       0.3

 CCHV=   0.100 CEHV=    0.300
 1490 NH CARD USED
 *SECNO 3200.000

 3470 ENCROACHMENT STATIONS=       0.0      1100.0  TYPE=       1  TARGET=     1099.999
  3200.00      5.82    589.52    586.84      0.00    589.56      0.03      1.11      0.00    588.60
    430.        65.      229.      136.       76.      158.       88.       18.        9.    587.20
     0.44      0.85      1.45      1.55     0.055     0.089     0.050     0.020    583.70    813.77
 0.001071      800.      930.      930.         3        11         0      0.00    171.71    985.48


 FLOW DISTRIBUTION FOR SECNO=   3200.00          CWSEL=     589.52

 STA=     814.      850.      900.      939.      974.      985.
   PER Q=      3.3      11.7      53.3      29.1       2.6
    AREA=     22.3      54.1     157.6      76.4      11.7
     VEL=      0.6       0.9       1.5       1.6       1.0

 CCHV=   0.400 CEHV=    0.800
 1490 NH CARD USED
 *SECNO 3662.000
  3662.00      7.81    590.01    585.91      0.00    590.06      0.05      0.49      0.01    588.40
    430.       187.      196.       47.      175.       85.       62.       21.       11.    588.40
     0.52      1.07      2.31      0.75     0.058     0.050     0.084     0.021    582.20    799.68
 0.001061      462.      462.      462.         2        14         0      0.00    185.66    985.34


 FLOW DISTRIBUTION FOR SECNO=   3662.00          CWSEL=     590.01

 STA=     800.      850.      900.      930.      941.      974.      985.
   PER Q=      8.8      26.3       8.3      45.6       9.2       1.8
    AREA=     43.2      83.2      48.4      84.9      53.3       9.2
     VEL=      0.9       1.4       0.7       2.3       0.7       0.8

 *SECNO 3663.000
    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL       XNCH      NXR       WTN       ELMIN       SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


 3370 NORMAL BRIDGE,NRD=   9 MIN ELTRD=   588.30 MAX ELLC=   587.30

  3663.00      7.84    590.04    585.91      0.00    590.07      0.03      0.00      0.01    588.40
    430.       242.      126.       62.      178.       73.       63.       21.       11.    588.40
     0.52      1.36      1.72      0.98     0.060     0.051     0.085     0.021    582.20    799.16
 0.001832        1.        1.        1.         2        16         0    -12.10    186.33    985.50


 8930,RDST NOT ON GR CARD     699.99
 FLOW DISTRIBUTION FOR SECNO=   3663.00          CWSEL=     590.04
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STA=     799.      850.      900.      930.      941.      974.      985.
  PER Q=      10.1      29.4      16.8      29.2      13.0       1.4
   AREA=      44.3      84.3      49.1      73.0      54.0       9.4
    VEL=       1.0       1.5       1.5       1.7       1.0       0.7

*SECNO 3675.000

3370 NORMAL BRIDGE,NRD=  9 MIN ELTRD=  588.30 MAX ELLC=  587.30

  3675.00      7.86    590.06    585.91      0.00    590.09      0.03      0.02      0.00    588.40
     430.      243.      124.       62.      180.       73.       64.       21.       11.    588.40
      0.52     1.35      1.70      0.97     0.060     0.051     0.085     0.022    582.20    798.76
 0.001777       12.       12.       12.         0        16         0    -12.10    186.86    985.62


8930,RDST NOT ON GR CARD    699.99
FLOW DISTRIBUTION FOR SECNO=   3675.00           CWSEL=    590.06

STA=     799.      850.      900.      930.      941.      974.      986.
  PER Q=      10.2      29.5      16.8      28.9      13.1       1.4
   AREA=      45.2      85.2      49.6      73.2      54.6       9.6
    VEL=       1.0       1.5       1.5       1.7       1.0       0.6

1490 NH CARD USED
*SECNO 3676.000
  3676.00      7.86    590.06    585.92      0.00    590.10      0.04      0.00      0.01    588.40
     430.      191.      191.       48.      181.       85.       64.       21.       11.    588.40
      0.92     1.05      2.24      0.74     0.058     0.050     0.083     0.022    582.20    798.59
 0.000991        1.        1.        1.         0        11         0      0.00    187.07    985.67


FLOW DISTRIBUTION FOR SECNO=   3676.00           CWSEL=    590.06

STA=     799.      850.      900.      930.      941.      974.      986.
  PER Q=       9.3      26.6       8.4      44.5       9.3       1.8
   AREA=      45.5      85.5      49.8      85.4      54.8       9.7
    VEL=       0.9       1.3       0.7       2.2       0.7       0.8

1490 NH CARD USED
*SECNO 4800.000

3470 ENCROACHMENT STATIONS=      190.0     233.0  TYPE=     1  TARGET=        43.000
  4800.00      6.44    591.24    587.84      0.00    591.37      0.12      1.20      0.06    588.90
     430.       16.      410.        4.       21.      142.        7.       27.       14.    589.80
      0.63     0.78      2.87      0.58     0.095     0.050     0.095     0.029    584.80    190.00
 0.001190     1074.     1124.     1074.         2        18         0      0.00     43.00    233.00


FLOW DISTRIBUTION FOR SECNO=   4800.00           CWSEL=    591.24

STA=     190.      200.      228.      233.
  PER Q=       3.8      95.3       1.0
   AREA=      20.7     142.5       7.1
    VEL=       0.8       2.9       0.6

CCHV=   0.500 CEHV=   1.000
*SECNO 4892.000

3470 ENCROACHMENT STATIONS=      886.5     908.2  TYPE=     1  TARGET=        22.000
  4892.00      6.20    591.30    588.48      0.00    591.52      0.22      0.06      0.10    588.90
     410.        0.      410.        0.        0.      108.        0.       28.       14. 100000.00
      0.64     0.00      3.78      0.00     0.095     0.050     0.095     0.029    585.10    886.50
 0.002750       34.       34.       34.         2        11         0      0.00     21.67    908.17


FLOW DISTRIBUTION FOR SECNO=   4892.00           CWSEL=    591.30
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STA=      886.      908.
  PER Q=    100.0
   AREA=    108.5
    VEL=      3.8


SPECIAL BRIDGE

SB  XK          XKOR        COFQ        RDLEN       BWC         BWP         BAREA       SS          ELCHU       ELCHD
     0.00        2.00        2.95        0.00       22.00        0.00      123.60        0.00      585.10      585.10

*SECNO 4926.000
   SECNO      DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q          QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME       VLOB      VCH       VROB      XNL       XNCH      NXR       WTN       ELMIN       SSTA
   SLOPE      XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


3370 NORMAL BRIDGE,NRD=  0 MIN ELTRD=  594.60 MAX ELLC=  592.00


3470 ENCROACHMENT STATIONS=      886.5      908.2  TYPE=     1  TARGET=      22.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      588.90 ELREA=   100000.00

  4926.00      6.31    591.41    588.48      0.00    591.62      0.21      0.10      0.00    588.90
     410.        0.      410.        0.        0.      111.        0.       28.       14. 100000.00
     0.64      0.00      3.70      0.00     0.055     0.050     0.055     0.029    585.10    886.50
 0.002584       36.       36.       36.         2        12         0      0.00     21.67    908.17

FLOW DISTRIBUTION FOR SECNO=   4926.00          CWSEL=    591.41

STA=      886.      908.
  PER Q=    100.0
   AREA=    110.9
    VEL=      3.7

1490 NH CARD USED
*SECNO 5101.000
  5101.00      6.76    591.83    588.04      0.00    591.87      0.04      0.16      0.09    589.17
     410.       45.      279.       85.       65.      151.      124.       29.       14.    590.07
     0.67      0.69      1.84      0.69     0.055     0.050     0.055     0.030    585.07    150.85
 0.000452      175.      175.      175.         2        14         0      0.00    182.29    333.14

FLOW DISTRIBUTION FOR SECNO=   5101.00          CWSEL=    591.83

STA=    151.      200.      228.      300.      333.
  PER Q=    11.1      68.1      18.9       1.9
   AREA=    65.4     151.4     105.1      19.2
    VEL=     0.7       1.8       0.7       0.4

CCHV=   0.100 CEHV=   0.300
1490 NH CARD USED
*SECNO 6610.000
  6610.00      7.77    592.57    588.16      0.00    592.62      0.05      0.75      0.00    592.30
     410.        0.      408.        2.        1.      220.        6.       38.       19.    592.00
     0.90      0.17      1.86      0.28     0.055     0.050     0.055     0.035    584.80    989.21
 0.000563     1407.     1509.     1407.         3         8         0      0.00     80.55   1069.76

FLOW DISTRIBUTION FOR SECNO=   6610.00          CWSEL=    592.57
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STA=      989.     1000.     1049.     1070.
 PER Q=       0.1      99.5       0.4
  AREA=       1.5     219.6       5.9
   VEL=       0.2       1.9       0.3

1490 NH CARD USED
*SECNO 8510.000

3470 ENCROACHMENT STATIONS=      660.0     1400.0  TYPE=       1  TARGET=     =660.000
  8510.00       7.26    593.46    588.83      0.00    593.49      0.03      0.87      0.00    594.20
     300.         0.      300.        0.        0.      211.        0.       48.       21.    593.90
     1.27       0.00      1.42      0.00     0.055     0.050     0.055     0.038    586.20    702.10
 0.000353      1500.     1900.     1800.         1        22         0      0.00     49.69    751.79

FLOW DISTRIBUTION FOR SECNO=    8510.00           CWSEL=     593.46

STA=      702.      753.
 PER Q=     100.0
  AREA=     211.2
   VEL=       1.4

1490 NH CARD USED
*SECNO 10220.000
 10220.00       7.33    593.93    589.09      0.00    593.96      0.02      0.46      0.00    594.80
     300.         0.      300.        0.        0.      237.        0.       56.       23.    595.40
     1.64       0.00      1.27      0.00     0.055     0.045     0.055     0.040    586.60   1002.59
 0.000216      1500.     1710.     1200.         2        22         0      0.00     53.64   1056.23

FLOW DISTRIBUTION FOR SECNO=   10220.00           CWSEL=     593.93

STA=     1003.     1060.
 PER Q=     100.0
  AREA=     236.5
   VEL=       1.3
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00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Clinton Twp.

3) WATERCOURSE: Middle Branch Clinton River

4) DOCUMENT TYPE: Updated 100 year flow Natural. Run.

00BREAK00

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                                                                      THIS RUN EXECUTED 11JAN94     12:15:39
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  HEC-2 WATER SURFACE PROFILES

  Version   4.6.0;  February 1991
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T1 CLINTON TOWNSHIP FLOOD INSURANCE STUDY
T2 UPDATED 100-YEAR FLOOD   STS CONSULTANTS LTD  12/93 MMW
T3 MIDDLE BRANCH OF THE CLINTON RIVER - NATURAL 100 YEAR PROFILE

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     -1.0      2.0       0.0       0.0       0.0       0.0       0.0       0.0     593.10     0.0

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     1.0       0.0      -1.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

   110.0     115.0     200.0      0.0       0.0       0.0       0.0       0.0       0.0       0.0

NC        .07       .07       .03       .10       .30       0.0       0.0       0.0       0.0       0.0
NH        3.0       .07     380.0       .04     410.0       .05     815.0       0.0       0.0       0.0
QT        2.0    4240.0    4240.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
ET        0.0       0.0       1.4
X1        0.0      21.0     380.0     410.0       0.0       0.0       0.0       0.0      -.30       0.0
GR      592.0       0.0     590.0     205.0     588.0     245.0     586.0     270.0     584.0     278.0
GR      582.0     285.0     580.0     300.0     578.0     360.0     576.0     370.0     574.0     380.0
GR      573.1     395.0     574.0     410.0     576.0     415.0     578.0     425.0     580.0     430.0
GR      582.0     715.0     584.0     735.0     586.0     760.0     588.0     780.0     590.0     800.0
GR      592.0     815.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0

NH        3.0       .07     380.0       .04     410.0       .05     815.0       0.0       0.0       0.0
X1      450.0       0.0       0.0       0.0     450.0     450.0     450.0       0.0       .30       0.0

NH        4.0       .07     758.0       .04     792.0       .07    1153.0       .04    1700.0       0.0
X1     1420.0      30.0     750.0     800.0     970.0     970.0     970.0       0.0       0.0       0.0
GR      588.6       0.0     587.4     100.0     587.8     300.0     588.5     360.0     579.7     382.0
GR      579.7     400.0     581.7     500.0     582.5     600.0     579.6     700.0     582.1     750.0
GR      577.3     758.0     575.9     762.0     574.0     768.0     573.7     774.0     573.8     780.0
GR      573.9     786.0     575.0     792.0     582.8     800.0     582.3     900.0     579.4    1000.0
GR      579.5    1085.0     582.5    1100.0     591.8    1153.0     593.2    1200.0     595.0    1260.0
GR      594.5    1300.0     595.1    1400.0     595.4    1500.0     595.5    1600.0     595.2    1700.0

NH        5.0       .05     390.0       .07     400.0       .04     430.0       .07     462.0       .05
NH     1400.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
X1     2350.0      25.0     400.0     430.0     980.0     780.0     930.0       0.0       0.0       0.0
GR      594.0       0.0     592.0     275.0     590.0     295.0     588.0     300.0     586.0     305.0
GR      584.0     310.0     582.0     315.0     580.0     325.0     580.0     390.0     578.0     393.0
GR      576.0     400.0    574.32     415.0     576.0     430.0     578.0     435.0     580.0     440.0
GR      582.0     452.0     584.0     462.0     584.0     830.0     586.0     845.0     588.0     890.0
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GR	588.0	1060.0	590.0	1085.0	592.0	1110.0	594.0	1240.0	596.0	1400.0
NH	5.0	.05	1900.0	.07	1905.0	.04	1978.0	.07	1981.0	.05
NH	2250.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
QT	2.0	3900.0	3900.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ET	0.0	6.1	6.1	0.0	0.0	1200.0	2250.0	0.0	0.0	0.0
X1	3220.0	40.0	1900.0	1981.0	920.0	720.0	870.0	0.0	0.0	0.0
X3	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GR	596.0	0.0	595.5	100.0	595.1	200.0	594.9	300.0	594.8	400.0
GR	594.2	500.0	593.7	600.0	591.3	700.0	588.3	800.0	587.7	900.0
GR	587.8	942.5	587.7	967.0	588.1	1000.0	589.2	1100.0	591.0	1200.0
GR	590.9	1300.0	589.3	1400.0	589.3	1400.0	589.3	1400.0	589.3	1400.0
GR	588.0	1600.0	583.1	1700.0	583.2	1800.0	584.3	1880.0	581.9	1900.0
GR	577.2	1905.0	575.7	1910.0	575.2	1915.0	574.9	1920.0	575.0	1925.0
GR	575.4	1930.0	575.7	1935.0	576.9	1938.0	577.1	1978.0	580.0	1981.0
GR	592.0	2000.0	594.5	2100.0	595.3	2175.0	596.0	2230.0	596.5	2250.0
NC	.055	.055	.04	0.3	0.5	0.0	0.0	0.0	0.0	0.0
ET	0.0	6.1	6.1	0.0	0.0	1200.0	2072.0	0.0	0.0	0.0
X1	3268.0	38.0	1980.0	2060.1	48.0	48.0	48.0	0.0	0.0	0.0
X3	10.0	0.0	0.0	0.0	0.0	0.0	0.0	587.0	590.0	0.0
GR	596.0	0.0	595.5	100.0	595.1	200.0	594.9	300.0	594.8	400.0
GR	594.2	500.0	593.7	600.0	591.3	700.0	588.3	800.0	587.7	900.0
GR	588.7	942.0	588.9	967.0	589.2	1000.0	589.5	1100.0	589.7	1200.0
GR	589.0	1300.0	588.5	1400.0	587.3	1600.0	587.6	1800.0	588.0	1900.0
GR	588.7	1950.0	589.3	1980.0	579.3	1980.1	577.4	1992.0	576.8	1995.0
GR	577.4	2002.0	576.3	2008.0	574.8	2018.0	574.4	2027.0	574.2	2038.0
GR	576.5	2045.0	579.5	2060.0	590.0	2060.1	591.0	2102.0	593.3	2202.0
GR	596.2	2277.0	595.4	2300.0	596.7	2400.0	0.0	0.0	0.0	0.0
NC	.05	.05	.02	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ET	0.0	6.1	6.1	0.0	0.0	1200.0	2074.0	0.0	0.0	0.0
X1	3269.0	0.0	0.0	0.0	1.0	1.0	1.0	0.0	0.0	0.0
BT	18.0	900.0	587.7	587.7	942.0	588.7	588.7	967.0	588.9	588.9
BT	1000.0	589.2	589.2	1100.0	589.5	589.5	1200.0	589.7	589.7	1300.0
BT	589.0	589.0	1400.0	588.5	588.5	1600.0	587.3	587.3	1800.0	587.6
BT	587.6	1900.0	588.0	588.0	1950.0	588.7	588.7	1980.0	589.3	589.3
BT	1980.1	589.3	584.3	2060.0	590.0	586.2	2060.1	590.0	590.0	2102.0
BT	591.3	591.0	2202.0	595.0	593.3	0.0	0.0	0.0	0.0	0.0
ET	0.0	6.1	6.1	0.0	0.0	1200.0	2120.0	0.0	0.0	0.0
X1	3304.0	0.0	0.0	0.0	35.0	35.0	35.0			
X2							1.0			
NC	.055	.055	.04							
ET	0.0	6.1	6.1	0.0	0.0	1200.0	2122.0	0.0	0.0	0.0
X1	3305.0	0.0	0.0	0.0	1.0	1.0	1.0	0.0	0.0	0.0
X3	10.0	0.0	0.0	0.0	0.0	0.0	0.0	587.3	590.0	0.0

NC				0.2	0.4					
NH	6.0	.05	220.0	.075	500.0	.06	512.0	.045	536.0	.06
NH	544.0	.04	900.0							
ET	0.0	0.0	1.4							
X1	5050.0	19.0	500.0	544.0	1450.0	1745.0	1745.0			
GR	594.5	0.0	594.5	100.0	594.0	200.0	586.0	220.0	580.4	303.0
GR	580.4	400.0	580.3	500.0	577.1	507.0	576.0	512.0	575.6	517.0
GR	575.6	522.0	575.7	527.0	575.9	532.0	576.8	536.0	582.1	544.0
GR	592.0	550.0	594.0	600.0	596.0	800.0	599.0	900.0	0.0	0.0

NH	5.0	.05	500.0	.06	515.0	.045	534.5	.06	538.0	.04
NH	1572.0									
ET	0.0	0.0	1.41							
X1	6120.0	36.0	515.0	534.5	950.0	600.0	1070.0			
GR	594.5	0.0	593.7	100.0	594.5	200.0	593.2	265.0	584.0	294.0
GR	581.1	303.0	581.4	315.0	582.9	400.0	582.9	415.0	583.0	500.0
GR	583.0	515.0	579.1	515.1	577.4	518.0	576.8	523.0	576.7	528.0
GR	576.8	532.0	578.8	534.4	581.8	534.5	581.9	538.0	582.5	560.0
GR	583.5	595.0	583.6	600.0	584.5	660.0	584.6	670.0	585.1	700.0
GR	588.3	800.0	590.1	900.0	592.1	1000.0	595.9	1100.0	596.7	1132.0
GR	596.3	1200.0	597.8	1300.0	597.0	1400.0	596.5	1500.0	596.1	1515.0
GR	598.1	1572.0								

SB	0.0	1.53	3.04	0.0	19.5	0.0	197.8	0.0	576.7	576.7
X1	6134.0	0.0	0.0	0.0	14.0	14.0	14.0			
X2	0.0	0.0	1.0	587.4	588.2					
BT	22.0	0.0	594.5	560.0	100.0	594.5	560.0	200.0	594.5	560.0
BT	265.0	593.2	560.0	294.0	584.0	560.0	315.0	583.3	560.0	415.0
BT	584.2	560.0	515.0	588.2	583.0	515.1	588.2	587.4	534.4	588.3
BT	587.3	534.5	588.3	581.8	538.0	588.3	560.0	560.0	588.9	560.0
BT	595.0	589.4	560.0	660.0	597.4	560.0	670.0	597.3	560.0	1132.0
BT	596.7	560.0	1300.0	597.8	560.0	1400.0	597.0	560.0	1500.0	596.5
BT	560.0	1515.0	596.1	560.0	1572.0	598.1	560.0			

NH	7.0	.05	800.0	.095	960.0	.045	1400.0	.07	1413.0	.05
NH	1440.0	.07	1448.0	.03	2600.0					
ET	0.0	0.0	1.4							
X1	8150.0	42.0	1400.0	1448.0	1500.0	2016.0	2016.0			
GR	595.5		595.5	100.0	595.5	200.0	595.5	300.0	595.4	400.0
GR	595.1	500.0	595.3	600.0	595.9	700.0	596.8	800.0	596.8	900.0
GR	596.8	960.0	589.9	988.0	589.2	1000.0	587.2	1100.0	585.1	1200.0
GR	584.0	1300.0	583.4	1380.0	585.2	1400.0	576.7	1413.0	576.5	1420.0
GR	577.4	1430.0	577.0	1435.0	578.1	1440.0	585.2	1448.0	587.1	1500.0
GR	592.2	1570.0	592.5	1600.0	593.3	1633.0	596.6	1653.0	597.3	1700.0
GR	596.2	1800.0	594.5	1842.0	596.2	1868.0	596.1	2000.0	597.8	2020.0
GR	598.0	2100.0	598.5	2186.0	598.3	2230.0	597.7	2300.0	596.9	2400.0
GR	596.5	2500.0	596.5	2600.0						

NC				.10	.30					
NH	5.0	.05	660.0	.07	680.0	.05	705.0	.07	730.0	.05
NH	752.0									
X1	8700.0	19.0	680.0	705.0	370.0	550.0	550.0			
GR	596.0		594.0	15.0	592.0	60.0	590.3	135.0	592.0	210.0
GR	592.0	275.0	590.0	340.0	588.0	390.0	586.0	460.0	586.0	660.0
GR	584.0	670.0	582.0	673.0	580.0	680.0	576.36	692.0	580.0	705.0
GR	590.0	730.0	592.0	740.0	594.0	750.0	596.0	752.0		

NH	5.0	.05	285.0	.07	300.0	.045	320.0	.07	340.0	.05
NH	620.0									
X1	9350.0	20.0	300.0	320.0	500.0	650.0	650.0			
GR	596.0		594.0	20.0	592.0	70.0	590.0	185.0	588.0	195.0
GR	586.0	200.0	584.0	205.0	584.0	285.0	582.0	292.0	580.0	300.0
GR	576.3	310.0	580.0	320.0	582.0	330.0	584.0	340.0	586.0	505.0
GR	588.0	550.0	590.0	580.0	592.0	590.0	594.0	610.0	596.0	620.0

NH	8.0	.05	1700.0	.09	1769.0	.07	1777.0	.045	1795.0	.07
NH	1800.0	.05	1964.0	.035	2300.0	.04	2500.0			
X1	10180.	36.0	1765.0	1800.0	830.0	830.0	830.0			
GR	597.1	0.0	596.6	100.0	596.4	200.0	596.4	300.0	596.1	400.0
GR	596.0	500.0	595.3	600.0	596.1	700.0	596.4	800.0	596.3	900.0
GR	597.3	1000.0	597.4	1100.0	597.4	1200.0	597.1	1300.0	594.9	1400.0
GR	591.8	1500.0	590.2	1600.0	586.3	1700.0	584.3	1765.0	580.4	1769.0
GR	578.3	1777.0	577.6	1780.0	576.0	1785.0	577.1	1790.0	578.6	1795.0
GR	584.2	1800.0	584.5	1900.0	585.1	1935.0	591.7	1964.0	594.2	2000.0
GR	597.6	2100.0	597.1	2200.0	597.6	2232.0	596.1	2300.0	595.9	2400.0
GR	596.1	2500.0								

NC				.50	1.0					
NH	6.0	.045	1600.0	.085	1765.0	.085	1769.0	.040	1800.0	.07
NH	1803.0	.05	2500.0							
QT	2.0	3923.0	3923.0							
ET	0.0	0.0	1.41							
X1	10880.	42.0	1765.0	1803.1	750.0	700.0	700.0			
GR	597.1	0.0	596.6	100.0	596.4	200.0	596.4	300.0	596.1	400.0
GR	596.0	500.0	595.3	600.0	596.1	700.0	596.4	800.0	596.3	900.0
GR	597.3	1000.0	597.4	1100.0	597.4	1200.0	597.1	1300.0	594.9	1400.0
GR	591.8	1500.0	590.2	1600.0	586.3	1700.0	584.3	1765.0	580.2	1765.1
GR	577.6	1769.0	577.6	1777.0	576.8	1785.0	577.1	1793.0	578.3	1800.0
GR	580.5	1803.0	584.2	1803.1	584.3	1822.0	584.4	1854.0	584.4	1865.0
GR	584.4	1883.0	584.5	1900.0	585.1	1935.0	591.7	1964.0	594.2	2000.0
GR	595.9	2050.0	597.6	2100.0	597.1	2200.0	597.6	2232.0	596.1	2300.0
GR	595.9	2400.0	596.1	2500.0						

SB		1.53	3.09		38.0		504.3		576.8	576.8
NC	.045	.05	.04							
X1	10895.	0.0	0.0	0.0	15.0	15.0	15.0			
X2			1.0	591.0	591.8					
BT	34.0	0.0	597.1	587.1	100.0	596.6	596.6	200.0	596.4	596.4
BT	300.0	596.4	596.4	400.0	596.1	596.1	500.0	596.0	596.0	600.0
BT	595.3	595.3	700.0	596.1	596.1	800.0	596.4	596.4	900.0	596.3
BT	596.3	1000.0	597.3	597.3	1100.0	597.4	597.4	1200.0	597.4	597.4

BT	1300.0	597.1	597.1	1400.0	594.9	594.9	1500.0	591.8	591.8	1600.0
BT	591.4	590.2	1700.0	591.5	586.3	1765.0	592.1	584.3	1765.1	592.1
BT	590.9	1803.0	592.2	591.0	1803.1	592.2	584.2	1822.0	592.0	584.3
BT	1854.0	593.8	584.4	1865.0	593.5	584.4	1883.0	593.5	584.4	1900.0
BT	595.9	584.5	2050.0	595.9		2100.0	597.6		2200.0	597.1
BT		2232.0	597.6		2300.0	596.1		2400.0	595.9	
BT	2500.0	596.1								
ET	0.0	0.0	1.4							
X1	10965.	23.0	653.0	700.0	120.0	90.0	100.0	0.0	0.0	0.0
GR	597.3	0.0	596.2	100.0	596.0	200.0	594.0	300.0	587.0	400.0
GR	585.0	500.0	584.0	600.0	585.2	653.0	577.8	662.0	577.0	670.0
GR	577.0	682.0	577.0	689.0	577.8	694.0	583.7	700.0	588.0	744.0
GR	593.7	773.0	595.0	787.0	595.1	800.0	596.0	820.0	595.0	1000.0
GR	594.9	1100.0	594.9	1200.0	596.5	1201.0				
X1	11275.	32.0	561.9	584.5	380.0	380.0	380.0			
GR	597.3	0.0	596.1	115.5	588.4	230.9	586.5	346.4	585.9	461.9
GR	586.4	511.9	587.6	548.9	588.0	557.9	584.2	561.9	581.9	562.0
GR	580.6	563.9	580.1	566.9	579.0	569.9	577.9	573.9	578.7	578.9
GR	578.8	581.9	579.9	584.4	584.7	584.5	588.1	586.9	587.9	588.9
GR	587.5	599.9	586.6	661.9	587.8	754.0	586.3	808.3	587.0	859.1
GR	596.3	892.6	597.8	908.7	597.5	923.8	598.2	1039.2	597.5	1154.7
GR	597.4	1270.2	597.2	1385.6						
NC	.04	.02	.04							
X1	11276.	0.0	0.0	0.0	1.0	1.0	1.0			
BT	26.0	0.0	597.3	597.3	115.5	596.1	596.1	230.9	588.4	588.4
BT	346.4	586.5	586.5	461.9	585.9	585.9	511.9	586.4	586.4	548.9
BT	587.6	587.6	557.9	588.0	588.0	561.9	588.2	584.2	562.0	588.2
BT	587.2	584.4	588.3	587.3	584.5	588.3	584.7	586.9	588.1	588.1
BT	588.9	587.9	587.9	599.9	587.5	587.5	661.9	586.6	586.6	754.0
BT	587.8	587.8	808.3	586.3	586.3	859.1	587.0	587.0	892.6	596.3
BT	596.3	908.7	597.8	597.8	923.8	597.5	597.5	1039.2	598.2	598.2
BT	1154.7	597.5	597.5	1270.2	597.4	597.4	1385.6	597.2	597.2	0.0
X1	11290.	0.0	0.0	0.0	14.0	14.0	14.0			
X2							1.0			
NH	3.0	.09	561.9	.045	584.4	.09	1385.6			
X1	11291.				1.0	1.0	1.0			
NH	7.0	.04	500.0	.09	653.0	.05	662.0	.045	689.0	.05
NH	700.0	.08	773.0	.05	1200.0					
X1	11700.	22.0	653.0	700.0	100.0	350.0	409.0			
GR	597.3		596.1	100.0	588.4	200.0	586.5	300.0	585.9	400.0
GR	584.2	500.0	586.6	600.0	587.8	653.0	580.4	662.0	579.6	670.0
GR	579.6	682.0	579.6	689.0	580.4	694.0	586.3	700.0	587.0	744.0
GR	596.3	773.0	597.8	787.0	597.5	800.0	598.2	900.0	597.5	1000.0
GR	597.4	1100.0	597.2	1200.0						

NC					.10	.30				
NH	7.0	.04	250.0	.09	308.0	.05	320.0	.045	342.0	.05
NH	355.0	.08	400.0	.05	640.0					
QT	2.0	2714.0	2714.0							
X1	12750.	20.0	320.0	342.0	1050.0	1600.0	1050.0			
GR	596.5	0.0	594.0	230.0	592.0	250.0	590.0	260.0	588.0	275.0
GR	586.0	308.0	584.0	310.0	582.0	320.0	579.82	331.0	582.0	342.0
GR	584.0	350.0	586.0	355.0	588.0	360.0	589.4	370.0	588.0	400.0
GR	588.0	535.0	590.0	555.0	592.0	565.0	594.0	585.0	597.0	640.0
NH	7.0	.05	1000.0	.09	1268.0	.05	1277.0	.04	1293.0	.05
NH	1300.0	.07	1340.0	.05	2000.0					
X1	14540.	29.0	1268.0	1293.0	1350.0	1200.0	1790.0			
GR	598.1	0.0	597.2	100.0	596.1	200.0	596.3	300.0	596.9	400.0
GR	596.8	500.0	596.3	600.0	596.3	700.0	596.1	800.0	591.6	900.0
GR	588.6	1000.0	587.7	1100.0	587.4	1200.0	589.5	1255.0	588.0	1268.0
GR	582.3	1277.0	580.9	1281.0	580.2	1284.0	581.1	1289.0	582.7	1293.0
GR	589.8	1300.0	597.3	1340.0	597.6	1400.0	596.5	1500.0	597.1	1600.0
GR	598.1	1700.0	598.5	1800.0	596.6	1900.0	597.2	2000.0		
NH	6.0	.09	240.0	.05	260.0	.04	280.0	.05	290.0	.07
NH	355.0	.05	800.0							
X1	15330.	17.0	260.0	280.0	650.0	760.0	760.0			
GR	596.6	0.0	594.0	30.0	592.0	50.0	590.0	75.0	588.0	105.0
GR	588.0	240.0	586.0	250.0	584.0	260.0	588.66	270.0	584.0	280.0
GR	586.0	290.0	588.0	355.0	590.0	420.0	592.0	455.0	594.0	485.0
GR	596.0	680.0	597.0	800.0	0.0	0.0	0.0	0.0	0.0	0.0
QT	2.0	2749.0	2749.0							
NH	8.0	.03	200.0	.05	769.0	.06	778.0	.04	795.0	.06
NH	800.0	.04	1200.0	.03	1400.0	.05	2000.0			
X1	16690.	27.0	778.0	795.0	1350.0	1040.0	1390.0			
X3				714.0		855.0				
GR	597.2		596.5	100.0	592.3	200.0	590.5	300.0	588.7	400.0
GR	589.7	500.0	588.8	600.0	589.5	700.0	589.5	769.0	584.2	778.0
GR	583.2	781.0	581.5	789.0	583.2	795.0	589.8	800.0	588.0	850.0
GR	588.2	900.0	588.4	1000.0	589.3	1100.0	596.2	1200.0	598.7	1300.0
GR	597.5	1400.0	598.6	1500.0	598.9	1600.0	597.5	1700.0	598.0	1800.0
GR	598.6	1900.0	599.6	2000.0						
NC				.50	1.0					
NH	5.0	.04	830.0	.06	1400.0	.04	1530.0	.06	1830.0	.04
NH	2630.0									
X1	16730.	48.0	1400.0	1530.0	40.0	40.0	40.0			
X3				1400.0		1530.0				
X4	4.0	589.5	1397.6	589.5	1400.1	588.2	1530.1	588.2	1532.6	
GR	599.2	0.0	599.4	200.0	599.4	400.0	599.4	600.0	597.2	630.0
GR	596.5	730.0	592.3	830.0	590.3	930.0	588.7	1030.0	589.7	1130.0
GR	588.8	1230.0	589.5	1330.0	589.5	1397.5	589.5	1400.0	589.5	1422.0
GR	586.0	1430.0	585.5	1440.0	585.8	1444.4	596.5	1444.4	596.5	1445.6
GR	585.8	1445.6	586.4	1450.0	588.0	1455.0	583.9	1458.0	582.0	1460.0
GR	580.8	1470.0	583.1	1480.0	583.9	1483.0	585.2	1489.4	596.5	1489.4
GR	596.5	1490.6	585.2	1490.6	587.1	1500.0	587.0	1510.0	588.1	1513.0

GR	588.2	1530.0	588.2	1532.5	588.4	1630.0	589.3	1730.0	596.2	1830.0
GR	598.7	1930.0	597.5	2030.0	598.6	2130.0	598.9	2230.0	597.5	2330.0
GR	598.0	2430.0	598.6	2530.0	599.2	2630.0				
SB		1.86	3.04		130.0		1302.7		580.8	580.8
X1	16771.	0.0	0.0	0.0	41.0	41.0	41.0			
X2			1.0	596.5	599.2					
X3				1400.0		1530.0				
BT	27.0	0.0	599.2	599.2	200.0	599.4	599.4	400.0	599.4	599.4
BT	600.0	599.4	599.4	630.0	599.4	597.2	730.0	599.5	596.5	830.0
BT	599.5	592.3	930.0	599.4	590.5	1030.0	599.3	588.7	1130.0	599.3
BT	589.7	1230.0	599.3	588.8	1330.0	599.4	589.5	1397.5	599.4	589.5
BT	1397.6	600.2	589.5	1400.0	600.2	589.5	1400.1	600.2	596.5	1444.4
BT	600.2	596.5	1445.6	600.2	596.5	1489.4	600.2	596.6	1490.6	600.2
BT	596.5	1530.0	600.2	596.5	1530.1	600.2	588.2	1532.5	600.2	588.2
BT	1532.6	599.6	588.2	2230.0	599.6	0.0	2430.0	599.3	0.0	2630.0
BT	599.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*PROF 1

CCHV= 0.100 CEHV= 0.300
1490 NH CARD USED
*SECNO 0.000
3280 CROSS SECTION 0.00 EXTENDED 1.40 FEET

0.000	20.30	593.10	0.00	593.10	593.11	0.01	0.00	0.00	573.70
4240.0	898.1	627.4	2714.5	2366.0	595.5	4532.0	0.0	0.0	573.70
0.00	0.38	1.05	0.60	0.070	0.040	0.050	0.000	572.80	0.00
0.000015	0.	0.	0.	0	0	0	0.00	815.00	815.00

1490 NH CARD USED
*SECNO 450.000
3280 CROSS SECTION 450.00 EXTENDED 1.11 FEET

450.000	20.01	593.11	0.00	0.00	593.11	0.01	0.01	0.00	574.00
4240.0	887.6	638.1	2714.3	2254.6	586.7	4413.2	76.2	8.4	574.00
0.20	0.39	1.09	0.62	0.070	0.040	0.050	0.000	573.10	0.00
0.000016	450.	450.	450.	0	0	0	0.00	815.00	815.00

Clinton F.P.
594.1

1490 NH CARD USED
*SECNO 1420.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
3280 CROSS SECTION 1420.00 EXTENDED 4.52 FEET

1420.000	19.43	593.13	0.00	0.00	593.13	0.00	0.01	0.00	582.10
4240.0	2204.8	530.3	1504.9	6520.1	855.8	3974.2	283.3	30.8	582.80
0.89	0.34	0.62	0.38	0.070	0.052	0.070	0.000	573.70	0.00
0.000012	970.	970.	970.	0	0	0	0.00	1197.38	1197.38

1490 NH CARD USED
*SECNO 2350.000

2350.000	18.82	593.14	0.00	0.00	593.14	0.01	0.01	0.00	576.00
4240.0	891.0	611.9	2737.0	1405.3	539.3	5232.0	469.8	53.6	576.00
1.27	0.63	1.13	0.52	0.052	0.040	0.051	0.000	574.32	118.51
0.000020	980.	930.	780.	0	0	0	0.00	1065.47	1183.98

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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

1490 NH CARD USED
*SECNO 3220.000

3470 ENCROACHMENT STATIONS=     1200.0     2250.0  TYPE=       1  TARGET=      1050.000
  3220.000      18.25     593.15       0.00       0.00     593.16       0.01       0.02       0.00     581.90
    3900.0     2362.0     1465.7       72.3     4137.4     1339.5      162.2      591.7       71.8     580.00
      1.58       0.57       1.09       0.45      0.050      0.044      0.050      0.000     574.90    1200.00
  0.000027       920.       870.       720.          0          0          0       0.00     845.96    2045.96

CCHV=     0.300 CEHV=     0.500
*SECNO 3268.000

3470 ENCROACHMENT STATIONS=     1200.0     2072.0  TYPE=       1  TARGET=       872.000
  3268.000      18.95     593.15       0.00       0.00     593.17       0.02       0.00       0.00     589.30
    3900.0     2058.1     1830.4       11.5     3912.4     1338.6       35.8      597.7       72.8     590.00
      1.59       0.53       1.37       0.32      0.055      0.040      0.055      0.000     574.20    1200.00
  0.000043        43.        48.        48.          0          0          0       0.00     872.00    2072.00

*SECNO 3269.000

3370 NORMAL BRIDGE, NRD=  18 MIN ELTRD=   587.30 MAX ELLC=   590.00

3470 ENCROACHMENT STATIONS=     1200.0     2074.0  TYPE=       1  TARGET=       874.000
  3269.000      18.95     593.15       0.00       0.00     593.17       0.01       0.00       0.00     589.30
    3900.0     2578.0     1305.4       16.6     3910.7      986.4       40.8      597.8       72.8     590.00
      1.59       0.66       1.32       0.41      0.050      0.020      0.050      0.000     574.20    1200.00
  0.000056         1.         1.         1.          0          0          0    -352.69     874.00    2074.00

*SECNO 3304.000

3370 NORMAL BRIDGE, NRD=  18 MIN ELTRD=   587.30 MAX ELLC=   590.00

3470 ENCROACHMENT STATIONS=     1200.0     2120.0  TYPE=       1  TARGET=       920.000
  3304.000      18.96     593.16       0.00       0.00     593.17       0.01       0.00       0.00     589.30
    3900.0     2556.3     1293.2       50.5     3914.4      986.8      132.4      601.8       73.5     590.00
      1.60       0.65       1.31       0.38      0.050      0.020      0.050      0.000     574.20    1200.00
  0.000055        35.        35.        35.          0          0          0    -365.95     920.00    2120.00
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Clinton F.P. = 594.?

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 3305.000

3470 ENCROACHMENT STATIONS= 1200.0 2122.0 TYPE= 1 TARGET= 922.000

3305.000	18.96	593.16	0.00	0.00	593.17	0.02	0.00	0.00	589.30
3900.0	2039.7	1812.7	47.6	3914.9	1338.9	149.9	601.9	73.5	590.00
1.60	0.52	1.35	0.32	0.055	0.040	0.055	0.000	574.20	1200.00
0.000043	1.	1.	1.	0	0	0	0.00	922.00	2122.00

CCHV= 0.200 CEHV= 0.400
1490 NH CARD USED
*SECNO 5050.000

5050.000	17.64	593.24	0.00	0.00	593.25	0.02	0.08	0.00	580.30
3900.0	2868.9	1002.8	28.3	3432.3	713.5	56.2	769.5	95.9	582.10
2.05	0.84	1.41	0.50	0.075	0.052	0.040	0.000	575.60	201.91
0.000065	1450.	1745.	1745.	0	0	0	0.00	379.00	580.91

1490 NH CARD USED
*SECNO 6120.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.66

6120.000	16.58	593.28	0.00	0.00	593.29	0.01	0.03	0.00	583.00
3900.0	1696.8	253.2	1950.0	2511.7	313.0	2890.2	867.2	106.4	581.80
2.40	0.68	0.81	0.67	0.051	0.045	0.040	0.000	576.70	260.83
0.000023	950.	1070.	600.	0	0	0	0.00	770.32	1031.14

Clinton F.P.
594.1

SPECIAL BRIDGE

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
0.00	1.53	3.04	0.00	19.50	0.00	197.80	0.00	576.70	576.70

*SECNO 6134.000
PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
602.51	593.29	0.00	3688.	182.	198.	209.	587.40	588.20	366.

6134.000	16.59	593.29	0.00	0.00	593.30	0.01	0.01	0.00	583.00
3900.0	1696.0	252.8	1951.2	2515.7	313.3	2898.0	869.0	106.7	581.80
2.41	0.67	0.81	0.67	0.051	0.045	0.040	0.000	576.70	260.04
0.000023	14.	14.	14.	0	0	10	0.00	771.51	1031.56

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

(/1

1490 NH CARD USED
*SECNO 8150.000

8150.000	16.84	593.34	0.00	0.00	593.35	0.01	0.05	0.00	585.20
3900.0	2634.5	612.4	653.0	3131.3	695.1	675.4	1072.3	135.7	585.20
2.96	0.84	0.88	0.97	0.045	0.060	0.030	0.000	576.50	974.06
0.000042	1500.	2016.	2016.	0	0	0	0.00	659.15	1633.21

CCHV= 0.100 CEHV= 0.300
1490 NH CARD USED
*SECNO 8700.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.60

Clin 3n F.P.

3320

8700.000	17.00	593.36	0.00	0.00	593.38	0.02	0.03	0.00	580.00
3900.0	2973.7	724.7	201.6	2929.0	379.4	237.1	1110.5	142.2	580.00
3.06	1.02	1.91	0.85	0.051	0.050	0.069	0.000	576.36	29.45
0.000116	370.	550.	550.	0	0	0	0.00	717.34	746.79

584.1

1490 NH CARD USED
*SECNO 9350.000

9350.000	17.12	593.42	0.00	0.00	593.44	0.02	0.05	0.00	580.00
3900.0	1282.1	525.4	2092.5	1346.2	305.3	2071.7	1157.4	150.2	580.00
3.21	0.95	1.72	1.01	0.053	0.045	0.052	0.000	576.30	34.65
0.000078	500.	650.	650.	1	0	0	0.00	569.48	604.14

1490 NH CARD USED
*SECNO 10180.000

10180.000	17.50	593.50	0.00	0.00	593.52	0.03	0.08	0.00	584.30
3900.0	1136.8	776.0	1987.2	1354.5	511.4	1390.7	1223.9	160.9	584.20
3.39	0.84	1.52	1.43	0.065	0.062	0.050	0.000	576.00	1445.17
0.000135	830.	830.	830.	0	0	0	0.00	544.74	1989.91

CCHV= 0.500 CEHV= 1.000
1490 NH CARD USED
*SECNO 10880.000

10880.000	16.79	593.59	0.00	0.00	593.62	0.03	0.09	0.00	584.30
3923.0	956.5	1049.6	1916.9	1381.3	605.2	1376.6	1278.7	170.0	584.20
3.54	0.69	1.73	1.39	0.077	0.053	0.050	0.000	576.80	1442.49
0.000128	750.	700.	700.	1	0	0	0.00	548.63	1991.11

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

SPECIAL BRIDGE

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
0.00	1.53	3.09	0.00	38.00	0.00	504.30	0.00	576.80	576.80

*SECNO 10895.000
PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
595.03	593.62	0.00	2709.	1212.	504.	540.	591.00	591.80	443.

10895.000	16.90	593.70	0.00	0.00	593.73	0.03	0.11	0.00	584.30
3923.0	1310.3	1091.0	1521.8	1420.3	609.8	1399.4	1279.8	170.2	584.20
3.54	0.92	1.79	1.09	0.045	0.040	0.050	0.000	576.80	1438.60
0.000077	15.	15.	15.	2	0	8	0.00	554.25	1992.85

Clinton I.P.
594.1

*SECNO 10965.000

10965.000	16.72	593.72	0.00	0.00	593.74	0.02	0.01	0.00	585.20
3923.0	2440.3	1143.1	339.7	2497.8	717.4	429.1	1288.6	171.5	583.70
3.57	0.98	1.59	0.79	0.045	0.040	0.050	0.000	577.00	304.09
0.000056	120.	100.	90.	0	0	0	0.00	469.06	773.15

*SECNO 11275.000

11275.000	15.85	593.75	0.00	0.00	593.76	0.01	0.02	0.01	584.20
3923.0	2085.8	422.0	1415.2	2526.5	328.1	1919.8	1325.4	176.7	584.70
3.69	0.83	1.29	0.74	0.045	0.040	0.050	0.000	577.90	150.77
0.000051	380.	380.	380.	1	0	0	0.00	732.63	883.40

*SECNO 11276.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.55

3370 NORMAL BRIDGE, NRD= 26 MIN ELTRD= 585.90 MAX ELLC= 587.30

11276.000	15.85	593.75	0.00	0.00	593.77	0.02	0.00	0.00	584.20
3923.0	1512.2	126.0	2284.8	2520.7	305.4	1917.0	1325.5	176.8	584.70
3.69	0.60	0.41	1.19	0.040	0.040	0.020	0.000	577.90	150.70
0.000021	1.	1.	1.	0	0	0	-35.20	732.72	883.42

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  SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
  Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
  TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
  SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*SECNO 11290.000

3370 NORMAL BRIDGE, NRD=  26 MIN ELTRD=   585.90 MAX ELLC=   587.30

 11290.000     15.85     593.75       0.00       0.00     593.77       0.02       0.00       0.00     584.20
    3923.0    1512.2      126.0     2284.8     2520.9      305.4     1917.2     1327.0      177.0     584.70
      3.70      0.60       0.41       1.19      0.040      0.040      0.020      0.000     577.90     150.69
  0.000021       14.        14.        14.          0          0          0     -35.20     732.73     883.42

1490 NH CARD USED
*SECNO 11291.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  0.35

 11291.000     15.85     593.75       0.00       0.00     593.77       0.01       0.00       0.00     584.20
    3923.0    1906.5      579.2     1437.3     2528.8      328.3     1921.4     1327.1      177.0     584.70
      3.70      0.75       1.76       0.75      0.090      0.053      0.090      0.000     577.90     150.69
  0.000169        1.         1.         1.          0          0          0       0.00     732.73     883.42

1490 NH CARD USED
*SECNO 11700.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.78

 11700.000     14.17     593.77       0.00       0.00     593.79       0.01       0.02       0.00     587.80
    3923.0    3048.1      696.0      178.9     3638.5      598.2      385.4     1347.8      179.9     586.30
      3.76      0.84       1.16       0.46      0.049      0.047      0.080      0.000     579.60     130.13
  0.000053      100.       409.       350.          0          0          0       0.00     635.01     765.14

CCHV=     0.500 CEHV=      0.100
1490 NH CARD USED
*SECNO 12750.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  0.38

 12750.000     14.03     593.85       0.00       0.00     593.89       0.04       0.10       0.00     582.00
    2714.0     474.1      677.8     1562.1      470.5      284.6     1303.3     1439.0      193.7     582.00
      3.99      1.01       2.38       1.20      0.070      0.045      0.053      0.000     579.82     231.51
  0.000176     1050.      1050.      1600.          2          0          0       0.00     351.97     583.49
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0

Clinton T.P.

594.1

3385

Rr Ri Sorrell
5/5/94 Q's ok.
i.e.
3923
2714
2749
BEh

2310

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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

1490 NH CARD USED
*SECNO 14540.000
 14540.000      13.94     594.14       0.00       0.00     594.17       0.03       0.29       0.00     588.00
    2714.0     1893.3      715.1      105.6     2116.2      288.2      105.4     1510.2      206.4     582.70
      4.29       0.89       2.48       1.00      0.079      0.044      0.055      0.000     580.20     843.58
  0.000234      1350.      1790.      1200.          2          0          0       0.00     479.56    1323.14

1490 NH CARD USED
*SECNO 15330.000
 15330.000      10.31     594.31       0.00       0.00     594.33       0.02       0.15       0.01     584.00
    2714.0     1125.5      313.1     1275.4     1286.4      159.6     1072.8     1549.8      214.0     584.00
      4.46       0.87       1.96       1.19      0.080      0.040      0.058      0.000     584.00      26.44
  0.000199       650.       760.       760.          2          0          0       0.00     488.60     515.05

1490 NH CARD USED
*SECNO 16690.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  0.55

3470 ENCROACHMENT STATIONS=       714.0      855.0  TYPE=       1  TARGET=       141.000
2340  16690.000      13.06     594.56       0.00       0.00     594.76       0.20       0.41       0.02     584.20
    2749.0      750.6      999.5      999.0      347.7      203.5      356.0     1598.0      222.7     583.20
      4.56       2.16       4.91       2.81      0.052      0.040      0.041      0.000     581.50     714.00
  0.000667      1350.      1390.      1040.          2          0          0       0.00     141.00     855.00

CCHV=     0.500 CEHV=     1.000
1490 NH CARD USED
*SECNO 16730.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=      1400.0     1530.0  TYPE=       1  TARGET=       130.000
 16730.000      13.93     594.73       0.00       0.00     594.83       0.10       0.02       0.05     589.50
    2749.0        0.0     2749.0        0.0        0.0     1076.9        0.0     1598.9      222.8  100000.00
      4.57       0.00       2.55       0.00      0.000      0.039      0.000      0.000     580.80    1400.00
  0.000423        40.        40.        40.          2          0          0       0.00     127.60    1530.00
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

SPECIAL BRIDGE

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
0.00	1.86	3.04	0.00	130.00	0.00	1302.70	0.00	580.80	580.80

*SECNO 16771.000

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS= 0.000 EGLWC= 594.830 ELLC= 596.500 PCWSE= 594.729 ELTRD= 599.200

3265 DIVIDED FLOW

3370 NORMAL BRIDGE, NRD= 27 MIN ELTRD= 599.20 MAX ELLC= 596.50

3470 ENCROACHMENT STATIONS= 1400.0 1530.0 TYPE= 1 TARGET= 130.000

16771.000	13.95	594.75	0.00	0.00	594.85	0.10	0.02	0.00	589.50
2749.0	0.0	2749.0	0.0	0.0	1077.8	0.0	1599.9	222.9	100000.00
4.57	0.00	2.55	0.00	0.000	0.039	0.000	0.000	580.80	1400.00
0.000422	41.	41.	41.	1	0	0	-0.20	127.60	1530.00

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T1 CLINTON TOWNSHIP FLOOD INSURANCE STUDY
T2 UPDATED 100-YEAR FLOOD   STS CONSULTANTS LTD  12/93 MMW
T3 MIDDLE BRANCH OF THE CLINTON RIVER - FLOODWAY RUN

J1  ICHECK    INQ     NINV    IDIR    STRT    METRIC   HVINS    Q       WSEL     FQ

     -1.0     3.0      0.0     0.0     0.0     0.0      0.0     0.0    593.20    0.0

J2  NPROF    IPLOT    PRFVS   XSECV   XSECH    FN      ALLDC    IBW     CHNIM    ITRACE

    15.0      0.0     -1.0     0.0     0.0     0.0      0.0     0.0     0.0      0.0
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 SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
 Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
 TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
 SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 2


CCHV=     0.100 CEHV=     0.300
1490 NH CARD USED
*SECNO 0.000
 2800 NAT Q1=    10948.52  WSEL=      593.10  ENC Q1=    10948.52  WSEL=      593.20  RATIO=    0.0000
 NAT Q1=    11104.  RATIOS LOB, CH, ROB=    0.2127  0.1471  0.6402  WSEL=      593.20
3280 CROSS SECTION       0.00 EXTENDED       1.50 FEET


3470 ENCROACHMENT STATIONS=       114.1      784.1  TYPE=       4  TARGET=        0.014
     0.000      20.40     593.20      0.00     593.10     593.21      0.01      0.00      0.00     573.70
    4240.0      884.7     632.8     2722.5    2169.3      598.5    4466.9       0.0       0.0     573.70
      0.00       0.41      1.06      0.61      0.070      0.040     0.050     0.000    572.80     114.13
  0.000015         0.        0.        0.          0          0         0      0.00    670.00     784.13


1490 NH CARD USED
*SECNO 450.000
 2800 NAT Q1=    10500.48  WSEL=      593.11  ENC Q1=    10500.48  WSEL=      593.21  RATIO=    0.0000
 NAT Q1=    10652.  RATIOS LOB, CH, ROB=    0.2102  0.1496  0.6402  WSEL=      593.21
3280 CROSS SECTION     450.00 EXTENDED       1.21 FEET


3470 ENCROACHMENT STATIONS=       132.4      781.5  TYPE=       4  TARGET=        0.014
   450.000      20.11     593.21      0.00     593.11     593.21      0.01      0.01      0.00     574.00
    4240.0      873.6     643.7     2722.6    2047.2      589.7    4344.4      73.4       6.8     574.00
      0.19       0.43      1.09      0.63      0.070      0.040     0.050     0.000    573.10     132.44
  0.000016       450.      450.      450.         0          0         0      0.00    649.08     781.53


1490 NH CARD USED
*SECNO 1420.000
 2800 NAT Q1=    12131.12  WSEL=      593.13  ENC Q1=    12131.12  WSEL=      593.23  RATIO=    0.0000
 NAT Q1=    12327.  RATIOS LOB, CH, ROB=    0.5210  0.1243  0.3547  WSEL=      593.23
3280 CROSS SECTION    1420.00 EXTENDED       4.62 FEET


3470 ENCROACHMENT STATIONS=        32.7     1119.9  TYPE=       4  TARGET=        0.016
  1420.000      19.53     593.23      0.00     593.13     593.23      0.00      0.01      0.00     582.10
    4240.0     2211.4     535.9     1492.7    6436.4      860.7    3836.7     275.1      26.1     582.80
      0.87       0.34      0.62      0.39      0.070      0.052     0.070     0.000    573.70      32.72
  0.000012       970.      970.      970.         0          0         0      0.00   1087.21    1119.94
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     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCB        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

 1490 NH CARD USED
 *SECNO 2350.000
  2800 NAT Q1=     9489.44  WSEL=      593.14  ENC Q1=     9489.44  WSEL=      593.24  RATIO=    0.0000
  NAT Q1=    9659.  RATIOS LOB, CH, ROB=    0.2097  0.1431  0.6472  WSEL=      593.24

 3470 ENCROACHMENT STATIONS=       303.0     1071.1  TYPE=       4  TARGET=          0.018
   2350.000      18.92     593.24       0.00     593.14     593.24       0.01       0.01       0.00     576.00
     4240.0      867.0      617.3     2755.7     1245.7      542.4     5150.0      457.0       44.8     576.00
       1.24       0.70       1.14       0.54      0.052      0.040      0.051      0.000     574.32     302.96
   0.000020       980.       930.       780.          0          0          0       0.00     768.09    1071.06

 1490 NH CARD USED
 *SECNO 3220.000
 1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

 3470 ENCROACHMENT STATIONS=      1200.0     2250.0  TYPE=       1  TARGET=      1050.000
   3220.000      18.35     593.25       0.00     593.15     593.26       0.01       0.02       0.00     581.90
     3900.0     2374.0     1452.8       73.3     4207.4     1347.6      168.9      577.4       60.2     580.00
       1.55       0.56       1.08       0.43      0.050      0.044      0.050      0.000     574.90    1200.00
   0.000026       920.       870.       720.          0          0          0       0.00     849.97    2049.97

 CCHV=     0.300 CEHV=      0.500
 *SECNO 3268.000

 3470 ENCROACHMENT STATIONS=      1200.0     2072.0  TYPE=       1  TARGET=       872.000
   3268.000      19.05     593.25       0.00     593.15     593.27       0.02       0.00       0.00     589.30
     3900.0     2079.8     1808.4       11.9     3990.6     1346.6       37.0      583.5       61.1     590.00
       1.57       0.52       1.34       0.32      0.055      0.040      0.055      0.000     574.20    1200.00
   0.000042        48.        48.        48.          0          0          0       0.00     872.00    2072.00

 *SECNO 3269.000

 3370 NORMAL BRIDGE, NRD=  18 MIN ELTRD=    587.30 MAX ELLC=    590.00

 3470 ENCROACHMENT STATIONS=      1200.0     2074.0  TYPE=       1  TARGET=       874.000
   3269.000      19.05     593.25       0.00     593.15     593.27       0.01       0.00       0.00     589.30
     3900.0     2594.2     1288.8       17.0     3988.9      994.4       42.2      583.6       61.1     590.00
       1.57       0.65       1.30       0.40      0.050      0.020      0.050      0.000     574.20    1200.00
   0.000054         1.         1.         1.          0          0          0    -352.69     874.00    2074.00
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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*SECNO 3304.000

3370 NORMAL BRIDGE, NRD=  18 MIN ELTRD=   587.30 MAX ELLC=   590.00

3470 ENCROACHMENT STATIONS=     1200.0     2120.0  TYPE=       1  TARGET=       920.000
  3304.000      19.06     593.26       0.00     593.16     593.27       0.01       0.00       0.00     589.30
    3900.0     2571.0     1276.2       52.8     3992.4      994.8      138.4      587.7       61.8     590.00
      1.58       0.64       1.28       0.38      0.050      0.020      0.050      0.000     574.20    1200.00
  0.000052        35.        35.        35.          0          0          0    -365.95     920.00    2120.00

*SECNO 3305.000

3470 ENCROACHMENT STATIONS=     1200.0     2122.0  TYPE=       1  TARGET=       922.000
  3305.000      19.06     593.26       0.00     593.16     593.27       0.01       0.00       0.00     589.30
    3900.0     2060.2     1790.1       49.7     3993.0     1346.9      156.1      587.8       61.9     590.00
      1.58       0.52       1.33       0.32      0.055      0.040      0.055      0.000     574.20    1200.00
  0.000041         1.         1.         1.          0          0          0       0.00     922.00    2122.00

CCHV=     0.200 CEHV=     0.400
1490 NH CARD USED
*SECNO 5050.000
 2800 NAT Q1=     4848.53  WSEL=      593.24  ENC Q1=     4848.53  WSEL=      593.34  RATIO=    0.0000
 NAT Q1=     4914.  RATIOS LOB, CH, ROB=    0.7361  0.2563  0.0076  WSEL=      593.34

3470 ENCROACHMENT STATIONS=      217.4      544.8  TYPE=       4  TARGET=         0.013
  5050.000      17.73     593.33       0.00     593.24     593.35       0.02       0.08       0.00     580.30
    3900.0     2883.6     1014.5        1.9     3413.6      718.1        8.1      755.8       83.3     582.10
      2.02       0.84       1.41       0.24      0.075      0.052      0.040      0.000     575.60     217.45
  0.000065      1450.      1745.      1745.          0          0          0       0.00     327.32     544.77

1490 NH CARD USED
*SECNO 6120.000
 2800 NAT Q1=     8071.45  WSEL=      593.28  ENC Q1=     8071.45  WSEL=      593.38  RATIO=    0.0000
 NAT Q1=     8222.  RATIOS LOB, CH, ROB=    0.4337  0.0644  0.5019  WSEL=      593.38

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.66

3470 ENCROACHMENT STATIONS=      289.2      936.3  TYPE=       4  TARGET=         0.018
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


   6120.000     16.68     593.38       0.00     593.28     593.38       0.01       0.03       0.00     583.00
     3900.0    1684.1      256.2     1959.7     2436.9      314.7     2791.6      851.5       92.4     581.80
       2.36      0.69       0.81       0.70      0.051      0.045      0.040      0.000     576.70     289.17
   0.000023      950.      1070.       600.          0          0          0       0.00     647.17     936.34


SPECIAL BRIDGE

SB  XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
     0.00      1.53       3.04       0.00      19.50       0.00     197.80       0.00     576.70     576.70

*SECNO 6134.000
BTCARD, BRIDGE STENCL=      289.17    STENCR=      936.34
 2800 NAT Q1=      8096.09  WSEL=      593.29  ENC Q1=      8096.09  WSEL=      593.39  RATIO=    0.0000
 NAT Q1=     8243.  RATIOS LOB, CH, ROB=    0.4335  0.0643  0.5022  WSEL=      593.39
PRESSURE AND WEIR FLOW,  Weir Submergence Based on TRAPEZOIDAL Shape

 EGPRS       EGLWC        H3         QWEIR       QPR         BAREA     TRAPEZOID       ELLC       ELTRD      WEIRLN
                                                                          AREA
    602.61     593.38       0.00       3695.       187.        198.       209.       587.40     588.20       338.


3470 ENCROACHMENT STATIONS=       289.2      936.3  TYPE=       4  TARGET=         0.018
  6134.000     16.69     593.39       0.00     593.29     593.40       0.01       0.01       0.00     583.00
    3900.0    1683.1      255.8     1961.1     2441.3      315.1     2799.5      853.3       92.6     581.80
      2.37      0.69       0.81       0.70      0.051      0.045      0.040      0.000     576.70     289.17
  0.000023       14.        14.        14.          0          0         12       0.00     647.17     936.34

1490 NH CARD USED
*SECNO 8150.000
 2800 NAT Q1=      6041.67  WSEL=      593.34  ENC Q1=      6041.67  WSEL=      593.44  RATIO=    0.0000
 NAT Q1=     6184.  RATIOS LOB, CH, ROB=    0.6752  0.1553  0.1695  WSEL=      593.44

3470 ENCROACHMENT STATIONS=      1001.7     1542.4  TYPE=       4  TARGET=         0.023
  8150.000     16.94     593.44       0.00     593.34     593.45       0.01       0.05       0.00     585.20
    3900.0    2649.0      619.5      631.5     3099.9      700.5      583.0     1050.5      116.4     585.20
      2.90      0.85       0.88       1.08      0.045      0.060      0.030      0.000     576.50    1001.74
  0.000042     1500.      2016.      2016.          0          0          0       0.00     540.62    1542.36
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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 8700.000
 2800 NAT Q1=    3620.96  WSEL=     593.36  ENC Q1=    3620.96  WSEL=     593.46  RATIO=   0.0000
 NAT Q1=    3719.  RATIOS LOB, CH, ROB=   0.7654  0.1830  0.0516  WSEL=     593.46

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  0.60

3470 ENCROACHMENT STATIONS=       105.9       725.2  TYPE=       4  TARGET=         0.026
  8700.000     17.10     593.46       0.00     593.36     593.48       0.02       0.03       0.00     580.00
    3900.0    3009.6      731.3      159.1     2885.3      382.2      190.5     1087.6      121.7     580.00
      3.00      1.04       1.91       0.84      0.051      0.050      0.070      0.000     576.36     105.93
  0.000115      370.       550.       550.          1          0          0       0.00     619.28     725.21

1490 NH CARD USED
*SECNO 9350.000
 2800 NAT Q1=    4411.89  WSEL=     593.42  ENC Q1=    4411.89  WSEL=     593.52  RATIO=   0.0000
 NAT Q1=    4509.  RATIOS LOB, CH, ROB=   0.3299  0.1333  0.5368  WSEL=     593.52

3470 ENCROACHMENT STATIONS=       117.2       572.0  TYPE=       4  TARGET=         0.022
  9350.000     17.22     593.52       0.00     593.42     593.54       0.02       0.05       0.00     580.00
    3900.0    1271.4      531.4     2097.1     1253.7      307.3     2033.9     1133.1      128.4     580.00
      3.14      1.01       1.73       1.03      0.053      0.045      0.052      0.000     576.30     117.24
  0.000078      500.       650.       650.          0          0          0       0.00     454.77     572.01

1490 NH CARD USED
*SECNO 10180.000
 2800 NAT Q1=    3355.33  WSEL=     593.50  ENC Q1=    3355.33  WSEL=     593.60  RATIO=   0.0000
 NAT Q1=    3430.  RATIOS LOB, CH, ROB=   0.2948  0.1968  0.5084  WSEL=     593.60

3470 ENCROACHMENT STATIONS=      1523.3      1954.7  TYPE=       4  TARGET=         0.022
 10180.000     17.59     593.59       0.00     593.50     593.62       0.03       0.08       0.00     584.30
    3900.0    1131.6      783.6     1984.8     1288.8      515.0     1356.6     1197.5      136.9     584.20
      3.32      0.88       1.52       1.46      0.065      0.062      0.050      0.000     576.00    1523.33
  0.000135      830.       830.       830.          0          0          0       0.00     431.35    1954.68

CCHV=    0.500 CEHV=    1.000
1490 NH CARD USED
```

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 10880.000
2800 NAT Q1= 3469.58 WSEL= 593.59 ENC Q1= 3469.58 WSEL= 593.69 RATIO= 0.0000
NAT Q1= 3549. RATIOS LOB, CH, ROB= 0.2474 0.2645 0.4880 WSEL= 593.69

3470 ENCROACHMENT STATIONS= 1518.3 1953.8 TYPE= 4 TARGET= 0.022

10880.000	16.89	593.69	0.00	593.59	593.72	0.03	0.09	0.00	584.30
3923.0	946.9	1061.2	1914.9	1320.2	609.2	1335.8	1250.6	144.1	584.20
3.47	0.72	1.74	1.43	0.078	0.053	0.050	0.000	576.80	1518.34
0.000128	750.	700.	700.	0	0	0	0.00	435.46	1953.80

SPECIAL BRIDGE

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
0.00	1.53	3.09	0.00	38.00	0.00	504.30	0.00	576.80	576.80

*SECNO 10895.000
BTCARD, BRIDGE STENCL= 1518.34 STENCR= 1953.80
2800 NAT Q1= 4475.92 WSEL= 593.70 ENC Q1= 4475.92 WSEL= 593.80 RATIO= 0.0000
NAT Q1= 4569. RATIOS LOB, CH, ROB= 0.3372 0.2753 0.3875 WSEL= 593.80
PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
595.13	593.72	0.00	2643.	1277.	504.	540.	591.00	591.80	367.

3470 ENCROACHMENT STATIONS= 1518.3 1953.8 TYPE= 4 TARGET= 0.020

10895.000	17.01	593.81	0.00	593.70	593.84	0.03	0.12	0.00	584.30
3923.0	1309.3	1100.0	1513.7	1350.3	613.9	1354.1	1251.7	144.2	584.20
3.47	0.97	1.79	1.12	0.045	0.040	0.050	0.000	576.80	1518.34
0.000076	15.	15.	15.	1	0	8	0.00	435.46	1953.80

*SECNO 10965.000
2800 NAT Q1= 5249.94 WSEL= 593.72 ENC Q1= 5249.94 WSEL= 593.82 RATIO= 0.0000
NAT Q1= 5348. RATIOS LOB, CH, ROB= 0.6236 0.2892 0.0872 WSEL= 593.82

3470 ENCROACHMENT STATIONS= 362.5 744.7 TYPE= 4 TARGET= 0.018

10965.000	16.83	593.83	0.00	593.72	593.85	0.02	0.01	0.00	585.20
3923.0	2456.5	1156.1	310.4	2409.5	722.4	354.6	1260.2	145.3	583.70
3.50	1.02	1.60	0.88	0.045	0.040	0.050	0.000	577.00	362.51
0.000056	120.	100.	90.	0	0	0	0.00	382.17	744.68

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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*SECNO 11275.000
 2800 NAT Q1=     5512.35  WSEL=      593.75  ENC Q1=     5512.35  WSEL=      593.85  RATIO=   0.0000
 NAT Q1=     5650.  RATIOS LOB, CH, ROB=   0.5324  0.1062  0.3614  WSEL=      593.85

3470 ENCROACHMENT STATIONS=       213.1      861.6  TYPE=       4  TARGET=         0.024
 11275.000      15.96     593.86       0.00     593.75     593.88       0.01       0.02       0.01     584.20
    3923.0     2083.1      425.7     1414.3     2435.0      330.6     1883.7     1295.7      149.8     584.70
      3.62       0.86       1.29       0.75      0.045      0.040      0.050      0.000     577.90     213.06
  0.000050       380.       380.       380.          1          0          0       0.00     648.51     861.57

*SECNO 11276.000
 2800 NAT Q1=     8541.38  WSEL=      593.75  ENC Q1=     8541.38  WSEL=      593.85  RATIO=   0.0000
 NAT Q1=     8754.  RATIOS LOB, CH, ROB=   0.3856 ; 0.0317  0.5827  WSEL=      593.85

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.54

3370 NORMAL BRIDGE, NRD=  26 MIN ELTRD=    585.90 MAX ELLC=    587.30

3470 ENCROACHMENT STATIONS=       219.9      861.7  TYPE=       4  TARGET=         0.024
 11276.000      15.96     593.86       0.00     593.75     593.88       0.02       0.00       0.00     584.20
    3923.0     1501.8      127.7     2293.5     2399.1      307.9     1882.8     1295.8      149.8     584.70
      3.62       0.63       0.41       1.22      0.040      0.040      0.020      0.000     577.90     219.89
  0.000021         1.         1.         1.          0          0          0     -35.20     641.85     861.74

*SECNO 11290.000
 2800 NAT Q1=     8542.29  WSEL=      593.75  ENC Q1=     8542.29  WSEL=      593.85  RATIO=   0.0000
 NAT Q1=     8755.  RATIOS LOB, CH, ROB=   0.3856  0.0317  0.5827  WSEL=      593.85

3370 NORMAL BRIDGE, NRD=  26 MIN ELTRD=    585.90 MAX ELLC=    587.30

3470 ENCROACHMENT STATIONS=       219.9      861.8  TYPE=       4  TARGET=         0.024
 11290.000      15.96     593.86       0.00     593.75     593.88       0.02       0.00       0.00     584.20
    3923.0     1501.8      127.7     2293.5     2399.4      307.9     1882.9     1297.3      150.0     584.70
      3.62       0.63       0.41       1.22      0.040      0.040      0.020      0.000     577.90     219.86
  0.000021        14.        14.        14.          0          0          0     -35.20     641.89     861.75
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     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

1490 NH CARD USED
*SECNO 11291.000
 2800 NAT Q1=    3019.44  WSEL=      593.75  ENC Q1=     3019.44  WSEL=      593.85  RATIO=   0.0000
 NAT Q1=    3090.  RATIOS LOB, CH, ROB=   0.4869  0.1459  0.3672  WSEL=      593.85

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  0.36

3470 ENCROACHMENT STATIONS=       213.5      862.2  TYPE=       4  TARGET=         0.023
 11291.000      15.96     593.86       0.00     593.75     593.88       0.02       0.00       0.00     584.20
    3923.0     1901.7      583.6     1437.7     2435.9      330.8     1890.2     1297.4      150.0     584.70
      3.62       0.78       1.76       0.76      0.090      0.053      0.090      0.000     577.90     213.54
  0.000167         1.         1.         1.          0          0          0       0.00     648.70     862.24

1490 NH CARD USED
*SECNO 11700.000
 2800 NAT Q1=    5371.70  WSEL=      593.77  ENC Q1=     5371.70  WSEL=      593.87  RATIO=   0.0000
 NAT Q1=    5478.  RATIOS LOB, CH, ROB=   0.7781  0.1761  0.0458  WSEL=      593.87

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.78

3470 ENCROACHMENT STATIONS=       180.5      743.4  TYPE=       4  TARGET=         0.019
 11700.000      14.29     593.89       0.00     593.77     593.90       0.01       0.02       0.00     587.80
    3923.0     3074.5      704.0      144.5     3593.5      603.5      314.7     1317.6      152.6     586.30
      3.68       0.86       1.17       0.46      0.049      0.047      0.080      0.000     579.60     180.46
  0.000053       100.       409.       350.          1          0          0       0.00     562.98     743.44

CCHV=     0.500 CEHV=      0.100
1490 NH CARD USED
*SECNO 12750.000
 2800 NAT Q1=    2047.99  WSEL=      593.85  ENC Q1=     2047.99  WSEL=      593.95  RATIO=   0.0000
 NAT Q1=    2097.  RATIOS LOB, CH, ROB=   0.1748  0.2471  0.5782  WSEL=      593.95

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  0.38

3470 ENCROACHMENT STATIONS=       261.2      557.3  TYPE=       4  TARGET=         0.023
 12750.000      14.14     593.96       0.00     593.85     594.00       0.04       0.10       0.00     582.00
    2714.0      452.6      684.3     1577.1      426.7      287.1     1290.0     1406.2      164.6     582.00
      3.91       1.06       2.38       1.22      0.069      0.045      0.054      0.000     579.82     261.21
  0.000174      1050.      1050.      1600.          2          0          0       0.00     296.11     557.32
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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

1490 NH CARD USED
*SECNO 14540.000
 2800 NAT Q1=     1774.27  WSEL=      594.14  ENC Q1=     1774.27  WSEL=      594.24  RATIO=   0.0000
 NAT Q1=    1823.  RATIOS LOB, CH, ROB=   0.7008  0.2601  0.0391  WSEL=      594.24

3470 ENCROACHMENT STATIONS=       897.6     1300.8  TYPE=      4  TARGET=         0.027
 14540.000     14.05     594.25       0.00     594.14     594.28       0.04       0.28       0.00     588.00
    2714.0    1910.3      722.7       80.9     2089.9      290.9       59.7     1475.7      175.3     582.70
      4.20      0.91       2.48       1.36      0.080      0.044      0.050      0.000     580.20     897.63
  0.000232     1350.      1790.      1200.          0          0          0       0.00     403.22    1300.85

1490 NH CARD USED
*SECNO 15330.000
 2800 NAT Q1=     1921.76  WSEL=      594.31  ENC Q1=     1921.76  WSEL=      594.41  RATIO=   0.0000
 NAT Q1=    1975.  RATIOS LOB, CH, ROB=   0.4145  0.1146  0.4709  WSEL=      594.41

3470 ENCROACHMENT STATIONS=        67.2      450.8  TYPE=      4  TARGET=         0.027
 15330.000     10.42     594.42       0.00     594.31     594.44       0.02       0.15       0.01     584.00
    2714.0    1117.6      319.7     1276.8     1227.5      161.5     1035.8     1513.9      181.4     584.00
      4.37      0.91       1.98       1.23      0.080      0.040      0.059      0.000     584.00      67.15
  0.000200      650.       760.       760.          1          0          0       0.00     383.69     450.84

1490 NH CARD USED
*SECNO 16690.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  0.57


3470 ENCROACHMENT STATIONS=       714.0      855.0  TYPE=      1  TARGET=       141.000
 16690.000     13.17     594.67       0.00     594.56     594.86       0.19       0.40       0.02     584.20
    2749.0     756.0      988.5     1004.5      355.2      205.5      363.1     1561.0      188.7     583.20
      4.47      2.13       4.81       2.77      0.052      0.040      0.041      0.000     581.50     714.00
  0.000632     1350.      1390.      1040.          1          0          0       0.00     141.00     855.00

CCHV=     0.500 CEHV=     1.000
1490 NH CARD USED
*SECNO 16730.000

3265 DIVIDED FLOW
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3470 ENCROACHMENT STATIONS= 1400.0 1530.0 TYPE= 1 TARGET= 130.000

16730.000	14.03	594.83	0.00	594.73	594.93	0.10	0.02	0.05	589.50
2749.0	0.0	2749.0	0.0	0.0	1089.4	0.0	1561.9	188.9	100000.00
4.48	0.00	2.52	0.00	0.000	0.039	0.000	0.000	580.80	1400.00
0.000409	40.	40.	40.	2	0	0	0.00	127.60	1530.00

SPECIAL BRIDGE

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
0.00	1.86	3.04	0.00	130.00	0.00	1302.70	0.00	580.80	580.80

*SECNO 16771.000

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS= 0.000 EGLWC= 595.110 ELLC= 596.500 PCWSE= 594.827 ELTRD= 599.200

3265 DIVIDED FLOW

3370 NORMAL BRIDGE, NRD= 27 MIN ELTRD= 599.20 MAX ELLC= 596.50

3470 ENCROACHMENT STATIONS= 1400.0 1530.0 TYPE= 1 TARGET= 130.000

16771.000	14.04	594.84	0.00	594.75	594.94	0.10	0.02	0.00	589.50
2749.0	0.0	2749.0	0.0	0.0	1091.4	0.0	1563.0	189.0	100000.00
4.48	0.00	2.52	0.00	0.000	0.039	0.000	0.000	580.80	1400.00
0.000407	41.	41.	41.	2	0	0	-0.20	127.60	1530.00

THIS RUN EXECUTED 11JAN94 12:15:45

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HEC-2 WATER SURFACE PROFILES

Version 4.6.0; February 1991
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

E BRANCH OF THE CLINTON

SUMMARY PRINTOUT TABLE 110

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
	0.000	593.10	0.00	593.11	815.00	898.13	627.40	2714.47	0.00	0.00	380.00	410.00	0.00
	0.000	593.20	0.10	593.21	670.00	884.71	632.83	2722.45	0.01	114.13	380.00	410.00	784.13
	450.000	593.11	0.00	593.11	815.00	887.57	638.15	2714.28	0.00	0.00	380.00	410.00	0.00
	450.000	593.21	0.10	593.21	649.08	873.63	643.72	2722.65	0.01	132.44	380.00	410.00	781.53
	1420.000	593.13	0.00	593.13	1197.38	2204.78	530.28	1504.94	0.00	0.00	750.00	800.00	0.00
	1420.000	593.23	0.10	593.23	1087.21	2211.40	535.94	1492.66	0.02	32.72	750.00	800.00	1119.94
	2350.000	593.14	0.00	593.14	1065.47	891.05	611.90	2737.05	0.00	0.00	400.00	430.00	0.00
	2350.000	593.24	0.10	593.24	768.09	867.03	617.30	2755.68	0.02	302.96	400.00	430.00	1071.06
	3220.000	593.15	0.00	593.16	845.96	2361.96	1465.72	72.32	1050.00	1200.00	1900.00	1981.00	2250.00
	3220.000	593.25	0.10	593.26	849.97	2374.00	1452.75	73.25	1050.00	1200.00	1900.00	1981.00	2250.00
	3268.000	593.15	0.00	593.17	872.00	2058.07	1830.40	11.53	872.00	1200.00	1980.00	2060.10	2072.00
	3268.000	593.25	0.10	593.27	872.00	2079.77	1808.38	11.86	872.00	1200.00	1980.00	2060.10	2072.00
	3269.000	593.15	0.00	593.17	874.00	2578.00	1305.42	16.58	874.00	1200.00	1980.00	2060.10	2074.00
	3269.000	593.25	0.10	593.27	874.00	2594.17	1288.82	17.01	874.00	1200.00	1980.00	2060.10	2074.00
	3304.000	593.16	0.00	593.17	920.00	2556.26	1293.23	50.52	920.00	1200.00	1980.00	2060.10	2120.00
	3304.000	593.26	0.10	593.27	920.00	2570.99	1276.20	52.81	920.00	1200.00	1980.00	2060.10	2120.00
	3305.000	593.16	0.00	593.17	922.00	2039.67	1812.70	47.63	922.00	1200.00	1980.00	2060.10	2122.00
	3305.000	593.26	0.10	593.27	922.00	2060.15	1790.11	49.74	922.00	1200.00	1980.00	2060.10	2122.00
	5050.000	593.24	0.00	593.25	379.00	2868.89	1002.85	28.26	0.00	0.00	500.00	544.00	0.00
	5050.000	593.33	0.10	593.35	327.32	2883.56	1014.50	1.94	0.01	217.45	500.00	544.00	544.77
*	6120.000	593.28	0.00	593.29	770.32	1696.85	253.17	1949.99	0.00	0.00	515.00	534.50	0.00
*	6120.000	593.38	0.10	593.38	647.17	1684.08	256.18	1959.74	0.02	289.17	515.00	534.50	936.34

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
6134.000	593.29	0.00	593.30	771.51	1695.96	252.81	1951.23	0.00	0.00	515.00	534.50	0.00
6134.000	593.39	0.10	593.40	647.17	1683.11	255.78	1961.11	0.02	289.17	515.00	534.50	936.34
8150.000	593.34	0.00	593.35	659.15	2634.53	612.45	653.02	0.00	0.00	1400.00	1448.00	0.00
8150.000	593.44	0.10	593.45	540.62	2648.97	619.52	631.51	0.02	1001.74	1400.00	1448.00	1542.36
* 8700.000	593.36	0.00	593.38	717.34	2973.73	724.68	201.59	0.00	0.00	680.00	705.00	0.00
* 8700.000	593.46	0.10	593.48	619.28	3009.61	731.26	159.14	0.03	105.93	680.00	705.00	725.21
9350.000	593.42	0.00	593.44	569.48	1282.07	525.43	2092.50	0.00	0.00	300.00	320.00	0.00
9350.000	593.52	0.10	593.54	454.77	1271.42	531.44	2097.14	0.02	117.24	300.00	320.00	572.01
10180.000	593.50	0.00	593.52	544.74	1136.80	775.98	1987.21	0.00	0.00	1765.00	1800.00	0.00
10180.000	593.59	0.10	593.62	431.35	1131.60	783.64	1984.77	0.02	1523.33	1765.00	1800.00	1954.68
10880.000	593.59	0.00	593.62	548.63	956.47	1049.64	1916.89	0.00	0.00	1765.00	1803.10	0.00
10880.000	593.69	0.10	593.72	435.46	946.90	1061.16	1914.94	0.02	1518.34	1765.00	1803.10	1953.80
10895.000	593.70	0.00	593.73	554.25	1310.27	1090.98	1521.75	0.00	0.00	1765.00	1803.10	0.00
10895.000	593.81	0.11	593.84	435.46	1309.34	1100.00	1513.67	0.02	1518.34	1765.00	1803.10	1953.80
10965.000	593.72	0.00	593.74	469.06	2440.26	1143.07	339.67	0.00	0.00	653.00	700.00	0.00
10965.000	593.83	0.11	593.85	382.17	2456.52	1156.11	310.37	0.02	362.51	653.00	700.00	744.68
11275.000	593.75	0.00	593.76	732.63	2085.75	422.02	1415.23	0.00	0.00	561.90	584.50	0.00
11275.000	593.86	0.11	593.88	648.51	2083.07	425.65	1414.27	0.02	213.06	561.90	584.50	861.57
* 11276.000	593.75	0.00	593.77	732.72	1512.17	126.02	2284.81	0.00	0.00	561.90	584.50	0.00
* 11276.000	593.86	0.11	593.88	641.85	1501.80	127.70	2293.50	0.02	219.89	561.90	584.50	861.74
11290.000	593.75	0.00	593.77	732.73	1512.17	126.01	2284.82	0.00	0.00	561.90	584.50	0.00
11290.000	593.86	0.11	593.88	641.89	1501.82	127.69	2293.49	0.02	219.86	561.90	584.50	861.75
* 11291.000	593.75	0.00	593.77	732.73	1906.48	579.18	1437.34	0.00	0.00	561.90	584.50	0.00
* 11291.000	593.86	0.11	593.88	648.70	1901.69	583.64	1437.67	0.02	213.54	561.90	584.50	862.24
* 11700.000	593.77	0.00	593.79	635.01	3048.15	695.98	178.87	0.00	0.00	653.00	700.00	0.00
* 11700.000	593.89	0.11	593.90	562.98	3074.53	704.01	144.46	0.02	180.46	653.00	700.00	743.44
* 12750.000	593.85	0.00	593.89	351.97	474.12	677.82	1562.06	0.00	0.00	320.00	342.00	0.00
* 12750.000	593.96	0.11	594.00	296.11	452.57	684.28	1577.15	0.02	261.21	320.00	342.00	557.32
14540.000	594.14	0.00	594.17	479.56	1893.27	715.13	105.60	0.00	0.00	1268.00	1293.00	0.00
14540.000	594.25	0.11	594.28	403.22	1910.32	722.73	80.95	0.03	897.63	1268.00	1293.00	1300.85
15330.000	594.31	0.00	594.33	488.60	1125.52	313.08	1275.40	0.00	0.00	260.00	280.00	0.00
15330.000	594.42	0.11	594.44	383.69	1117.55	319.68	1276.77	0.03	67.15	260.00	280.00	450.84
* 16690.000	594.56	0.00	594.76	141.00	750.56	999.47	998.97	141.00	714.00	778.00	795.00	855.00
* 16690.000	594.67	0.11	594.86	141.00	756.00	988.51	1004.48	141.00	714.00	778.00	795.00	855.00

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
16730.000	594.73	0.00	594.83	127.60	0.00	2749.00	0.00	130.00	1400.00	1400.00	1530.00	1530.00
16730.000	594.83	0.10	594.93	127.60	0.00	2749.00	0.00	130.00	1400.00	1400.00	1530.00	1530.00
16771.000	594.75	0.00	594.85	127.60	0.00	2749.00	0.00	130.00	1400.00	1400.00	1530.00	1530.00
16771.000	594.84	0.10	594.94	127.60	0.00	2749.00	0.00	130.00	1400.00	1400.00	1530.00	1530.00

SUMMARY OF ERRORS AND SPECIAL NOTES

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WARNING SECNO=    6120.000   PROFILE=  1   CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    6120.000   PROFILE=  2   CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    8700.000   PROFILE=  1   CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    8700.000   PROFILE=  2   CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   11276.000   PROFILE=  1   CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   11276.000   PROFILE=  2   CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   11291.000   PROFILE=  1   CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   11291.000   PROFILE=  2   CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   11700.000   PROFILE=  1   CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   11700.000   PROFILE=  2   CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   12750.000   PROFILE=  1   CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   12750.000   PROFILE=  2   CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   16690.000   PROFILE=  1   CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   16690.000   PROFILE=  2   CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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Floodway width summary: E BRANCH OF THE CLINTON
Profile No. 2

Section Number	Elevation Increase	Top Width	Left Encroach Station	Left Sta Distance From Center	Center Station	Right Sta Distance From Center	Right Encroach Station
0.000	0.10	670.00	114.13	280.87	395.00	389.13	784.13
450.000	0.10	649.08	132.44	262.56	395.00	386.53	781.53
1420.000	0.10	1087.22	32.72	742.28	775.00	344.94	1119.94
2350.000	0.10	768.09	302.96	112.04	415.00	656.06	1071.06
3220.000	0.10	1050.00	1200.00	740.50	1940.50	309.50	2250.00
3268.000	0.10	872.00	1200.00	820.05	2020.05	51.95	2072.00
3269.000	0.10	874.00	1200.00	820.05	2020.05	53.95	2074.00
3304.000	0.10	920.00	1200.00	820.05	2020.05	99.95	2120.00
3305.000	0.10	922.00	1200.00	820.05	2020.05	101.95	2122.00
5050.000	0.10	327.32	217.45	304.55	522.00	22.77	544.77
6120.000	0.10	647.17	289.17	235.58	524.75	411.59	936.34
6134.000	0.10	647.17	289.17	235.58	524.75	411.59	936.34
8150.000	0.10	540.62	1001.74	422.26	1424.00	118.36	1542.36
8700.000	0.10	619.28	105.93	586.57	692.50	32.71	725.21
9350.000	0.10	454.77	117.24	192.76	310.00	262.01	572.01
10180.000	0.10	431.35	1523.33	259.17	1782.50	172.18	1954.68
10880.000	0.10	435.46	1518.34	265.71	1784.05	169.75	1953.80
10895.000	0.11	435.46	1518.34	265.71	1784.05	169.75	1953.80
10965.000	0.11	382.17	362.51	313.99	676.50	68.18	744.68
11275.000	0.11	648.51	213.06	360.14	573.20	288.37	861.57
11276.000	0.11	641.85	219.89	353.31	573.20	288.54	861.74
11290.000	0.11	641.90	219.86	353.34	573.20	288.55	861.75
11291.000	0.11	648.70	213.54	359.66	573.20	289.04	862.24
11700.000	0.11	562.98	180.46	496.04	676.50	66.94	743.44
12750.000	0.11	296.11	261.21	69.79	331.00	226.32	557.32
14540.000	0.11	403.22	897.63	382.87	1280.50	20.35	1300.85
15330.000	0.11	383.69	67.15	202.85	270.00	180.84	450.84
16690.000	0.11	141.00	714.00	72.50	786.50	68.50	855.00
16730.000	0.10	130.00	1400.00	65.00	1465.00	65.00	1530.00
16771.000	0.10	130.00	1400.00	65.00	1465.00	65.00	1530.00

FLOODWAY DATA, E BRANCH OF THE CLINTON
PROFILE NO. 2

STATION	------- FLOODWAY ------- WIDTH	SECTION AREA	MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
0.000	670.	7235.	0.6	593.2	593.1	0.1
450.000	649.	6981.	0.6	593.2	593.1	0.1
1420.000	1087.	11134.	0.4	593.2	593.1	0.1
2350.000	768.	6938.	0.6	593.2	593.1	0.1
3220.000	850.	5724.	0.7	593.3	593.2	0.1
3268.000	872.	5374.	0.7	593.3	593.2	0.1
3269.000	874.	5026.	0.8	593.3	593.2	0.1
3304.000	920.	5126.	0.8	593.3	593.2	0.1
3305.000	922.	5496.	0.7	593.3	593.2	0.1
5050.000	327.	4140.	0.9	593.3	593.2	0.1
6120.000	547.	5543.	0.7	593.4	593.3	0.1
6134.000	647.	5556.	0.7	593.4	593.3	0.1
8150.000	541.	4383.	0.9	593.4	593.3	0.1
8700.000	619.	3458.	1.1	593.5	593.4	0.1
9350.000	455.	3595.	1.1	593.5	593.4	0.1
10180.000	431.	3160.	1.2	593.6	593.5	0.1
10880.000	435.	3265.	1.2	593.7	593.6	0.1
10895.000	435.	3318.	1.2	593.8	593.7	0.1
10965.000	382.	3487.	1.1	593.8	593.7	0.1
11275.000	649.	4649.	0.8	593.9	593.8	0.1
11276.000	642.	4590.	0.9	593.9	593.8	0.1
11290.000	642.	4590.	0.9	593.9	593.8	0.1
11291.000	649.	4657.	0.8	593.9	593.8	0.1
11700.000	563.	4512.	0.9	593.9	593.8	0.1
12750.000	296.	2004.	1.4	593.9	593.8	0.1
14540.000	403.	2440.	1.1	594.2	594.1	0.1
15330.000	384.	2425.	1.1	594.4	594.3	0.1
16690.000	141.	924.	3.0	594.7	594.6	0.1
16730.000	130.	1089.	2.5	594.8	594.7	0.1
16771.000	130.	1091.	2.5	594.8	594.7	0.1

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Clinton Twp.

3) WATERCOURSE: Middle Branch Clinton River

4) DOCUMENT TYPE: Updated 100 year flow Natural. Run.

00BREAK00

THIS RUN EXECUTED 11JAN94 12:15:39

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HEC-2 WATER SURFACE PROFILES

Version 4.6.0, February 1991

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T1 CLINTON TOWNSHIP FLOOD INSURANCE STUDY
T2 UPDATED 100-YEAR FLOOD STS CONSULTANTS LTD 12/93 MNW
T3 MIDDLE BRANCH OF THE CLINTON RIVER - NATURAL 100 YEAR PROFILE

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-1.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	593.10	0.0

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	1.0	0.0	-1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

J3 VARIABLE CODES FOR SUMMARY PRINTOUT

110.0	115.0	200.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

NC	.07	.07	.03	.10	.30	0.0	0.0	0.0	0.0	0.0
NH	3.0	.07	380.0	.04	410.0	.05	815.0	0.0	0.0	0.0
QT	2.0	4240.0	4240.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ET	0.0	0.0	1.4							
X1	0.0	21.0	380.0	410.0	0.0	0.0	0.0	0.0	-.30	0.0
GR	592.0	0.0	590.0	205.0	588.0	245.0	586.0	270.0	584.0	278.0
GR	582.0	285.0	580.0	300.0	578.0	360.0	576.0	370.0	574.0	380.0
GR	573.1	395.0	574.0	410.0	576.0	415.0	578.0	425.0	580.0	430.0
GR	582.0	715.0	584.0	735.0	586.0	760.0	588.0	780.0	590.0	800.0
GR	592.0	815.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NH	3.0	.07	380.0	.04	410.0	.05	815.0	0.0	0.0	0.0
X1	450.0	0.0	0.0	0.0	450.0	450.0	450.0	0.0	.30	0.0
NH	4.0	.07	758.0	.04	792.0	.07	1153.0	.04	1700.0	0.0
X1	1420.0	30.0	750.0	800.0	970.0	970.0	970.0	0.0	0.0	0.0
GR	588.6	0.0	587.4	100.0	587.8	300.0	588.5	360.0	579.7	382.0
GR	579.7	400.0	581.7	500.0	582.5	600.0	579.6	700.0	582.1	750.0
GR	577.3	758.0	575.9	762.0	574.0	768.0	573.7	774.0	573.8	780.0
GR	573.9	786.0	575.0	792.0	582.8	800.0	582.3	900.0	579.4	1000.0
GR	579.5	1085.0	582.5	1100.0	591.8	1153.0	593.2	1200.0	595.0	1260.0
GR	594.5	1300.0	595.1	1400.0	595.4	1500.0	595.5	1600.0	595.2	1700.0
NH	5.0	.05	390.0	.07	400.0	.04	430.0	.07	462.0	.05
NH	1400.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
X1	2350.0	25.0	400.0	430.0	980.0	780.0	930.0	0.0	0.0	0.0
GR	594.0	0.0	592.0	275.0	590.0	295.0	588.0	300.0	586.0	305.0
GR	584.0	310.0	582.0	315.0	580.0	325.0	580.0	390.0	578.0	393.0
GR	576.0	400.0	574.32	415.0	576.0	430.0	578.0	435.0	580.0	440.0
GR	582.0	452.0	584.0	462.0	584.0	830.0	586.0	845.0	588.0	890.0

GR	588.0	1060.0	590.0	1085.0	592.0	1110.0	594.0	1240.0	596.0	1400.0
NH	5.0	05	1900.0	.07	1905.0	.04	1978.0	.07	1981.0	.05
NH	2250.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
QT	2.0	3900.0	3900.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ET	0.0	6.1	6.1	0.0	0.0	1200.0	2250.0	0.0	0.0	0.0
X1	3220.0	40 0	1900.0	1981.0	920.0	720.0	870.0	0.0	0.0	0.0
X3	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GR	596.0	0.0	595.5	100.0	595.1	200.0	594.9	300.0	594.8	400.0
GR	594.2	500.0	593.7	600.0	591.3	700.0	588.3	800.0	587.7	900.0
GR	587.8	942.5	587.7	967.0	588.1	1000.0	589.2	1100.0	591.0	1200.0
GR	590.9	1300 0	589.3	1400.0	589.3	1400.0	589.3	1400.0	589.3	1400.0
GR	588 0	1600.0	583.1	1700.0	583.2	1800.0	584.3	1880.0	581.9	1900.0
GR	577.2	1905 0	575.7	1910.0	575.2	1915.0	574.9	1920.0	575.0	1925.0
GR	575.4	1930 0	575.7	1935.0	576.9	1938.0	577.1	1978.0	580.0	1981.0
GR	592.0	2000 0	594.5	2100.0	595.3	2175.0	596.0	2230.0	596.5	2250.0
NC	.055	055	.04	0 3	0.5	0.0	0.0	0.0	0.0	0.0
ET	0.0	6 1	6.1	0.0	0.0	1200.0	2072.0	0.0	0.0	0.0
X1	3268.0	33 0	1980.0	2060.1	48.0	48.0	48.0	0.0	0.0	0.0
X3	10 0	0 0	0.0	0.0	0.0	0.0	0.0	587.0	590.0	0.0
GR	596 0	0 0	595.5	100.0	595.1	200.0	594.9	300.0	594.8	400.0
GR	594 2	500 0	593.7	600.0	591.3	700.0	588.3	800.0	587.7	900.0
GR	588 7	942 0	588.9	967.0	589.2	1000.0	589.5	1100.0	589.7	1200.0
GR	589 0	1300 0	588.5	1400.0	587.3	1600.0	587.6	1800.0	588.0	1900.0
GR	588.7	1950 0	589.3	1980.0	579.3	1980.1	577.4	1992.0	576.8	1995.0
GR	577.4	2002 0	576.3	2008.0	574.8	2018.0	574.4	2027.0	574.2	2038.0
GR	576 5	2045 0	579.5	2060.0	590.0	2060.1	591.0	2102.0	593.3	2202.0
GR	596 2	2277 0	595.4	2300.0	596.7	2400.0	0.0	0.0	0.0	0.0
NC	.05	05	.02	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ET	0.0	6 1	6.1	0.0	0.0	1200.0	2074.0	0.0	0.0	0.0
X1	3269.0	0 0	0.0	0.0	1.0	1.0	1.0	0.0	0.0	0.0
BT	18.0	900 0	587.7	587.7	942.0	588.7	588.7	967.0	588.9	588.9
BT	1000 0	589.2	589.2	1100.0	589.5	589.5	1200.0	589.7	589.7	1300.0
BT	589.0	589 0	1400.0	588.5	588.5	1600.0	587.3	587.3	1800.0	587.6
BT	587 6	1900 0	588.0	588.0	1950.0	588.7	588.7	1980.0	589.3	589.3
BT	1980.1	589 3	584.3	2060.0	590.0	586.2	2060.1	590.0	590.0	2102.0
BT	591.3	591 0	2202.0	595.0	593.3	0.0	0.0	0.0	0.0	0.0
ET	0 0	6 1	6.1	0.0	0.0	1200.0	2120.0	0.0	0.0	0.0
X1	3304.0	0.0	0.0	0.0	35.0	35.0	35.0			
X2							1.0			
NC	.055	055	.04							
ET	0.0	6 1	6.1	0.0	0.0	1200.0	2122.0	0.0	0.0	0.0
X1	3305 0	0 0	0.0	0.0	1.0	1.0	1.0	0.0	0.0	0.0
X3	10.0	0.0	0.0	0.0	0.0	0.0	0.0	587.3	590.0	0.0

NC				0.2	0.4					
NH	6.0	.05	220.0	.075	500.0	.06	512.0	.045	536.0	.06
NH	544.0	.04	900.0							
ET	0 0	0.0	1.4							
X1	5050.0	19.0	500.0	544.0	1450 0	1745.0	1745.0			
GR	594.5	0.0	594.5	100.0	594.0	200.0	586.0	220.0	580.4	303.0
GR	580.4	400.0	580.3	500.0	577.1	507.0	576.0	512.0	575.6	517.0
GR	575.6	522.0	575.7	527.0	575.9	532.0	576.8	536.0	582.1	544.0
GR	592.0	550.0	594.0	600.0	596.0	800.0	599.0	900.0	0.0	0.0

NH	5.0	.05	500 0	.06	515.0	.045	534.5	.06	538.0	.04
NH	1572.0									
ET	0.0	0.0	1.41							
X1	6120 0	36.0	515.0	534.5	950.0	600.0	1070.0			
GR	594 5	0.0	593.7	100.0	594.5	200.0	593.2	265.0	584.0	294.0
GR	581 1	303.0	581.4	315.0	582.9	400.0	582.9	415.0	583.0	500.0
GR	583 0	515.0	579.1	515.1	577.4	518.0	576.8	523.0	576.7	528.0
GR	576 8	532.0	578.8	534.4	581.8	534.5	581.9	538.0	582.5	560.0
GR	583 5	595 0	583.6	600.0	584.5	660.0	584.6	670.0	585.1	700.0
GR	588.3	800 0	590 1	900.0	592.1	1000.0	595.9	1100.0	596.7	1132.0
GR	596.3	1200.0	597.8	1300.0	597.0	1400.0	596.5	1500.0	596.1	1515.0
GR	598.1	1572.0								

SB	0 0	1 53	3.04	0.0	19.5	0.0	197.8	0.0	576.7	576.7
X1	6134.0	0 0	0.0	0.0	14.0	14.0	14.0			
X2	0.0	0.0	1.0	587.4	588.2					
BT	22.0	0.0	594.5	560.0	100.0	594.5	560.0	200.0	594.5	560.0
BT	265.0	593.2	560.0	294.0	584.0	560.0	315.0	583.3	560.0	415.0
BT	584.2	560.0	515.0	588.2	583.0	515.1	588.2	587.4	534.4	588.3
BT	587 3	534.5	588.3	581.8	538.0	588.3	560.0	560.0	588.9	560.0
BT	595.0	589 4	560.0	660.0	597.4	560.0	670.0	597.3	560.0	1132.0
BT	596.7	560.0	1300.0	597.8	560.0	1400.0	597.0	560.0	1500.0	596.5
BT	560.0	1515 0	596.1	560.0	1572.0	598.1	560.0			

NH	7.0	05	800.0	.095	960.0	.045	1400 0	.07	1413.0	.05
NH	1440.0	.07	1448.0	.03	2600.0					
ET	0 0	0.0	1.4							
X1	8150.0	42.0	1400.0	1448.0	1500.0	2016.0	2016.0			
GR	595.5		595.5	100.0	595.5	200.0	595.5	300.0	595.4	400.0
GR	595.1	500.0	595.3	600.0	595.9	700.0	596.8	800.0	596.8	900.0
GR	596.8	960.0	589.9	988.0	589.2	1000.0	587.2	1100.0	585.1	1200.0
GR	584.0	1300.0	583.4	1380.0	585.2	1400.0	576.7	1413.0	576.5	1420.0
GR	577.4	1430.0	577.0	1435.0	578.1	1440.0	585.2	1448.0	587.1	1500.0
GR	592.2	1570.0	592.5	1600.0	593.3	1633.0	596.6	1653.0	597.3	1700.0
GR	596.2	1800.0	594.5	1842.0	596.2	1868.0	596.1	2000.0	597.8	2020.0
GR	598.0	2100.0	598.5	2186.0	598.3	2230.0	597.7	2300.0	596.9	2400.0
GR	596.5	2500.0	596.5	2600.0						

NC				.10	.30					
NH	5.0	.05	660.0	.07	680.0	.05	705.0	.07	730.0	.05
NH	752.0									
X1	8700.0	19.0	680.0	705.0	370.0	550.0	550.0			
GR	596.0		594.0	15.0	592.0	60.0	590.3	135 0	592.0	210.0
GR	592.0	275 0	590.0	340.0	588.0	390.0	586.0	460.0	586.0	660.0
GR	584.0	670.0	582.0	673.0	580.0	680.0	576.36	692.0	580.0	705.0
GR	590.0	730.0	592.0	740.0	594.0	750.0	596.0	752.0		
NH	5.0	05	285.0	.07	300.0	.045	320.0	.07	340.0	.05
NH	620.0									
X1	9350.0	20.0	300.0	320.0	500.0	650.0	650.0			
GR	596 0		594.0	20.0	592.0	70.0	590.0	185.0	588.0	195.0
GR	586.0	200.0	584.0	205.0	584.0	285.0	582.0	292.0	580.0	300.0
GR	576.3	310.0	580.0	320.0	582.0	330.0	584.0	340.0	586.0	505.0
GR	588 0	550.0	590.0	580.0	592.0	590.0	594.0	610.0	596.0	620.0
NH	8.0	05	1700.0	.09	1769.0	.07	1777.0	.045	1795.0	.07
NH	1800.0	05	1964.0	.035	2300.0	.04	2500.0			
X1	10180	16.0	1765.0	1800 0	830.0	830.0	830.0			
GR	597.1	0 0	596.6	100.0	596.4	200.0	596.4	300.0	596.1	400.0
GR	596.0	500.0	595.3	600.0	596.1	700.0	596.4	800.0	596.3	900.0
GR	597.3	1000 0	597.4	1100.0	597.4	1200.0	597.1	1300.0	594.9	1400.0
GR	591.8	1500 0	590.2	1600.0	586.3	1700.0	584.3	1765.0	580.4	1769.0
GR	578.3	1777.0	577.6	1780.0	576.0	1785.0	577.1	1790.0	578.6	1795.0
GR	584.2	1800 0	584.5	1900.0	585.1	1935.0	591.7	1964.0	594.2	2000.0
GR	597.6	2100 0	597.1	2200.0	597.6	2232.0	596.1	2300.0	595.9	2400.0
GR	596.1	2500 0								
NC				.50	1.0					
NH	6.0	045	1600.0	.085	1765.0	.085	1769.0	.040	1800.0	.07
NH	1803.0	05	2500.0							
QT	2.0	3923 0	3923.0							
ET	0.0	0 0	1.41							
X1	10880	42 0	1765.0	1803.1	750.0	700.0	700.0			
GR	597.1	0 0	596.6	100.0	596.4	200.0	596.4	300.0	596.1	400.0
GR	596.0	500.0	595.3	600.0	596.1	700.0	596.4	800.0	596.3	900.0
GR	597.3	1000.0	597.4	1100.0	597.4	1200.0	597.1	1300.0	594.9	1400.0
GR	591.8	1500.0	590.2	1600.0	586.3	1700.0	584.3	1765.0	580.2	1765.1
GR	577.6	1769.0	577.6	1777.0	576.8	1785.0	577.1	1793.0	578.3	1800.0
GR	580.5	1803.0	584.2	1803.1	584.3	1822.0	584.4	1854.0	584.4	1865.0
GR	584.4	1883 0	584.5	1900.0	585.1	1935.0	591.7	1964.0	594.2	2000.0
GR	595.9	2050 0	597.6	2100.0	597.1	2200.0	597.6	2232.0	596.1	2300.0
GR	595.9	2400 0	596.1	2500.0						
SB		1 53	3.09		38.0		504.3		576.8	576.8
NC	.045	.05	.04							
X1	10895.	0.0	0.0	0.0	15.0	15.0	15.0			
X2			1.0	591.0	591.8					
BT	34.0	0 0	597.1	587.1	100.0	596.6	596.6	200.0	596.4	596.4
BT	300.0	596.4	596.4	400.0	596.1	596.1	500.0	596.0	596.0	600.0
BT	595.3	595.3	700.0	596.1	596.1	800.0	596.4	596.4	900.0	596.3
BT	596.3	1000.0	597.3	597.3	1100.0	597.4	597.4	1200.0	597.4	597.4

BT	1300.0	597.1	597.1	1400.0	594.9	594.9	1500.0	591.8	591.8	1600.0
BT	591.4	590.2	1700.0	591.5	586.3	1765.0	592.1	584.3	1765.1	592.1
BT	590.9	1803.0	592.2	591.0	1803.1	592.2	584.2	1822.0	592.0	584.3
BT	1854 0	593.8	584.4	1865.0	593.5	584.4	1883.0	593.5	584.4	1900.0
BT	595.9	584.5	2050.0	595.9		2100.0	597 6		2200.0	597.1
BT		2232.0	597.6		2300.0	596.1		2400.0	595.9	
BT	2500.0	596.1								

ET	0 0	0.0	1.4							
X1	10965.	23.0	653.0	700.0	120.0	90.0	100.0	0.0	0.0	0.0
GR	597.3	0.0	596.2	100.0	596.0	200.0	594.0	300.0	587.0	400.0
GR	585.0	500.0	584.0	600.0	585.2	653.0	577.8	662.0	577.0	670.0
GR	577.0	682.0	577.0	689.0	577.8	694.0	583.7	700.0	588.0	744.0
GR	593.7	773.0	595.0	787.0	595.1	800.0	596.0	820.0	595.0	1000.0
GR	594.9	1100.0	594.9	1200.0	596.5	1201.0				

X1	11275.	32.0	561.9	584.5	380.0	380.0	380.0			
GR	597.3	0.0	596.1	115.5	588.4	230.9	586.5	346.4	585.9	461.9
GR	586.4	511.9	587.6	548.9	588.0	557.9	584.2	561 9	581.9	562.0
GR	580 6	563.9	580.1	566.9	579.0	569.9	577.9	573.9	578.7	578.9
GR	578 8	581.9	579 9	584.4	584.7	584.5	588.1	586.9	587.9	588.9
GR	587.5	599.9	586 6	661.9	587.8	754.0	586.3	808.3	587.0	859.1
GR	596.3	892.6	597.8	908.7	597.5	923.8	598.2	1039.2	597.5	1154.7
GR	597 4	1270 2	597.2	1385.6						

NC	.04	.02	.04							
X1	11276	0.0	0.0	0.0	1.0	1.0	1.0			
BT	26 0	0.0	597.3	597.3	115.5	596.1	596.1	230.9	588.4	588.4
BT	346 4	586 5	586.5	461.9	585.9	585.9	511.9	586.4	586.4	548.9
BT	587 6	587 6	557.9	588.0	588.0	561.9	588.2	584.2	562.0	588.2
BT	587 2	584.4	588.3	587.3	584.5	588.3	584.7	586.9	588.1	588.1
BT	588.9	587.9	587.9	599.9	587.5	587.5	661.9	586.6	586.6	754.0
BT	587.8	587.8	808.3	586.3	586.3	859.1	587.0	587.0	892.6	596.3
BT	596 3	908 7	597.8	597.8	923.8	597.5	597.5	1039.2	598.2	598.2
BT	1154.7	597.5	597.5	1270.2	597.4	597.4	1385.6	597.2	597.2	0.0

X1	11290	0 0	0.0	0.0	14.0	14.0	14.0			
X2							1.0			

NH	3.0	09	561.9	.045	584.4	.09	1385.6			
X1	11291				1.0	1.0	1.0			

NH	7.0	.04	500.0	.09	653.0	.05	662.0	.045	689.0	.05
NH	700.0	08	773.0	.05	1200.0					
X1	11700.	22.0	653.0	700.0	100.0	350.0	409.0			
GR	597 3		596.1	100.0	588.4	200.0	586.5	300.0	585.9	400.0
GR	584.2	500.0	586.6	600.0	587.8	653.0	580.4	662.0	579.6	670.0
GR	579.6	682.0	579.6	689.0	580.4	694.0	586.3	700.0	587.0	744.0
GR	596.3	773.0	597.8	787.0	597.5	800.0	598.2	900.0	597.5	1000.0
GR	597.4	1100.0	597.2	1200.0						

NC					.10	.30				
NH	7.0	.04	250.0	.09	308.0	.05	320.0	.045	342.0	.05
NH	355.0	.08	400.0	.05	640.0					
QT	2.0	2714.0	2714.0							
X1	12750.	20.0	320 0	342.0	1050.0	1600.0	1050.0			
GR	596.5	0.0	594.0	230.0	592.0	250.0	590.0	260.0	588.0	275.0
GR	586.0	308.0	584.0	310.0	582.0	320.0	579.82	331.0	582.0	342.0
GR	584 0	350.0	586.0	355.0	588.0	360.0	589.4	370.0	588.0	400.0
GR	588 0	535.0	590.0	555.0	592.0	565.0	594.0	585.0	597.0	640.0
NH	7.0	.05	1000.0	.09	1268.0	.05	1277.0	.04	1293.0	.05
NH	1300 0	.07	1340 0	.05	2000.0					
X1	14540	29.0	1268.0	1293.0	1350.0	1200.0	1790.0			
GR	598 1	0 0	597 2	100.0	596.1	200.0	596.3	300.0	596.9	400.0
GR	596.8	500.0	596.3	600.0	596.3	700.0	596.1	800.0	591.6	900.0
GR	588 6	1000 0	587 7	1100.0	587.4	1200.0	589.5	1255.0	588.0	1268.0
GR	582 3	1277 0	580 9	1281.0	580 2	1284.0	581.1	1289.0	582.7	1293.0
GR	583 8	1300 0	597 3	1340.0	597.6	1400.0	596.5	1500.0	597.1	1600.0
GR	598 1	1700 0	598.5	1800.0	596.6	1900.0	597.2	2000.0		
NH	6 0	.09	240.0	.05	260.0	.04	280.0	.05	290.0	.07
NH	355 0	05	800.0							
X1	15330	17.0	260.0	280.0	650.0	760.0	760.0			
GR	596 6	0.0	594.0	30.0	592.0	50.0	590.0	75.0	588.0	105.0
GR	588 0	240 0	586 0	250.0	584.0	260 0	588.66	270.0	584.0	280.0
GR	586 0	290 0	588.0	355.0	590.0	420 0	592.0	455.0	594.0	485.0
GR	596 0	680 0	597.0	800.0	0.0	0 0	0.0	0.0	0.0	0.0
QT	2 0	2749 0	2749 0							
NH	8 0	.03	200 0	.05	769.0	.06	778.0	.04	795.0	.06
NH	800 0	04	1200.0	.03	1400.0	.05	2000.0			
X1	16690.	27 0	778 0	795.0	1350.0	1040.0	1390.0			
X3				714.0		855.0				
GR	597 2		596.5	100.0	592.3	200.0	590.5	300.0	588.7	400.0
GR	589 7	500.0	588.8	600.0	589.5	700.0	589.5	769.0	584.2	778.0
GR	583.2	781 0	581.5	789.0	583.2	795.0	589.8	800.0	588.0	850.0
GR	588.2	900.0	588.4	1000.0	589.3	1100.0	596.2	1200.0	598.7	1300.0
GR	597 5	1400.0	598.6	1500.0	598.9	1600.0	597.5	1700.0	598.0	1800.0
GR	598.6	1900.0	599.6	2000.0						
NC				.50	1.0					
NH	5 0	.04	830.0	.06	1400.0	.04	1530.0	.06	1830.0	.04
NH	2630.0									
X1	16730.	48.0	1400 0	1530.0	40.0	40.0	40.0			
X3				1400.0		1530.0				
X4	4.0	589.5	1397.6	589.5	1400.1	588.2	1530.1	588.2	1532.6	
GR	599.2	0.0	599.4	200.0	599.4	400.0	599.4	600.0	597.2	630.0
GR	596.5	730.0	592.3	830.0	590.3	930.0	588.7	1030.0	589.7	1130.0
GR	588.8	1230.0	589.5	1330.0	589.5	1397.5	589.5	1400.0	589.5	1422.0
GR	586.0	1430.0	585.5	1440.0	585.8	1444.4	596.5	1444.4	596.5	1445.6
GR	585.8	1445.6	586.4	1450.0	588.0	1455.0	583.9	1458.0	582.0	1460.0
GR	580 8	1470.0	583.1	1480.0	583.9	1483.0	585.2	1489.4	596.5	1489.4
GR	596 5	1490.6	585.2	1490.6	587.1	1500.0	587.0	1510.0	588.1	1513.0

GR	588.2	1530.0	588.2	1532.5	588.4	1630 0	589.3	1730.0	596.2	1830.0
GR	598.7	1930.0	597.5	2030.0	598.6	2130.0	598.9	2230.0	597.5	2330.0
GR	598.0	2430.0	598.6	2530.0	599.2	2630.0				
SB		1.86	3.04		130.0		1302.7		580.8	580.8
X1	16771.	0.0	0.0	0.0	41.0	41.0	41.0			
X2			1.0	596.5	599.2					
X3				1400.0		1530.0				
BT	27.0	0.0	599.2	599.2	200.0	599.4	599.4	400.0	599.4	599.4
BT	600.0	599.4	599.4	630.0	599.4	597.2	730.0	599.5	596.5	830.0
BT	599.5	592.3	930.0	599.4	590.5	1030.0	599.3	588.7	1130.0	599.3
BT	589.7	1230.0	599.3	588.8	1330.0	599.4	589.5	1397.5	599.4	589.5
BT	1397.6	600.2	589.5	1400.0	600.2	589.5	1400.1	600.2	596.5	1444.4
BT	600.2	596.5	1445.6	600.2	596.5	1489.4	600.2	596.6	1490.6	600.2
BT	596.5	1530.0	600.2	596.5	1530.1	600.2	588.2	1532.5	600.2	588.2
BT	1532 6	599 6	588.2	2230.0	599.6	0.0	2430.0	599.3	0.0	2630.0
BT	599.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 1

CCHV=    0 100 CEHV=     0.300
1490 NH CARO USED
*SECNO 0.000
3280 CROSS SECTION       0.00 EXTENDED       1.40 FEET

    0.000     20.30    593.10      0.00    593.10    593.11      0.01      0.00      0.00    573.70
   4240.0     898.1     627.4    2714.5    2366.0     595.5    4532.0       0.0       0.0    573.70
     0.00      0.38      1.05      0.60     0.070     0.040     0.050     0.000    572.80      0.00
 0.000015         0        0.        0.         0         0         0      0.00    815.00    815.00

1490 NH CARD USED
*SECNO 450 000
3280 CROSS SECTION     450.00 EXTENDED       1.11 FEET

  450.000     20 01    593.11      0.00      0.00    593.11      0.01      0.01      0.00    574.00
   4240.0     887.6     638.1    2714.3    2254.6     586.7    4413.2      76.2       8.4    574.00
     0.20      0.39      1.09      0.62     0.070     0.040     0.050     0.000    573.10      0.00
 0.000016       450      450.      450.         0         0         0      0.00    815.00    815.00

1490 NH CARD USED
*SECNO 1420 000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
3280 CROSS SECTION    1420.00 EXTENDED       4.52 FEET

 1420.000     19.43    593.13      0.00      0.00    593.13      0.00      0.01      0.00    582.10
   4240 0    2204.8     530.3    1504.9    6520.1     855.8    3974.2     283.3      30.8    582.80
     0.89      0 34      0.62      0.38     0.070     0.052     0.070     0.000    573.70      0.00
 0.000012       970      970.      970.         0         0         0      0.00   1197.38   1197.38

1490 NH CARD USED
*SECNO 2350 000
 2350.000     18.82    593.14      0.00      0.00    593.14      0.01      0.01      0.00    576.00
   4240.0     891.0     611.9    2737.0    1405.3     539.3    5232.0     469.8      53.6    576.00
     1.27      0.63      1.13      0.52     0.052     0.040     0.051     0.000    574.32    118.51
 0.000020       980      930.      780.         0         0         0      0.00   1065.47   1183.98
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Clinton F.P.
594.1

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 SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
 Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
 TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
 SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


1490 NH CARD USED
*SECNO 3220.000

3470 ENCROACHMENT STATIONS=      1200.0     2250.0  TYPE=       1  TARGET=     1050.000
   3220.000      18.25     593.15       0.00       0.00     593.16       0.01       0.02       0.00     581.90
     3900.0     2362.0     1465.7       72.3     4137.4     1339.5      162.2      591.7       71.8     580.00
       1.58       0.57       1.09       0.45      0.050      0.044      0.050      0.000     574.90    1200.00
   0.000027       920.       870.       720.          0          0          0       0.00     845.96    2045.96

CCHV=     0 300 CEHV=     0 500
*SECNO 3268.000

3470 ENCROACHMENT STATIONS=      1200.0     2072.0  TYPE=       1  TARGET=      872.000
   3268.000      18.95     593.15       0.00       0.00     593.17       0.02       0.00       0.00     589.30
     3900.0     2058.1     1830.4       11.5     3912.4     1338.6       35.8      597.7       72.8     590.00
       1.59       0.53       1.37       0.32      0.055      0.040      0.055      0.000     574.20    1200.00
   0.000043         43        48.        48.          0          0          0       0.00     872.00    2072.00


*SECNO 3269.000

3370 NORMAL BRIDGE, NRD=  18 MIN ELTRD=    587.30 MAX ELLC=    590.00


3470 ENCROACHMENT STATIONS=      1200.0     2074.0  TYPE=       1  TARGET=      874.000
   3269.000      18.95     593.15       0.00       0.00     593.17       0.01       0.00       0.00     589.30
     3900.0     2578.0     1305.4       16.6     3910.7      986.4       40.8      597.8       72.8     590.00
       1.59       0.66       1.32       0.41      0.050      0.020      0.050      0.000     574.20    1200.00
   0.000056          1         1.         1.          0          0          0    -352.69     874.00    2074.00


*SECNO 3304.000

3370 NORMAL BRIDGE, NRD=  18 MIN ELTRD=    587.30 MAX ELLC=    590.00


3470 ENCROACHMENT STATIONS=      1200.0     2120.0  TYPE=       1  TARGET=      920.000
   3304.000      18.96     593.16       0.00       0.00     593.17       0.01       0.00       0.00     589.30
     3900.0     2556.3     1293.2       50.5     3914.4      986.8      132.4      601.8       73.5     590.00
       1.60       0.65       1.31       0.38      0.050      0.020      0.050      0.000     574.20    1200.00
   0.000055        35.        35.        35.          0          0          0    -365.95     920.00    2120.00
```

Clinton F.P. = 593.1

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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*SECNO 3305 000

3470 ENCROACHMENT STATIONS=     1200.0     2122.0  TYPE=       1  TARGET=       922.000
  3305.000      18 96     593.16       0.00       0.00     593.17       0.02       0.00       0.00     589.30
    3900 0     2039.7     1812.7       47.6     3914.9     1338.9      149.9      601.9       73.5     590.00
      1.60       0.52       1.35       0.32      0.055      0 040      0.055      0.000     574.20    1200.00
  0.000043         1.         1.         1.          0          0          0       0.00     922.00    2122.00

CCHV=     0.200 CEHV=     0.400
1490 NH CARD USED
*SECNO 5050 000
  5050.000      17 64     593.24       0.00       0.00     593.25       0.02       0.08       0 00     580.30
    3900.0     2869 9     1002.8       28.3     3432.3      713.5       56.2      769.5       95.9     582.10
      2.05       0 84       1.41       0.50      0.075      0.052      0.040      0.000     575.60     201.91
  0.000065      1450.      1745.      1745.          0          0          0       0.00     379.00     580.91

1490 NH CARD USED
*SECNO 6120 000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.66

  6120.000      16 58     593.28       0.00       0.00     593.29       0.01       0.03       0.00     583.00
    3900.0     1696 8      253.2     1950.0     2511.7      313.0     2890.2      867.2      106.4     581.80
      2.40       0 68       0.81       0.67      0.051      0.045      0.040      0.000     576.70     260.83
  0.000023       950.      1070.       600.          0          0          0       0.00     770.32    1031.14


SPECIAL BRIDGE

SB  XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
     0.00       1.53       3.04       0.00      19.50       0.00     197.80       0.00     576.70     576.70

*SECNO 6134.000
PRESSURE AND WEIR FLOW,  Weir Submergence Based on TRAPEZOIDAL Shape

 EGPRS      EGLWC      H3         QWEIR      QPR        BAREA      TRAPEZOID     ELLC       ELTRD      WEIRLN
                                                                     AREA
   602.51     593.29       0.00      3686.       182.       198.       209.     587.40     588.20       366.


  6134.000      16.59     593.29       0.00       0.00     593.30       0.01       0.01       0.00     583.00
    3900.0     1696.0      252.8     1951.2     2515.7      313.3     2898.0      869.0      106.7     581.80
      2.41       0.67       0.81       0.67      0.051      0.045      0.040      0.000     576.70     260.04
  0.000023        14.        14.        14.          0          0         10       0.00     771.51    1031.56
```

Clinton F.P.
594.1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

1490 NH CARD USED
*SECNO 8150.000

8150.000	16.84	593.34	0.00	0.00	593.35	0.01	0.05	0.00	585.20
3900.0	2634 5	612.4	653.0	3131.3	695.1	675.4	1072.3	1357.7	585.20
2.96	0.84	0.88	0.97	0.045	0.060	0.030	0.000	576.50	974.06
0.000042	1500.	2016	2016.	0	0	0	0.00	659.15	1633.21

CCHV= 0.100 CEHV= 0.300
1490 NH CARD USED
*SECNO 8700.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.60

8700.000	17 00	593.36	0.00	0.00	593.38	0.02	0.03	0.00	580.00
3900.0	2973 7	724.7	201.6	2929.0	379.4	237.1	1110.5	142.2	580.00
3.06	1 02	1.91	0.85	0.051	0.050	0.069	0.000	576.36	29.45
0.000116	370	550.	550.	0	0	0	0.00	717.34	746.79

3320

Clin Bn F.P.

1490 NH CARD USED
*SECNO 9350.000

9350.000	17 12	593.42	0.00	0.00	593.44	0.02	0.05	0.00	580.00
3900.0	1382 1	525.4	2092.5	1346.2	305.3	2071.7	1157.4	150.2	580.00
3.21	0.95	1.72	1.01	0.053	0.045	0.052	0.000	576.30	34.65
0.000078	500	650.	650.	1	0	0	0.00	569.48	604.14

1490 NH CARD USED
*SECNO 10180.000

10180.000	17.50	593.50	0.00	0.00	593.52	0.03	0.08	0.00	584.30
3900.0	1136 8	776.0	1987.2	1354.5	511.4	1390.7	1223.9	160.9	584.20
3.39	0 84	1.52	1.43	0.065	0.062	0 050	0.000	576.00	1445.17
0.000135	830	830.	830.	0	0	0	0.00	544.74	1989.91

CCHV= 0.500 CEHV= 1.000
1490 NH CARD USED
*SECNO 10880 000

10880.000	16.79	593.59	0.00	0.00	593.62	0.03	0.09	0.00	584.30
3923.0	956.5	1049.6	1916.9	1381.3	605.2	1376.6	1278.7	170.0	584.20
3.54	0.69	1.73	1.39	0.077	0.053	0.050	0.000	576.80	1442.49
0.000128	750.	700.	700.	1	0	0	0.00	548.63	1991.11

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

SPECIAL BRIDGE

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
0.00	1.53	3.09	0.00	38.00	0.00	504.30	0.00	576.80	576.80

*SECNO 10895 000
PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
595 03	593 62	0.00	2709.	1212.	504.	540.	591.00	591.80	443.

10895.000	16.90	593.70	0.00	0.00	593.73	0.03	0.11	0 00	584.30
3923 0	1310 3	1091.0	1521.8	1420.3	609.8	1399.4	1279 8	170.2	584.20
3.54	0.92	1.79	1.09	0.045	0.040	0.050	0.000	576.80	1438.60
0.000077	15	15.	15.	2	0	8	0.00	554.25	1992.85

Clinton I.P.
594.1

*SECNO 10965 000

10965.000	16 72	593.72	0.00	0.00	593.74	0.02	0.01	0.00	585.20
3923.0	2440 3	1143.1	339.7	2497.8	717.4	429.1	1288.6	171.5	583.70
3.57	0 98	1.59	0.79	0.045	0.040	0.050	0.000	577.00	304.09
0.000056	120	100.	90.	0	0	0	0.00	469.06	773.15

*SECNO 11275 000

11275.000	15 85	593.75	0.00	0.00	593.76	0.01	0.02	0.01	584.20
3923.0	2085.8	422.0	1415.2	2526.5	328.1	1919.8	1325.4	176.7	584.70
3.69	0 83	1.29	0.74	0.045	0.040	0.050	0.000	577 90	150.77
0.000051	380.	380.	380.	1	0	0	0.00	732.63	883.40

*SECNO 11276.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.55

3370 NORMAL BRIDGE, NRD= 26 MIN ELTRD= 585.90 MAX ELLC= 587.30

11276.000	15.85	593.75	0.00	0.00	593.77	0.02	0.00	0.00	584.20
3923.0	1512.2	126.0	2284.8	2520.7	305.4	1917.0	1325.5	176.8	584.70
3.69	0.60	0.41	1.19	0.040	0.040	0.020	0.000	577.90	150.70
0.000021	1.	1.	1.	0	0	0	-35.20	732.72	883.42

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 11290.000

0

3370 NORMAL BRIDGE, NRD= 26 MIN ELTRD= 585.90 MAX ELLC= 587.30

11290.000	15.85	593.75	0.00	0.00	593.77	0.02	0.00	0.00	584.20
3923.0	1512.2	126.0	2284.8	2520.9	305.4	1917.2	1327.0	177.0	584.70
3.70	0.60	0.41	1.19	0.040	0.040	0.020	0.000	577.90	150.69
0.000021	14.	14.	14.	0	0	0	-35.20	732.73	883.42

1490 NH CARD USED
*SECNO 11291.000

3302 WARNING CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.35

Clinton T.P.

11291.000	15.85	593.75	0.00	0.00	593.77	0.01	0.00	0.00	584.20
3923.0	1906.5	579.2	1437.3	2528.8	328.3	1921.4	1327.1	177.0	584.70
3.70	0.75	1.76	0.75	0.090	0.053	0.090	0.000	577.90	150.69
0.000169	1.	1.	1.	0	0	0	0.00	732.73	883.42

594.1

1490 NH CARD USED
*SECNO 11700.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.78

3340

11700.000	14.17	593.77	0.00	0.00	593.79	0.01	0.02	0.00	587.80
3923.0	3048.1	696.0	178.9	3638.5	598.2	385.4	1347.8	179.9	586.30
3.76	0.84	1.16	0.46	0.049	0.047	0.080	0.000	579.60	130.13
0.000053	100.	409.	350.	0	0	0	0.00	635.01	765.14

Rr Ri, Sorrell
5/5/94 Q's ok.
ie,
3923
2714
2749

CCHV= 0.500 CEHV= 0.100
1490 NH CARD USED
*SECNO 12750.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.38

2310

12750.000	14.03	593.85	0.00	0.00	593.89	0.04	0.10	0.00	582.00
2714.0	474.1	677.8	1562.1	470.5	284.6	1303.3	1439.0	193.7	582.00
3.99	1.01	2.38	1.20	0.070	0.045	0.053	0.000	579.82	231.51
0.000176	1050.	1050.	1600.	2	0	0	0.00	351.97	583.49

BEH

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 SECNO      DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
 Q          QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
 TIME       VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
 SLOPE      XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


1490 NH CARD USED
*SECNO 14540.000
 14540.000     13.94    594.14      0.00      0.00    594.17      0.03      0.29      0.00    588.00
    2714.0    1893.3     715.1     105.6    2116.2     288.2     105.4    1510.2     206.4    582.70
      4.29      0.89      2.48      1.00     0.079     0.044     0.055     0.000    580.20    843.58
  0.000234     1350.     1790.     1200.         2         0         0      0.00    479.56   1323.14


1490 NH CARD USED
*SECNO 15330 000
 15330.000     10.31    594.31      0.00      0.00    594.33      0.02      0.15      0.01    584.00
    2714.0    1125.5     313.1    1275.4    1286.4     159.6    1072.8    1549.8     214.0    584.00
      4.46      0 87      1.96      1.19     0.080     0.040     0.058     0.000    584.00     26.44
  0.000199      650       760.      760.         2         0         0      0.00    488.60    515.05


1490 NH CARD USED
*SECNO 16690 000

3302 WARNING   CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  0.55


3470 ENCROACHMENT STATIONS=      714 0     855.0  TYPE=       1  TARGET=       141.000
2340
 16690.000     13 06    594.56      0.00      0.00    594.76      0.20      0.41      0.02    584.20
    2749 0     750 6     999.5     999.0     347.7     203.5     356.0    1598.0     222.7    583.20
      4.56      2 16      4.91      2.81     0.052     0.040     0.041     0.000    581.50    714.00
  0.000667      1350     1390.     1040.         2         0         0      0.00    141.00    855.00


CCHV=     0 500 CEHV=     1.000
1490 NH CARD USED
*SECNO 16730 000

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=     1400.0    1530.0  TYPE=       1  TARGET=       130.000
 16730.000     13 93    594.73      0.00      0.00    594.83      0.10      0.02      0.05    589.50
    2749.0       0 0    2749.0       0.0       0.0    1076.9       0.0    1598.9     222.8 100000.00
      4.57      0 00      2.55      0.00     0.000     0.039     0.000     0.000    580.80   1400.00
  0.000423       40.       40.       40.         2         0         0      0.00    127.60   1530.00
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

SPECIAL BRIDGE

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
0.00	1.86	3.04	0.00	130.00	0.00	1302.70	0.00	580.80	580.80

*SECNO 16771 000

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS= 0 000 EGLWC= 594.830 ELLC= 596.500 PCWSE= 594.729 ELTRD= 599.200

3265 DIVIDED FLOW

3370 NORMAL BRIDGE, NRD= 27 MIN ELTRD= 599.20 MAX ELLC= 596.50

3470 ENCROACHMENT STATIONS= 1400.0 1530.0 TYPE= 1 TARGET= 130.000

16771.000	13 95	594.75	0.00	0.00	594.85	0.10	0.02	0.00	589.50
2749.0	0 0	2749.0	0.0	0.0	1077.8	0.0	1599.9	222.9	100000.00
4.57	0.00	2.55	0.00	0.000	0.039	0.000	0.000	580.80	1400.00
0.000422	41	41.	41.	1	0	0	-0.20	127.60	1530.00

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T1 CLINTON TOWNSHIP FLOOD INSURANCE STUDY
T2 UPDATED 100-YEAR FLOOD   STS CONSULTANTS LTD  12/93 MMW
T3 MIDDLE BRANCH OF THE CLINTON RIVER - FLOODWAY RUN

J1  ICHECK    INQ     NINV    IDIR    STRT   METRIC   HVINS     Q      WSEL     FQ

    -1.0      3.0      0.0     0.0     0.0     0.0     0.0     0.0   593.20    0.0

J2  NPROF    IPLOT   PRFVS   XSECV   XSECH     FN    ALLDC    IBW    CHNIM   ITRACE

   15.0      0.0    -1.0     0.0     0.0     0.0     0.0     0.0     0.0     0 0
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 2


CCHV=    0.100 CEHV=     0.300
1490 NH CARD USED
*SECNO 0.000
 2800 NAT Q1=    10948.52  WSEL=      593.10  ENC Q1=    10948.52  WSEL=      593.20  RATIO=    0.0000
 NAT Q1=    11104.  RATIOS LOB, CH, ROB=   0.2127  0.1471  0.6402  WSEL=      593.20
3280 CROSS SECTION       0.00 EXTENDED       1.50 FEET


3470 ENCROACHMENT STATIONS=       114.1      784.1  TYPE=       4  TARGET=        0.014
     0.000     20.40    593.20      0.00    593.10    593.21      0.01      0.00      0.00    573.70
    4240.0     834.7     632.8    2722.5    2169.3     598.5    4466.9       0.0       0.0    573.70
      0.00      0.41      1.06      0.61     0.070     0.040     0.050     0.000    572.80    114.13
  0.000015        0.        0.        0.         0         0         0      0.00    670.00    784.13


1490 NH CARD USED
*SECNO 450.000
 2800 NAT Q1=    10500.48  WSEL=      593.11  ENC Q1=    10500.48  WSEL=      593.21  RATIO=    0.0000
 NAT Q1=    10652.  RATIOS LOB, CH, ROB=   0.2102  0.1496  0.6402  WSEL=      593.21
3280 CROSS SECTION     450.00 EXTENDED       1.21 FEET


3470 ENCROACHMENT STATIONS=       132.4      781.5  TYPE=       4  TARGET=        0.014
   450.000     20.11    593.21      0.00    593.11    593.21      0.01      0.01      0.00    574.00
    4240.0     873.6     643.7    2722.6    2047.2     589.7    4344.4      73.4       6.8    574.00
      0.19      0.43      1.09      0.63     0.070     0.040     0.050     0.000    573.10    132.44
  0.000016      450.      450.      450.         0         0         0      0.00    649.08    781.53


1490 NH CARD USED
*SECNO 1420.000
 2800 NAT Q1=    12131.12  WSEL=      593.13  ENC Q1=    12131.12  WSEL=      593.23  RATIO=    0.0000
 NAT Q1=    12327.  RATIOS LOB, CH, ROB=   0.5210  0.1243  0.3547  WSEL=      593.23
3280 CROSS SECTION    1420.00 EXTENDED       4.62 FEET


3470 ENCROACHMENT STATIONS=        32.7     1119.9  TYPE=       4  TARGET=        0.016
  1420.000     19.53    593.23      0.00    593.13    593.23      0.00      0.01      0.00    582.10
    4240.0    2211.4     535.9    1492.7    6436.4     860.7    3836.7     275.1      26.1    582.80
      0.87      0.34      0.62      0.39     0.070     0.052     0.070     0.000    573.70     32.72
  0.000012       970      970.      970.         0         0         0      0.00   1087.21   1119.94
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCB        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

1490 NH CARD USED
*SECNO 2350.000
 2800 NAT Q1=     9489.44  WSEL=      593.14  ENC Q1=     9489.44  WSEL=      593.24  RATIO=    0.0000
 NAT Q1=     9659.  RATIOS LOB, CH, ROB=   0.2097  0.1431  0.6472  WSEL=      593.24

3470 ENCROACHMENT STATIONS=       303.0      1071.1  TYPE=       4  TARGET=         0.018
   2350.000      18.92     593.24       0.00     593.14     593.24       0.01       0.01       0.00     576.00
     4240.0      867.0      617.3     2755.7     1245.7      542.4     5150.0      457.0       44.8     576.00
       1 24       0.70       1.14       0.54      0.052      0.040      0.051      0.000     574.32     302.96
   0.000020        980       930.       780.          0          0          0       0.00     768.09    1071.06


1490 NH CARD USED
*SECNO 3220.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3470 ENCROACHMENT STATIONS=      1200.0      2250.0  TYPE=       1  TARGET=      1050.000
   3220.000      18 35     593.25       0.00     593.15     593.26       0.01       0.02       0.00     581.90
     3900.0     2374 0     1452.8       73.3     4207.4     1347.6      168.9      577.4       60.2     580.00
       1.55       0 56       1.08       0.43      0.050      0.044      0.050      0.000     574.90    1200 00
   0.000026        920       870.       720.          0          0          0       0.00     849.97    2049.97


CCHV=     0 300 CEHV=      0.500
*SECNO 3268.000

3470 ENCROACHMENT STATIONS=      1200.0      2072.0  TYPE=       1  TARGET=       872.000
   3268.000      19 05     593 25       0.00     593.15     593.27       0 02       0.00       0.00     589.30
     3900.0     2079.8     1808.4       11.9     3990.6     1346.6       37.0      583.5       61.1     590.00
       1.57       0.52       1 34       0.32      0.055      0.040      0.055      0 000     574.20    1200.00
   0.000042         48        48.        48.          0          0          0       0.00     872.00    2072.00


*SECNO 3269.000

3370 NORMAL BRIDGE, NRD=  18 MIN ELTRD=    587.30 MAX ELLC=    590.00


3470 ENCROACHMENT STATIONS=      1200.0      2074.0  TYPE=       1  TARGET=       874.000
   3269.000      19.05     593.25       0.00     593.15     593.27       0.01       0.00       0.00     589.30
     3900.0     2594.2     1288.8       17.0     3988.9      994.4       42.2      583.6       61.1     590.00
       1.57       0.65       1.30       0.40      0.050      0.020      0.050      0.000     574.20    1200.00
   0.000054          1         1.         1.          0          0          0    -352.69     874.00    2074.00
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 SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
 Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
 TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
 SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


*SECNO 3304.000

3370 NORMAL BRIDGE, NRD=  18 MIN ELTRD=   587.30 MAX ELLC=   590.00


3470 ENCROACHMENT STATIONS=      1200.0     2120.0  TYPE=       1  TARGET=       920.000
  3304.000     19.06     593.26       0.00     593.16     593.27       0.01       0.00       0.00     589.30
    3900.0    2571.0     1276.2       52.8     3992.4      994.8      138.4      587.7       61.8     590.00
      1.58      0.64       1.28       0.38      0.050      0.020      0.050      0.000     574.20    1200.00
  0.000052       35.        35.        35.          0          0          0    -365.95     920.00    2120.00


*SECNO 3305.000

3470 ENCROACHMENT STATIONS=      1200.0     2122.0  TYPE=       1  TARGET=       922.000
  3305.000     19.06     593.26       0.00     593.16     593.27       0.01       0.00       0.00     589.30
    3900.0    2060.2     1790.1       49.7     3993.0     1346.9      156.1      587.8       61.9     590.00
      1.58      0.52       1.33       0.32      0.055      0.040      0.055      0.000     574.20    1200.00
  0.000041        1.         1.         1.          0          0          0       0.00     922.00    2122.00


CCHV=     0.200 CEHV=     0.400
1490 NH CARD USED
*SECNO 5050.000
 2800 NAT Q1=    4848.53  WSEL=      593.24  ENC Q1=    4848.53  WSEL=      593.34  RATIO=   0.0000
 NAT Q1=    4914   RATIOS LOB, CH, ROB=   0.7361  0.2563  0.0076  WSEL=     593.34

3470 ENCROACHMENT STATIONS=       217.4      544.8  TYPE=       4  TARGET=         0.013
  5050.000     17.73     593.33       0.00     593.24     593.35       0.02       0.08       0.00     580.30
    3900.0    2883.6     1014.5        1.9     3413.6      718.1        8.1      755.8       83.3     582.10
      2.02      0.84       1.41       0.24      0.075      0.052      0.040      0.000     575.60     217.45
  0.000065     1450.      1745.      1745.          0          0          0       0.00     327.32     544.77


1490 NH CARD USED
*SECNO 6120.000
 2800 NAT Q1=    8071.45  WSEL=      593.28  ENC Q1=    8071.45  WSEL=      593.38  RATIO=   0.0000
 NAT Q1=    8222.  RATIOS LOB, CH, ROB=   0.4337  0.0644  0.5019  WSEL=     593.38

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.66


3470 ENCROACHMENT STATIONS=       289.2      936.3  TYPE=       4  TARGET=         0.018
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 SECNO      DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
 Q          QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
 TIME       VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
 SLOPE      XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 6120.000     16.68    593.38      0.00    593.28    593.38      0.01      0.03      0.00    583.00
   3900.0    1684.1     256.2    1959.7    2436.9     314.7    2791.6     851.5      92.4    581.80
     2.36      0.69      0.81      0.70     0.051     0.045     0.040     0.000    576.70    289.17
 0.000023      950.     1070.      600.         0         0         0      0.00    647.17    936.34


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.00      1.53      3.04      0.00     19.50      0.00    197.80      0.00    576.70    576.70

*SECNO 6134.000
BTCARD, BRIDGE STENCL=     289.17   STENCR=     936.34
 2800 NAT Q1=    8096.09  WSEL=      593.29  ENC Q1=    8096.09  WSEL=      593.39  RATIO=   0.0000
 NAT Q1=    8243   RATIOS LOB, CH, ROB=   0.4335  0.0643  0.5022  WSEL=      593.39
PRESSURE AND WEIR FLOW,  Weir Submergence Based on TRAPEZOIDAL Shape

 EGPRS       EGLWC       H3        QWEIR      QPR        BAREA   TRAPEZOID     ELLC      ELTRD      WEIRLN
                                                                   AREA
    602.61    593.38      0.00     3695.       187.       198.       209.     587.40     588.20      338.


3470 ENCROACHMENT STATIONS=       289.2      936.3  TYPE=       4  TARGET=        0.018
 6134.000     16.69    593.39      0.00    593.29    593.40      0.01      0.01      0.00    583.00
   3900.0    1683.1     255.8    1961.1    2441.3     315.1    2799.5     853.3      92.6    581.80
     2.37      0.69      0.81      0.70     0.051     0.045     0.040     0.000    576.70    289.17
 0.000023       14       14.       14.         0         0        12      0.00    647.17    936.34


1490 NH CARD USED
*SECNO 8150.000
 2800 NAT Q1=    6041.67  WSEL=      593.34  ENC Q1=    6041.67  WSEL=      593.44  RATIO=   0.0000
 NAT Q1=    6184.  RATIOS LOB, CH, ROB=   0.6752  0.1553  0.1695  WSEL=      593.44

3470 ENCROACHMENT STATIONS=      1001.7     1542.4  TYPE=       4  TARGET=        0.023
 8150.000     16.94    593.44      0.00    593.34    593.45      0.01      0.05      0.00    585.20
   3900.0    2649.0     619.5     631.5    3099.9     700.5     583.0    1050.5     116.4    585.20
     2.90      0.85      0.88      1.08     0.045     0.060     0.030     0.000    576.50   1001.74
 0.000042     1500.     2016.     2016.         0         0         0      0.00    540.62   1542.36
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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


CCHV=     0.100 CEHV=     0.300
1490 NH CARD USED
*SECNO 8700.000
 2800 NAT Q1=     3620.96  WSEL=     593.36  ENC Q1=     3620.96  WSEL=     593.46  RATIO=   0.0000
 NAT Q1=     3719.  RATIOS LOB, CH, ROB=   0.7654  0.1830  0.0516  WSEL=     593.46

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  0.60


3470 ENCROACHMENT STATIONS=       105.9      725.2  TYPE=      4  TARGET=         0.026
  8700.000     17.10     593.46       0.00     593.36     593.48       0.02       0.03       0 00     580.00
    3900.0    3009 6      731.3      159.1     2885.3      382.2      190.5     1087.6      121.7     580.00
      3.00      1 04       1.91       0.84      0.051      0.050      0.070      0.000     576.36     105.93
  0.000115       370       550.       550.          1          0          0       0.00     619.28     725.21


1490 NH CARD USED
*SECNO 9350.000
 2800 NAT Q1=     4411.89  WSEL=     593.42  ENC Q1=     4411.89  WSEL=     593.52  RATIO=   0 0000
 NAT Q1=     4509.  RATIOS LOB, CH, ROB=   0.3299  0.1333  0.5368  WSEL=     593.52

3470 ENCROACHMENT STATIONS=       117.2      572.0  TYPE=      4  TARGET=         0.022
  9350.000     17 .2     593.52       0.00     593.42     593.54       0.02       0.05       0.00     580.00
    3900.0    1271.4      531.4     2097.1     1253.7      307.3     2033.9     1133.1      128.4     580.00
      3.14      1 01       1.73       1.03      0.053      0.045      0.052      0.000     576.30     117.24
  0.000078       500       650.       650.          0          0          0       0.00     454.77     572.01


1490 NH CARD USED
*SECNO 10180 000
 2800 NAT Q1=     3355.33  WSEL=     593.50  ENC Q1=     3355.33  WSEL=     593.60  RATIO=   0.0000
 NAT Q1=     3430.  RATIOS LOB, CH, ROB=   0.2948  0.1968  0.5084  WSEL=     593.60

3470 ENCROACHMENT STATIONS=      1523.3     1954.7  TYPE=      4  TARGET=         0.022
 10180.000     17 59     593.59       0.00     593.50     593.62       0.03       0.08       0.00     584.30
    3900.0    1131 6      783.6     1984.8     1288.8      515.0     1356.6     1197.5      136.9     584.20
      3.32      0.88       1.52       1.46      0.065      0.062      0.050      0.000     576.00    1523.33
  0.000135       830       830.       830.          0          0          0       0.00     431.35    1954.68


CCHV=     0.500 CEHV=     1.000
1490 NH CARD USED
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


*SECNO 10880.000
 2800 NAT Q1=     3469.58  WSEL=      593.59  ENC Q1=     3469.58  WSEL=      593.69  RATIO=   0.0000
 NAT Q1=     3549.  RATIOS LOB, CH, ROB=   0.2474  0.2645  0.4880  WSEL=      593.69

3470 ENCROACHMENT STATIONS=       1518.3     1953.8  TYPE=        4  TARGET=        0.022
 10880.000     16.89     593.69       0.00     593.59     593.72       0.03       0.09       0.00     584.30
    3923.0     946.9     1061.2     1914.9     1320.2      609.2     1335.8     1250.6      144.1     584.20
      3.47      0.72       1.74       1.43      0.078      0.053      0.050      0.000     576.80    1518.34
  0.000128      750.       700.       700.          0          0          0       0.00     435.46    1953.80


SPECIAL BRIDGE

SB  XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
     0.00       1.53       3.09       0.00      38.00       0.00     504.30       0.00     576.80     576.80

*SECNO 10895.000
BTCARD, BRIDGE STENCL=      1518.34    STENCR=      1953.80
 2800 NAT Q1=     4475.92  WSEL=      593.70  ENC Q1=     4475.92  WSEL=      593.80  RATIO=   0.0000
 NAT Q1=     4569.  RATIOS LOB, CH, ROB=   0.3372  0.2753  0.3875  WSEL=      593.80
PRESSURE AND WEIR FLOW,  Weir Submergence Based on TRAPEZOIDAL Shape


 EGPRS      EGLWC      H3         QWEIR      QPR        BAREA   TRAPEZOID      ELLC       ELTRD      WEIRLN
                                                                  AREA
    595.13     593.72       0.00      2643.      1277.       504.      540.     591.00     591.80       367.


3470 ENCROACHMENT STATIONS=       1518.3     1953.8  TYPE=        4  TARGET=        0.020
 10895.000     17.01     593.81       0.00     593.70     593.84       0.03       0.12       0.00     584.30
    3923.0    1309.3     1100.0     1513.7     1350.3      613.9     1354.1     1251.7      144.2     584.20
      3.47      0.97       1.79       1.12      0.045      0.040      0.050      0.000     576.80    1518.34
  0.000076        15        15.        15.          1          0          8       0.00     435.46    1953.80


*SECNO 10965.000
 2800 NAT Q1=     5249.94  WSEL=      593.72  ENC Q1=     5249.94  WSEL=      593.82  RATIO=   0.0000
 NAT Q1=     5348.  RATIOS LOB, CH, ROB=   0.6236  0.2892  0.0872  WSEL=      593.82

3470 ENCROACHMENT STATIONS=        362.5      744.7  TYPE=        4  TARGET=        0.018
 10965.000     16.83     593.83       0.00     593.72     593.85       0.02       0.01       0.00     585.20
    3923.0    2456.5     1156.1      310.4     2409.5      722.4      354.6     1260.2      145.3     583.70
      3.50      1.02       1.60       0.88      0.045      0.040      0.050      0.000     577.00     362.51
  0.000056      120.       100.        90.          0          0          0       0.00     382.17     744.68
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SECNO      DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
Q          QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
TIME       VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
SLOPE      XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*SECNO 11275.000
 2800 NAT Q1=     5512.35  WSEL=      593.75  ENC Q1=     5512.35  WSEL=      593.85  RATIO=    0.0000
 NAT Q1=     5650.  RATIOS LOB, CH, ROB=   0.5324  0.1062  0.3614  WSEL=      593.85

3470 ENCROACHMENT STATIONS=        213 1       861.6  TYPE=        4  TARGET=         0.024
 11275.000      15 96    593.86      0.00    593.75    593.88      0.01      0.02      0.01    584.20
    3923.0     2083.1     425.7    1414.3    2435.0     330 6    1883.7    1295.7     149.8    584.70
      3.62       0 86      1.29      0.75     0.045     0.040     0.050     0.000    577.90    213.06
  0.000050       380       380.      380.         1         0         0      0.00    648.51    861.57

*SECNO 11276 000
 2800 NAT Q1=     8541.38  WSEL=      593.75  ENC Q1=     8541.38  WSEL=      593.85  RATIO=    0.0000
 NAT Q1=     8754.  RATIOS LOB, CH, ROB=   0.3856 , 0.0317  0.5827  WSEL=      593.85

3302 WARNING   CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.54

3370 NORMAL BRIDGE, NRD=  26 MIN ELTRD=   585.90 MAX ELLC=   587.30

3470 ENCROACHMENT STATIONS=        219.9       861.7  TYPE=        4  TARGET=         0.024
 11276.000      15 96    593.86      0.00    593.75    593.88      0.02      0.00      0.00    584.20
    3923.0     1501 8     127.7    2293.5    2399.1     307.9    1882.8    1295.8     149.8    584.70
      3.62       0 63      0.41      1.22     0.040     0.040     0.020     0.000    577 90    219.89
  0.000021         1         1.        1.         0         0         0    -35.20    641 85    861.74

*SECNO 11290 000
 2800 NAT Q1=     8542.29  WSEL=      593.75  ENC Q1=     8542.29  WSEL=      593.85  RATIO=    0.0000
 NAT Q1=     8755.  RATIOS LOB, CH, ROB=   0.3856  0.0317  0.5827  WSEL=      593.85

3370 NORMAL BRIDGE, NRD=  26 MIN ELTRD=   585.90 MAX ELLC=   587.30

3470 ENCROACHMENT STATIONS=        219.9       861.8  TYPE=        4  TARGET=         0.024
 11290.000      15.96    593.86      0.00    593.75    593.88      0.02      0.00      0.00    584.20
    3923.0     1501.8     127.7    2293.5    2399.4     307.9    1882.9    1297.3     150.0    584.70
      3.62       0.63      0.41      1.22     0.040     0.040     0.020     0.000    577.90    219.86
  0.000021        14        14.       14.         0         0         0    -35.20    641.89    861.75
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

1490 NH CARD USED
*SECNO 11291.000
2800 NAT Q1= 3019.44 WSEL= 593.75 ENC Q1= 3019.44 WSEL= 593.85 RATIO= 0.0000
NAT Q1= 3090. RATIOS LOB, CH, ROB= 0.4869 0.1459 0.3672 WSEL= 593.85

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.36

3470 ENCROACHMENT STATIONS= 213.5 862.2 TYPE= 4 TARGET= 0.023

11291.000	15 96	593.86	0.00	593.75	593.88	0.02	0 00	0.00	584.20
3923.0	1901.7	583.6	1437.7	2435.9	330.8	1890.2	1297.4	150.0	584.70
3.62	0.78	1 76	0.76	0.090	0.053	0.090	0.000	577.90	213.54
0.000167	1	1.	1.	0	0	0	0.00	648.70	862.24

1490 NH CARD USED
*SECNO 11700.000
2800 NAT Q1= 5371.70 WSEL= 593.77 ENC Q1= 5371.70 WSEL= 593 87 RATIO= 0.0000
NAT Q1= 5479 RATIOS LOB, CH, ROB= 0.7781 0 1761 0.0458 WSEL= 593.87

3302 WARNING CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.78

3470 ENCROACHMENT STATIONS= 180.5 743.4 TYPE= 4 TARGET= 0.019

11700.000	14 29	593.89	0.00	593.77	593.90	0.01	0.02	0.00	587.80
3923.0	3074 5	704.0	144.5	3593.5	603.5	314.7	1317.6	152.6	586.30
3.68	0.86	1.17	0.46	0.049	0.047	0.080	0.000	579.60	180.46
0.000053	100	409.	350.	1	0	0	0.00	562.98	743.44

CCHV= 0.500 CEHV= 0.100
1490 NH CARD USED
*SECNO 12750.000
2800 NAT Q1= 2047 99 WSEL= 593.85 ENC Q1= 2047.99 WSEL= 593 95 RATIO= 0.0000
NAT Q1= 2097 RATIOS LOB, CH, ROB= 0.1748 0.2471 0.5782 WSEL= 593.95

3302 WARNING CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.38

3470 ENCROACHMENT STATIONS= 261.2 557.3 TYPE= 4 TARGET= 0.023

12750.000	14.14	593.96	0.00	593.85	594.00	0.04	0.10	0.00	582.00
2714.0	452.6	684.3	1577.1	426.7	287.1	1290.0	1406.2	164.6	582.00
3.91	1.06	2.38	1.22	0.069	0.045	0.054	0.000	579.82	261.21
0.000174	1050	1050.	1600.	2	0	0	0.00	296.11	557.32

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   SECNO       DEPTH       CWSEL       CRIWS       WSELK       EG          HV          HL          OLOSS       L-BANK ELEV
   Q           QLOB        QCH         QROB        ALOB        ACH         AROB        VOL         TWA         R-BANK ELEV
   TIME        VLOB        VCH         VROB        XNL         XNCH        XNR         WTN         ELMIN       SSTA
   SLOPE       XLOBL       XLCH        XLOBR       ITRIAL      IDC         ICONT       CORAR       TOPWID      ENDST


1490 NH CARD USED
*SECNO 14540.000
 2800 NAT Q1=     1774.27  WSEL=      594.14  ENC Q1=     1774.27  WSEL=      594.24  RATIO=   0.0000
 NAT Q1=     1823.  RATIOS LOB, CH, ROB=   0.7008  0.2601  0.0391  WSEL=      594.24

3470 ENCROACHMENT STATIONS=       897.6      1300.8  TYPE=       4  TARGET=         0.027
 14540.000      14.05      594.25       0.00      594.14      594.28        0.04        0.28        0.00      588.00
    2714.0     1910.3      722.7        80.9      2089.9       290.9        59.7      1475.7       175.3      582.70
      4.20       0.91       2.48        1.36       0.080       0.044       0.050       0.000      580.20      897.63
  0.000232       1350      1790.       1200.           0           0           0        0.00      403.22     1300.85


1490 NH CARD USED
*SECNO 15330.000
 2800 NAT Q1=     1921.76  WSEL=      594.31  ENC Q1=     1921.76  WSEL=      594.41  RATIO=   0.0000
 NAT Q1=     1975.  RATIOS LOB, CH, ROB=   0.4145  0.1146  0.4709  WSEL=      594.41

3470 ENCROACHMENT STATIONS=        67.2       450.8  TYPE=       4  TARGET=         0.027
 15330.000      10.42      594.42       0.00      594.31      594.44        0.02        0.15        0.01      584.00
    2714.0     1117.6      319.7      1276.8      1227.5       161.5      1035.8      1513.9       181.4      584.00
      4.37       0.91       1.98        1.23       0.080       0.040       0.059       0.000      584.00       67.15
  0.000200        650       760.        760.           1           0           0        0.00      383.69      450.84


1490 NH CARD USED
*SECNO 16690.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  0.57


3470 ENCROACHMENT STATIONS=       714.0       855.0  TYPE=       1  TARGET=       141.000
 16690.000      13.17      594.67       0.00      594.56      594.86        0.19        0.40        0.02      584.20
    2749.0      756.0      988.5      1004.5       355.2       205.5       363.1      1561.0       188.7      583.20
      4.47       2.13       4.81        2.77       0.052       0.040       0.041       0.000      581.50      714.00
  0.000632       1350      1390.       1040.           1           0           0        0.00      141.00      855.00


CCHV=     0.500 CEHV=     1.000
1490 NH CARD USED
*SECNO 16730.000

3265 DIVIDED FLOW
```

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3470 ENCROACHMENT STATIONS= 1400.0 1530.0 TYPE= 1 TARGET= 130.000

16730.000	14.03	594.83	0.00	594.73	594.93	0.10	0.02	0.05	589.50
2749.0	0.0	2749.0	0.0	0.0	1089.4	0.0	1561.9	188.9	100000.00
4.48	0.00	2.52	0.00	0.000	0.039	0.000	0.000	580.80	1400.00
0.000409	40.	40.	40.	2	0	0	0.00	127.60	1530.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.86	3.04	0.00	130.00	0.00	1302.70	0.00	580.80	580.80

*SECNO 16771.000

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS= 0.000 EGLWC= 595.110 ELLC= 596.500 PCWSE= 594.827 ELTRD= 599.200

3265 DIVIDED FLOW

3370 NORMAL BRIDGE, NRD= 27 MIN ELTRD= 599.20 MAX ELLC= 596.50

3470 ENCROACHMENT STATIONS= 1400.0 1530.0 TYPE= 1 TARGET= 130.000

16771.000	14.04	594.84	0.00	594.75	594.94	0.10	0.02	0.00	589.50
2749.0	0.0	2749.0	0.0	0.0	1091.4	0.0	1563.0	189.0	100000.00
4.48	0.00	2.52	0.00	0.000	0.039	0.000	0.000	580.80	1400.00
0.000407	41.	41.	41.	2	0	0	-0.20	127.60	1530.00

THIS RUN EXECUTED 11JAN94 12:15:45

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HEC-2 WATER SURFACE PROFILES

Version 4.6.0; February 1991
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

E BRANCH OF THE CLINTON

SUMMARY PRINTOUT TABLE 110

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
	0.000	593.10	0.00	593.11	815.00	898.13	627.40	2714.47	0.00	0.00	380.00	410.00	0.00
	0.000	593.20	0.10	593.21	670.00	884.71	632.83	2722.45	0.01	114.13	380.00	410.00	784.13
	450.000	593.11	0.00	593.11	815.00	887.57	638.15	2714.28	0.00	0.00	380.00	410.00	0.00
	450.000	593.21	0.10	593.21	649.08	873.63	643.72	2722.65	0.01	132.44	380.00	410.00	781.53
	1420.000	593.13	0.00	593.13	1197.38	2204.78	530.28	1504.94	0.00	0.00	750.00	800.00	0.00
	1420.000	593.23	0.10	593.23	1087.21	2211.40	535.94	1492.66	0.02	32.72	750.00	800.00	1119.94
	2350.000	593.14	0.00	593.14	1065.47	891.05	611.90	2737.05	0.00	0.00	400.00	430.00	0.00
	2350.000	593.24	0.10	593.24	768.09	867.03	617.30	2755.68	0.02	302.96	400.00	430.00	1071.06
	3220.000	593.15	0.00	593.16	845.96	2361.96	1465.72	72.32	1050.00	1200.00	1900.00	1981.00	2250.00
	3220.000	593.25	0.10	593.26	849.97	2374.00	1452.75	73.25	1050.00	1200.00	1900.00	1981.00	2250.00
	3268.000	593.15	0.00	593.17	872.00	2058.07	1830.40	11.53	872.00	1200.00	1980.00	2060.10	2072.00
	3268.000	593.25	0.10	593.27	872.00	2079.77	1808.38	11.86	872.00	1200.00	1980.00	2060.10	2072.00
	3269.000	593.15	0.00	593.17	874.00	2578.00	1305.42	16.58	874.00	1200.00	1980.00	2060.10	2074.00
	3269.000	593.25	0.10	593.27	874.00	2594.17	1288.82	17.01	874.00	1200.00	1980.00	2060.10	2074.00
	3304.000	593.16	0.00	593.17	920.00	2556.26	1293.23	50.52	920.00	1200.00	1980.00	2060.10	2120.00
	3304.000	593.26	0.10	593.27	920.00	2570.99	1276.20	52.81	920.00	1200.00	1980.00	2060.10	2120.00
	3305.000	593.16	0.00	593.17	922.00	2039.67	1812.70	47.63	922.00	1200.00	1980.00	2060.10	2122.00
	3305.000	593.26	0.10	593.27	922.00	2060.15	1790.11	49.74	922.00	1200.00	1980.00	2060.10	2122.00
	5050.000	593.24	0.00	593.25	379.00	2868.89	1002.85	28.26	0.00	0.00	500.00	544.00	0.00
	5050.000	593.33	0.10	593.35	327.32	2883.56	1014.50	1.94	0.01	217.45	500.00	544.00	544.77
*	6120.000	593.28	0.00	593.29	770.32	1696.85	253.17	1949.99	0.00	0.00	515.00	534.50	0.00
*	6120.000	593.38	0.10	593.38	647.17	1684.08	256.18	1959.74	0.02	289.17	515.00	534.50	936.34

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
6134.000	593.29	0.00	593.30	771.51	1695.96	252.81	1951.23	0.00	0.00	515.00	534.50	0.00
6134.000	593.39	0.10	593.40	647.17	1683.11	255.78	1961.11	0.02	289.17	515.00	534.50	936.34
8150.000	593.34	0.00	593.35	659.15	2634.53	612.45	653.02	0.00	0.00	1400.00	1448.00	0.00
8150.000	593.44	0.10	593.45	540.62	2648.97	619.52	631.51	0.02	1001.74	1400.00	1448.00	1542.36
* 8700.000	593.36	0.00	593.38	717.34	2973.73	724.68	201.59	0.00	0.00	680.00	705.00	0.00
* 8700.000	593.46	0.10	593.48	619.28	3009.61	731.26	159.14	0.03	105.93	680.00	705.00	725.21
9350.000	593.42	0.00	593.44	569.48	1282.07	525.43	2092.50	0.00	0.00	300.00	320.00	0.00
9350.000	593 52	0.10	593.54	454.77	1271.42	531.44	2097.14	0.02	117.24	300.00	320.00	572.01
10180 000	593 50	0.00	593.52	544.74	1136.80	775.98	1987.21	0.00	0.00	1765.00	1800.00	0.00
10180.000	593 59	0.10	593.62	431.35	1131.60	783.64	1984.77	0.02	1523.33	1765.00	1800.00	1954.68
10880.000	593 59	0.00	593.62	548.63	956.47	1049.64	1916.89	0.00	0.00	1765.00	1803.10	0.00
10880.000	593 69	0.10	593.72	435.46	946.90	1061.16	1914.94	0.02	1518.34	1765.00	1803.10	1953.80
10895.000	593 70	0.00	593.73	554.25	1310.27	1090.98	1521.75	0.00	0.00	1765.00	1803.10	0.00
10895 000	593 81	0.11	593.84	435.46	1309.34	1100.00	1513.67	0.02	1518.34	1765.00	1803.10	1953.80
10965.000	593 72	0.00	593.74	469.06	2440.26	1143 07	339.67	0.00	0 00	653.00	700.00	0.00
10965.000	593 83	0.11	593.85	382.17	2456.52	1156.11	310 37	0.02	362 51	653.00	700.00	744.68
11275.000	593 75	0.00	593.76	732.63	2085.75	422.02	1415.23	0.00	0.00	561.90	584.50	0.00
11275.000	593.86	0.11	593.88	648.51	2083.07	425.65	1414.27	0.02	213.06	561.90	584.50	861.57
* 11276.000	593 75	0.00	593.77	732.72	1512.17	126.02	2284.81	0.00	0.00	561.90	584.50	0.00
* 11276.000	593 86	0.11	593.88	641.85	1501.80	127.70	2293.50	0.02	219.89	561.90	584.50	861.74
11290.000	593 75	0.00	593.77	732.73	1512.17	126.01	2284.82	0.00	0.00	561.90	584.50	0.00
11290.000	593 86	0.11	593.88	641.89	1501.82	127.69	2293.49	0.02	219.86	561.90	584.50	861.75
* 11291.000	593 75	0.00	593.77	732.73	1906.48	579.18	1437.34	0.00	0.00	561.90	584.50	0.00
* 11291.000	593 86	0.11	593.88	648.70	1901.69	583.64	1437.67	0.02	213.54	561.90	584.50	862.24
* 11700.000	593.77	0.00	593.79	635.01	3048.15	695.98	178.87	0.00	0.00	653.00	700.00	0.00
* 11700.000	593.89	0.11	593.90	562.98	3074.53	704.01	144.46	0.02	180.46	653.00	700.00	743.44
* 12750.000	593 85	0.00	593.89	351.97	474.12	677.82	1562.06	0.00	0.00	320.00	342.00	0.00
* 12750.000	593.96	0.11	594.00	296.11	452.57	684.28	1577.15	0.02	261.21	320.00	342.00	557.32
14540.000	594 14	0.00	594.17	479.56	1893.27	715.13	105.60	0.00	0.00	1268.00	1293.00	0.00
14540.000	594 25	0.11	594.28	403.22	1910.32	722.73	80.95	0.03	897.63	1268.00	1293.00	1300.85
15330.000	594 31	0.00	594.33	488.60	1125.52	313.08	1275.40	0.00	0.00	260.00	280.00	0.00
15330.000	594.42	0.11	594.44	383.69	1117.55	319.68	1276.77	0.03	67.15	260.00	280.00	450.84
* 16690.000	594 56	0.00	594.76	141.00	750.56	999.47	998.97	141.00	714.00	778.00	795.00	855.00
* 16690.000	594 67	0.11	594.86	141.00	756.00	988.51	1004.48	141.00	714.00	778.00	795.00	855.00

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
16730.000	594.73	0.00	594.83	127.60	0.00	2749.00	0.00	130.00	1400.00	1400.00	1530.00	1530.00
16730.000	594.83	0.10	594.93	127.60	0.00	2749.00	0.00	130.00	1400.00	1400.00	1530.00	1530.00
16771.000	594.75	0.00	594.85	127.60	0.00	2749.00	0.00	130.00	1400.00	1400.00	1530.00	1530.00
16771.000	594.84	0.10	594.94	127.60	0.00	2749.00	0.00	130.00	1400.00	1400.00	1530.00	1530.00

SUMMARY OF ERRORS AND SPECIAL NOTES

WARNING	SECNO=	6120.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING	SECNO=	6120.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING	SECNO=	8700.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING	SECNO=	8700.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING	SECNO=	11276.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING	SECNO=	11276.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING	SECNO=	11291.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING	SECNO=	11291.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING	SECNO=	11700.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING	SECNO=	11700.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING	SECNO=	12750.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING	SECNO=	12750.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING	SECNO=	16690.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING	SECNO=	16690.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

Floodway width summary: E BRANCH OF THE CLINTON
Profile No. 2

Section Number	Elevation Increase	Top Width	Left Encroach Station	Left Sta Distance From Center	Center Station	Right Sta Distance From Center	Right Encroach Station
0.000	0.10	670.00	114.13	280.87	395.00	389.13	784.13
450.000	0.10	649.08	132.44	262.56	395.00	386.53	781.53
1420.000	0.10	1087.22	32.72	742.28	775.00	344.94	1119.94
2350.000	0.10	768.09	302.96	112.04	415.00	656.06	1071.06
3220.000	0.10	1050.00	1200.00	740.50	1940.50	309.50	2250.00
3268.000	0.10	872.00	1200.00	820.05	2020.05	51.95	2072.00
3269.000	0.10	874.00	1200.00	820.05	2020.05	53.95	2074.00
3304.000	0.10	920.00	1200.00	820.05	2020.05	99.95	2120.00
3305.000	0.10	922.00	1200.00	820.05	2020.05	101.95	2122.00
5050.000	0.10	327.32	217.45	304.55	522.00	22.77	544.77
6120.000	0.10	647.17	289.17	235.58	524.75	411.59	936.34
6134.000	0.10	647.17	289.17	235.58	524.75	411.59	936.34
8150.000	0.10	540.62	1001.74	422.26	1424.00	118.36	1542.36
8700.000	0.10	619.28	105.93	586.57	692.50	32.71	725.21
9350.000	0.10	454.77	117.24	192.76	310.00	262.01	572.01
10180.000	0.10	431.35	1523.33	259.17	1782.50	172.18	1954.68
10880.000	0.10	435.46	1518.34	265.71	1784.05	169.75	1953.80
10895.000	0.11	435.46	1518.34	265.71	1784.05	169.75	1953.80
10965.000	0.11	382.17	362.51	313.99	676.50	68.18	744.68
11275.000	0.11	648.51	213.06	360.14	573.20	288.37	861.57
11276.000	0.11	641.85	219.89	353.31	573.20	288.54	861.74
11290.000	0.11	641.90	219.86	353.34	573.20	288.55	861.75
11291.000	0.11	648.70	213.54	359.66	573.20	289.04	862.24
11700.000	0.11	562.98	180.46	496.04	676.50	66.94	743.44
12750.000	0.11	296.11	261.21	69.79	331.00	226.32	557.32
14540.000	0.11	403.22	897.63	382.87	1280.50	20.35	1300.85
15330.000	0.11	383.69	67.15	202.85	270.00	180.84	450.84
16690.000	0.11	141.00	714.00	72.50	786.50	68.50	855.00
16730.000	0.10	130.00	1400.00	65.00	1465.00	65.00	1530.00
16771.000	0.10	130.00	1400.00	65.00	1465.00	65.00	1530.00

FLOODWAY DATA, E BRANCH OF THE CLINTON
PROFILE NO. 2

STATION	------- FLOODWAY ------- WIDTH	SECTION AREA	MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
0.000	670.	7235.	0.6	593.2	593.1	0.1
450.000	649.	6981.	0.6	593.2	593.1	0.1
1420.000	1087.	11134.	0.4	593.2	593.1	0.1
2350.000	768	6938.	0.6	593.2	593.1	0.1
3220.000	850.	5724.	0.7	593.3	593.2	0.1
3268.000	872	5374.	0.7	593.3	593.2	0.1
3269.000	874.	5026.	0.8	593.3	593.2	0.1
3304.000	920.	5126.	0.8	593.3	593.2	0.1
3305.000	922	5496.	0.7	593.3	593.2	0.1
5050.000	327	4140.	0.9	593.3	593.2	0.1
6120 000	547.	5543.	0.7	593.4	593.3	0.1
6134.000	647.	5556.	0.7	593.4	593.3	0.1
8150.000	541	4383.	0.9	593.4	593.3	0.1
8700.000	619	3458.	1.1	593.5	593.4	0.1
9350.000	455	3595.	1.1	593.5	593.4	0.1
10180.000	431	3160.	1.2	593.6	593.5	0.1
10880 000	435	3265.	1.2	593.7	593.6	0.1
10895.000	435	3318.	1.2	593.8	593.7	0.1
10965.000	382	3487.	1.1	593.8	593.7	0.1
11275.000	649	4649.	0.8	593.9	593.8	0.1
11276.000	642	4590.	0.9	593.9	593.8	0.1
11290.000	642	4590.	0.9	593.9	593 8	0.1
11291.000	643	4657.	0.8	593.9	593.8	0.1
11700.000	562	4512.	0.9	593.9	593.8	0.1
12750.000	296	2004.	1.4	593.9	593.8	0.1
14540.000	403	2440.	1.1	594.2	594.1	0.1
15330.000	384	2425.	1.1	594.4	594.3	0.1
16690.000	141.	924.	3.0	594.7	594.6	0.1
16730.000	130	1089.	2.5	594.8	594.7	0.1
16771.000	130	1091.	2.5	594.8	594.7	0.1

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Clinton Twp.

3) WATERCOURSE: Miller Drain

4) DOCUMENT TYPE: 10, 50, 100, 500 Yr. flood
& encroached

00BREAK00

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                                                                        THIS RUN EXECUTED 23DEC93    08:26:53
 ****************************************
  HEC-2 WATER SURFACE PROFILES

  Version    4.6.0;  February 1991
 ****************************************


 T1 CLINTON TOWNSHIP FLOOD INSURANCE STUDY
 T2 UPDATED 10 YEAR FLOOD  STS CONSULTANTS LTD. 12/93 MMW
 T3 MILLER DRAIN

 J1   ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      -1.0       2.0       0.0       0.0       0.0       0.0       0.0       0.0       581.1     0.0

 J2   NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      1.0        0.0       -1.0      0.0       0.0       0.0       0.0       0.0       0.0       0.0


 J3   VARIABLE CODES FOR SUMMARY PRINTOUT

    150.0

 QT       4.0     260.0     380.0     430.0     590.0       0.0       0.0       0.0       0.0       0.0
 NC       0.0       0.0       0.0       .10       .30       0.0       0.0       0.0       0.0       0.0
 NH       5.0       .05     250.0       .09     259.0       .05     269.0       .09     280.0       .05
 NH     520.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
 X1       0.0      16.0     250.0     280.0       0.0       0.0       0.0       0.0      -3.1       0.0
 GR     593.1       0.0     591.6      50.0     589.4     150.0     586.8     200.0     585.0     250.0
 GR     579.5     259.0     580.1     264.0     579.6     269.0     584.1     280.0     583.2     300.0
 GR     585.0     350.0     590.5     427.0     590.4     450.0     590.8     461.0     590.9     488.0
 GR     594.1     520.0

 NH       5.0       .05     250.0       .09     259.0       .05     269.0       .09     280.0       .05
 NH     520.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
 X1     850.0       0.0       0.0       0.0     850.0     850.0     850.0       0.0       3.1       0.0

 NC      0.05      0.05      0.04       0.3       0.5       0.0       0.0       0.0       0.0       0.0
 X1     989.0      15.0     166.0     194.0     200.0     190.0     190.0       0.0       0.0       0.0
 X3      10.0       0.0       0.0       0.0       0.0       0.0       0.0     588.0     588.0       0.0
 GR     589.6       0.0     588.0      80.0     586.0     165.0     580.0     166.0     579.6     168.0
 GR     579.5     180.0     579.6     192.0     580.0     194.0     586.0     195.0     586.0     222.0
 GR     586.0     237.0     586.1     295.0     588.0     330.0     589.5     400.0     589.8     450.0

 NC       0.0       0.0       .03       0.0       0.0       0.0       0.0       0.0       0.0       0.0
 X1     990.0       0.0       0.0       0.0       1.0       1.0       1.0       0.0       0.0       0.0
 BT      10.0       0.0     589.6     589.6      80.0     589.0     586.0     165.0     588.7     586.0
 BT     194.0     588.7     586.0     195.0     588.7     586.0     237.0     589.0     586.0     295.0
 BT     589.4     586.1     330.0     589.6     588.0     400.0     589.7     589.5     450.0     589.8
 BT     589.8       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
```

X1	1010.0	0.0	0.0	0.0	53.0	53.0	53.0	0.0	0.0	0.0
X2	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0

NC	0.0	0.0	0.045	0.0	0.0	0.0	0.0	0.0	0.0	0.0
X1	1011.0	0.0	0.0	0.0	1.0	1.0	1.0	0.0	0.0	0.0
X3	10.0	0.0	0.0	0.0	0.0	0.0	0.0	588.7	588.7	0.0

NC	0.0	0.0	0.0	0.1	0.3	0.0	0.0	0.0	0.0	0.0
NH	5.0	.055	900.0	.09	908.0	.05	920.0	.09	927.0	.055
NH	1600.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
X1	2270.0	23.0	908.0	920.0	1220.0	1259.0	1340.0	0.0	0.0	0.0
GR	597.2	0.0	597.3	100.0	597.1	200.0	596.4	300.0	596.5	405.0
GR	596.5	500.0	595.2	600.0	595.0	700.0	593.1	800.0	588.7	875.0
GR	587.4	900.0	583.1	908.0	582.6	915.0	583.1	920.0	586.8	927.0
GR	586.9	1000.0	589.4	1040.0	588.0	1100.0	592.0	1200.0	595.4	1300.0
GR	595.6	1400.0	595.7	1500.0	595.3	1600.0	0.0	0.0	0.0	0.0

NH	7.0	.035	400.0	.055	900.0	.09	910.0	.05	923.0	.095
NH	939.0	.05	1900.0	.095	2300.0	0.0	0.0	0.0	0.0	0.0
X1	3200.0	33.0	900.0	939.0	950.0	950.0	950.0	0.0	0.0	0.0
X3	0.0	0.0	0.0	0.0	0.0	1100.0	0.0	0.0	0.0	0.0
GR	597.9	0.0	597.9	100.0	597.6	200.0	597.1	300.0	596.6	400.0
GR	596.2	500.0	596.5	583.0	595.7	603.0	594.3	700.0	590.0	800.0
GR	588.3	850.0	588.6	900.0	584.5	910.0	583.7	915.0	584.7	918.0
GR	584.4	923.0	587.2	939.0	587.5	974.0	592.1	1000.0	595.4	1028.0
GR	596.0	1100.0	595.8	1200.0	593.0	1300.0	593.9	1400.0	595.8	1500.0
GR	596.9	1600.0	595.7	1700.0	595.7	1800.0	596.9	1900.0	597.3	2000.0
GR	596.2	2100.0	596.5	2200.0	596.8	2300.0	0.0	0.0	0.0	0.0

NC	0.0	0.0	0.0	0.3	0.5	0.0	0.0	0.0	0.0	0.0
NH	5.0	.05	900.0	.09	930.0	.05	941.0	.09	974.0	.05
NH	1028.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
X1	3662.0	20.0	930.0	941.0	462.0	462.0	462.0	0.0	0.0	0.0
GR	597.9	0.0	597.9	100.0	597.6	200.0	597.1	300.0	596.6	400.0
GR	596.2	500.0	596.5	583.0	595.7	603.0	594.3	700.0	590.0	800.0
GR	588.3	850.0	588.4	900.0	588.4	930.0	582.4	930.0	582.2	935.0
GR	582.4	941.0	588.4	941.0	588.4	974.0	592.1	1000.0	595.4	1028.00

NC	.06	.085	.051	0.0	0.0	0.0	0.0	0.0	0.0	0.0
X1	3663.0	0.0	0.0	0.0	1.0	1.0	1.0	0.0	0.0	0.0
BT	9.0	700.0	594.3	580.0	800.0	590.0	580.0	850.0	588.3	580.0
BT	900.0	588.4	580.0	930.0	588.4	587.3	941.0	588.4	587.3	974.0
BT	588.4	580.0	1000.0	592.1	580.0	1028.0	595.4	580.0	0.0	0.0

X1	3675.0	0.0	0.0	0.0	12.0	12.0	12.0	0.0	0.0	0.0
X2							1.0			

NH	5.0	.05	900.0	.09	930.0	.05	941.0	.09	974.0	.05
NH	1028.0									

X1	3676.0	0.0	0.0	0.0	1.0	1.0	1.0	0.0	0.0	0.0
NC	0.0	0.0	0.0	0.2	0.4	0.0	0.0	0.0	0.0	0.0
NH	3.0	.095	200.0	.05	228.0	.095	700.0	0.0	0.0	0.0
ET	0.0	6.1	6.1	6.1	8.1	190.0	233.0	1.0	560.0	0.0
X1	4800.0	15.00	200.0	228.0	1074.0	1074.0	1124.0	0.0	0.0	0.0
GR	596.2	0.0	595.1	72.0	594.3	86.0	594.3	105.0	593.5	115.0
GR	588.9	200.0	586.3	203.0	584.8	211.0	585.5	221.0	589.8	228.0
GR	590.4	300.0	593.9	400.0	596.3	500.0	597.5	600.0	597.8	700.0
QT	4.0	245.0	360.0	410.0	560.0	0.0	0.0	0.0	0.0	0.0
ET	0.0	6.1	6.1	6.1	8.1	886.5	908.2	1.0	1871.5	0.0
NC	.095	.095	.05	0.3	0.5	0.0	0.0	0.0	0.0	0.0
X1	4892.0	31.0	900.0	922.0	34.0	34.0	34.0	.985	0.0	0.0
GR	597.7	0.0	597.6	100.0	597.3	200.0	597.1	300.0	596.5	400.0
GR	596.7	500.0	597.0	600.0	595.5	700.0	595.1	772.0	594.3	786.0
GR	594.3	805.0	593.5	815.0	590.0	897.5	588.9	900.0	586.2	905.0
GR	585.7	910.0	585.1	914.0	585.5	918.0	588.6	922.0	589.8	922.0
GR	589.8	922.5	590.4	1000.0	593.9	1100.0	596.3	1200.0	597.5	1300.0
GR	597.8	1400.0	598.4	1500.0	598.0	1600.0	597.7	1700.0	597.3	1800.0
GR	596.9	1900.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SB	0.0	2.0	2.95	0.0	21.67	0.0	123.6	0.0	585.1	585.1
ET	0.0	6.1	6.1	6.1	8.1	886.5	908.2	1.0	1871.5	0.0
NC	.055	.055	.05	0.0	0.0	0.0	0.0	0.0	0.0	0.0
X1	4926.0	32.0	900.0	922.0	36.0	36.0	36.0	.985	0.0	0.0
X2	0.0	0.0	1.0	592.0	594.6	0.0	0.0	0.0	.985	0.0
X4	1.0	594.45	1106.155							
BT	29.0	0.0	597.7	580.0	100.0	597.6	580.0	200.0	597.3	580.0
BT	300.0	597.1	580.0	400.0	596.5	580.0	500.0	596.7	580.0	600.0
BT	597.0	580.0	700.0	595.5	580.0	772.0	595.1	580.0	805.0	594.9
BT	580.0	897.5	594.6	580.0	897.5	595.5	580.0	900.0	595.5	588.9
BT	900.0	595.5	592.0	922.0	595.5	592.0	922.0	595.5	589.8	922.5
BT	595.5	589.8	922.5	594.6	580.0	1000.0	594.7	580.0	1100.0	595.5
BT	580.0	1123.0	595.4	580.0	1200.0	597.1	580.0	1300.0	598.0	580.0
BT	1400.0	598.2	580.0	1500.0	598.4	580.0	1600.0	598.0	580.0	1700.0
BT	597.7	580.0	1800.0	597.3	580.0	1900.0	596.9	580.0	0.0	0.0
GR	597.7	0.0	597.6	100.0	597.3	200.0	597.1	300.0	596.5	400.0
GR	596.7	500.0	597.0	600.0	595.5	700.0	595.1	772.0	594.3	786.0
GR	594.3	805.0	593.5	815.0	590.0	897.5	588.9	900.0	586.2	905.0
GR	585.7	910.0	585.1	914.0	585.5	918.0	588.6	922.0	589.8	922.0
GR	589.8	922.5	590.4	1000.0	593.9	1100.0	594.5	1123.0	596.3	1200.0
GR	597.5	1300.0	597.8	1400.0	598.4	1500.0	598.0	1600.0	597.7	1700.0
GR	597.3	1800.0	596.9	1900.0	0.0	0.0	0.0	0.0	0.0	0.0
NH	3.0	.055	200.0	.05	228.0	.055	700.0	0.0	0.0	0.0
X1	5101.0	15.0	200.0	228.0	175.0	175.0	175.0	0.0	.27	0.0
GR	596.2	0.0	595.1	72.0	594.3	86.0	594.3	105.0	593.5	115.0
GR	588.9	200.0	586.3	203.0	584.8	211.0	585.5	221.0	589.8	228.0
GR	590.4	300.0	593.9	400.0	596.3	500.0	597.5	600.0	597.8	700.0

NC	0.055	0.055	0.05	.10	.30	0.0	0.0	0.0	0.0	0.0
X1	6610.0	15.0	165.0	193.0	1509.0	1509.0	1509.0	0.0	0.0	0.0
GR	598.0	0.0	596.0	100.0	594.0	130.0	592.0	155.0	590.0	165.0
GR	586.2	170.0	585.6	172.0	585.0	176.0	585.0	179.0	585.8	183.0
GR	590.0	193.0	592.0	210.0	594.0	223.0	596.0	295.0	597.0	395.0
QT	4.0	180.0	265.0	300.0	415.0	0.0	0.0	0.0	0.0	0.0
X1	7390.0	13.0	68.0	100.0	720.0	800.0	780.0	0.0	0.0	0.0
GR	598.0	0.0	596.0	20.0	594.0	50.0	592.0	60.0	590.0	68.0
GR	586.5	73.0	585.6	75.0	585.6	97.0	590.0	100.0	592.0	108.0
GR	594.0	135.0	595.1	230.0	596.0	300.0	0.0	0.0	0.0	0.0
X1	8510.0	11.0	35.0	58.0	1100.0	1160.0	1120.0	0.0	0.0	0.0
GR	600.0	0.0	590.0	35.0	587.1	40.0	586.2	47.0	586.9	54.0
GR	588.4	58.0	590.0	85.0	592.0	120.0	594.0	160.0	596.0	212.0
GR	596.4	280.0								
NC	0.04	0.05	0.045	0.0	0.0	0.0	0.0	0.0	0.0	0.0
X1	10220.	15.0	92.0	115.0	1710.0	1740.0	1710.0	0.0	0.0	0.0
GR	598.0	0.0	596.0	35.0	594.0	50.0	592.0	70.0	590.0	85.0
GR	588.4	92.0	587.6	95.0	586.6	101.0	587.6	112.0	588.5	115.0
GR	590.0	130.0	594.0	145.0	596.0	180.0	598.0	195.0	599.8	220.0

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 SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
 Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
 TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
 SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*PROF 1


CCHV=     0.100 CEHV=     0.300
1490 NH CARD USED
*SECNO 0.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
      0.000      4.70     581.10      0.00     581.10     581.19      0.09       0.00       0.00     581.90
      260.0       0.0      227.3      32.7        0.0       87.7      24.9        0.0        0.0     581.00
       0.00      0.00       2.59      1.31      0.000      0.078     0.050      0.000     576.40     251.31
   0.004645        0.         0.        0.          0          0         0       0.00      76.47     327.78

1490 NH CARD USED
*SECNO 850.000
    850.000      4.91     584.41      0.00       0.00     584.48      0.07       3.29       0.00     585.00
      260.0       0.0      212.4      47.6        0.0       94.1      36.3        2.4        1.6     584.10
       0.11      0.00       2.26      1.31      0.000      0.078     0.050      0.000     579.50     250.94
   0.003269      850.       850.      850.          3          0         0       0.00      83.06     334.00

CCHV=     0.300 CEHV=     0.500
*SECNO 989.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  3.32


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       588.00 ELREA=       588.00

    989.000      5.07     584.57      0.00       0.00     584.62      0.05       0.13       0.00     580.00
      260.0       0.0      260.0       0.0        0.0      139.5       0.0        3.0        1.8     580.00
       0.14      0.00       1.86      0.00      0.000      0.040     0.000      0.000     579.50     166.00
   0.000297      200.       190.      190.          2          0         0       0.00      28.00     194.00


*SECNO 990.000

3370 NORMAL BRIDGE, NRD=  10 MIN ELTRD=    588.70 MAX ELLC=    586.00

    990.000      5.07     584.57      0.00       0.00     584.62      0.05       0.00       0.00     580.00
      260.0       0.3      259.3       0.3        1.7      139.6       1.7        3.0        1.8     580.00
       0.14      0.20       1.86      0.20      0.050      0.030     0.050      0.000     579.50     165.24
   0.000166        1.         1.        1.          0          0         0       0.00      29.52     194.76
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 1010.000

3370 NORMAL BRIDGE, NRD= 10 MIN ELTRD= 588.70 MAX ELLC= 586.00

1010.000	5.08	584.58	0.00	0.00	584.63	0.05	0.01	0.00	580.00
260.0	0.3	259.3	0.3	1.7	139.9	1.7	3.1	1.8	580.00
0.15	0.20	1.85	0.20	0.050	0.030	0.050	0.000	579.50	165.24
0.000165	53.	53.	53.	0	0	0	0.00	29.53	194.76

*SECNO 1011.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.66

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 588.70 ELREA= 588.70

1011.000	5.08	584.58	0.00	0.00	584.63	0.05	0.00	0.00	580.00
260.0	0.0	260.0	0.0	0.0	139.8	0.0	3.1	1.8	580.00
0.15	0.00	1.86	0.00	0.000	0.045	0.000	0.000	579.50	166.00
0.000373	1.	1.	1.	0	0	0	0.00	28.00	194.00

CCHV= 0.100 CEHV= 0.300
1490 NH CARD USED
*SECNO 2270.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.16

2270.000	3.00	585.60	0.00	0.00	586.32	0.72	1.49	0.20	583.10
260.0	12.5	234.8	12.7	5.8	32.9	5.9	6.0	2.6	583.10
0.21	2.16	7.14	2.16	0.090	0.050	0.090	0.000	582.60	903.37
0.015114	1220.	1340.	1259.	4	0	0	0.00	21.35	924.71

1490 NH CARD USED
*SECNO 3200.000

3301 HV CHANGED MORE THAN HVINS

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SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  3.78


3470 ENCROACHMENT STATIONS=        0.0    1100.0  TYPE=      1  TARGET=      1099.999
  3200.000      5.18     588.88       0.00       0.00     588.90       0.03       2.51       0.07     588.60
     260.0      12.4      175.3       72.3       26.1      132.0       58.7        8.8        4.4     587.20
      0.41      0.48       1.33       1.23      0.055      0.080      0.050      0.000     583.70     833.10
  0.001058      950.       950.       950.          5          0          0       0.00     148.67     981.77

CCHV=    0.300 CEHV=     0.500
1490 NH CARD USED
*SECNO 3662.000
  3662.000      7.15     589.35       0.00       0.00     589.40       0.05       0.49       0.01     588.40
     260.0      73.6      168.2       18.2       95.1       77.6       34.7       11.1        6.1     588.40
      0.49      0.77       2.17       0.52      0.058      0.050      0.086      0.000     582.20     819.02
  0.001052      462.       462.       462.          4          0          0       0.00     161.68     980.70

*SECNO 3663.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  0.68


3370 NORMAL BRIDGE, NRD=    9 MIN ELTRD=    588.30 MAX ELLC=    587.30

  3663.000      7.18     589.38       0.00       0.00     589.41       0.03       0.00       0.00     588.40
     260.0     109.4      122.3       28.3       97.5       65.7       35.5       11.1        6.1     588.40
      0.49      1.12       1.86       0.80      0.060      0.051      0.085      0.000     582.20     818.38
  0.002302        1.         1.         1.          2          0          0     -12.10     162.47     980.85

*SECNO 3675.000

3370 NORMAL BRIDGE, NRD=    9 MIN ELTRD=    588.30 MAX ELLC=    587.30

  3675.000      7.20     589.40       0.00       0.00     589.44       0.03       0.03       0.00     588.40
     260.0     111.0      120.4       28.7       99.8       65.9       36.3       11.1        6.1     588.40
      0.49      1.11       1.83       0.79      0.060      0.051      0.085      0.000     582.20     817.79
  0.002206       12.        12.        12.          0          0          0     -12.10     163.21     980.99
```

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

1490 NH CARD USED
*SECNO 3676.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.51

3676.000	7.20	589.40	0.00	0.00	589.44	0.05	0.00	0.01	588.40
260.0	77.4	163.4	19.2	101.0	78.2	36.8	11.1	6.1	588.40
0.50	0.77	2.09	0.52	0.058	0.050	0.086	0.000	582.20	817.46
0.000968	1.	1.	1.	0	0	0	0.00	163.61	981.07

CCHV= 0.200 CEHV= 0.400
1490 NH CARD USED
*SECNO 4800.000

3470 ENCROACHMENT STATIONS= 190.0 233.0 TYPE= 1 TARGET= 43.000

4800.000	5.59	590.39	0.00	0.00	590.46	0.07	1.00	0.01	588.90
260.0	5.9	253.3	0.8	12.2	118.6	2.8	15.5	8.7	589.80
0.64	0.49	2.14	0.29	0.095	0.050	0.095	0.000	584.80	190.00
0.000838	1074.	1124.	1074.	3	0	0	0.00	43.00	233.00

CCHV= 0.300 CEHV= 0.500
*SECNO 4892.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.67

3470 ENCROACHMENT STATIONS= 886.5 908.2 TYPE= 1 TARGET= 21.700

4892.000	5.30	590.40	0.00	0.00	590.52	0.12	0.04	0.02	588.90
245.0	0.0	245.0	0.0	0.0	89.2	0.0	15.6	8.7	589.80
0.65	0.00	2.75	0.01	0.000	0.050	0.095	0.000	585.10	886.50
0.001673	34.	34.	34.	1	0	0	0.00	21.70	908.20

SPECIAL BRIDGE

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
0.00	2.00	2.95	0.00	21.67	0.00	123.60	0.00	585.10	585.10

*SECNO 4926.000

```
   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


6070,LOW FLOW BY NORMAL BRIDGE

EGPRS=      0.000  EGLWC=     590.520  ELLC=     592.000  PCWSE=     590.402  ELTRD=     594.600

3370 NORMAL BRIDGE, NRD=  29 MIN ELTRD=   594.60 MAX ELLC=    592.00


3470 ENCROACHMENT STATIONS=       886.5      908.2  TYPE=       1  TARGET=       21.700
  4926.000       5.37     590.47       0.00       0.00     590.58       0.11       0.06       0.00     588.90
     245.0        0.0      245.0        0.0        0.0       90.4        0.0       15.7        8.7     589.80
      0.65       0.00       2.71       0.00      0.000      0.050      0.000      0.000     585.10     886.50
  0.001840        36.        36.        36.          2          0          0      -0.02      21.70     908.20


1490 NH CARD USED
*SECNO 5101.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.72

  5101.000       5.66     590.73       0.00       0.00     590.78       0.05       0.17       0.02     589.17
     245.0       12.7      223.6        8.7       22.4      120.6       25.8       16.2        9.1     590.07
      0.68       0.57       1.85       0.34      0.055      0.050      0.055      0.000     585.07     171.22
  0.000619       175.       175.       175.          2          0          0       0.00     130.42     301.64


CCHV=    0.100 CEHV=      0.300
*SECNO 6610.000
  6610.000       6.55     591.55       0.00       0.00     591.60       0.05       0.82       0.00     590.00
     245.0        3.0      236.9        5.1        6.0      134.4       10.2       21.8       12.2     590.00
      0.92       0.50       1.76       0.50      0.055      0.050      0.055      0.000     585.00     157.24
  0.000484      1509.      1509.      1509.          3          0          0       0.00      48.96     206.20


*SECNO 7390.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.40

  7390.000       6.18     591.78       0.00       0.00     591.80       0.02       0.20       0.00     590.00
     180.0        1.8      176.4        1.8        6.4      177.1        6.4       24.8       13.0     590.00
      1.14       0.28       1.00       0.28      0.055      0.050      0.055      0.000     585.60      60.87
  0.000132       720.       780.       800.          2          0          0       0.00      46.27     107.13
```

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
*SECNO 8510.000									
8510.000	5.75	591.95	0.00	0.00	591.97	0.01	0.17	0.00	590.00
180.0	2.2	115.1	62.6	6.7	109.2	107.7	30.2	14.8	588.40
1.50	0.34	1.05	0.58	0.055	0.050	0.055	0.000	586.20	28.16
0.000168	1100.	1120.	1160.	2	0	0	0.00	91.02	119.19
*SECNO 10220.000									
10220.000	5.60	592.20	0.00	0.00	592.22	0.01	0.25	0.00	588.40
180.0	26.9	119.2	34.0	39.5	112.0	53.6	38.6	18.0	588.50
2.01	0.68	1.06	0.63	0.040	0.045	0.050	0.000	586.60	67.88
0.000128	1710.	1710.	1740.	0	0	0	0.00	70.41	138.29

T1 CLINTON TOWNSHIP FLOOD INSURANCE STUDY
T2 UPDATED 50 YEAR FLOOD 380 CFS STS CONSULTANTS LTD. 12/93 MMW
T3 MILLER DRAIN

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-1.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	583.1	0.0

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	2.0	0.0	-1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

```
SECNO      DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
Q          QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
TIME       VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
SLOPE      XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


*PROF 2


CCHV=    0.100 CEHV=     0.300
1490 NH CARD USED
*SECNO 0.000
     0.000      6.70    583.10      0.00    583.10    583.12      0.02      0.00      0.00    581.90
     380.0       9.9     178.5     191.5      20.0     147.1     166.1       0.0       0.0    581.00
      0.00      0.50      1.21      1.15     0.050     0.079     0.050     0.000    576.40    216.67
  0.000552        0.        0.        0.         0         0         0      0.00    150.13    366.80

1490 NH CARD USED
*SECNO 850.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  0.24

   850.000      4.70    584.20      0.00      0.00    584.40      0.20      1.23      0.05    585.00
     380.0       0.0     332.4      47.6       0.0      87.6      24.8       4.3       2.2    584.10
      0.07      0.00      3.79      1.92     0.000     0.078     0.050     0.000    579.50    251.31
  0.009950      850.      850.      850.         3         0         0      0.00     76.42    327.73

CCHV=    0.300 CEHV=     0.500
*SECNO 989.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  4.02


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       588.00 ELREA=       588.00

   989.000      5.12    584.62      0.00      0.00    584.73      0.11      0.30      0.03    580.00
     380.0       0.0     380.0       0.0       0.0     140.8       0.0       4.9       2.4    580.00
      0.09      0.00      2.70      0.00     0.000     0.040     0.000     0.000    579.50    166.00
  0.000615      200.      190.      190.         2         0         0      0.00     28.00    194.00

*SECNO 990.000

3370 NORMAL BRIDGE, NRD=  10 MIN ELTRD=    588.70 MAX ELLC=    586.00

   990.000      5.12    584.62      0.00      0.00    584.73      0.11      0.00      0.00    580.00
     380.0       0.5     379.0       0.5       1.8     141.1       1.8       4.9       2.4    580.00
      0.09      0.29      2.69      0.29     0.050     0.030     0.050     0.000    579.50    165.23
  0.000342        1.        1.        1.         0         0         0      0.00     29.54    194.77
```

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 1010.000

3370 NORMAL BRIDGE, NRD= 10 MIN ELTRD= 588.70 MAX ELLC= 586.00

1010.000	5.14	584.64	0.00	0.00	584.75	0.11	0.02	0.00	580.00
380.0	0.5	379.0	0.5	1.8	141.7	1.8	5.1	2.5	580.00
0.09	0.29	2.67	0.29	0.050	0.030	0.050	0.000	579.50	165.23
0.000337	53.	53.	53.	0	0	0	0.00	29.55	194.77

*SECNO 1011.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.66

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 588.70 ELREA= 588.70

1011.000	5.14	584.64	0.00	0.00	584.75	0.11	0.00	0.00	580.00
380.0	0.0	380.0	0.0	0.0	141.5	0.0	5.1	2.5	580.00
0.09	0.00	2.69	0.00	0.000	0.045	0.000	0.000	579.50	166.00
0.000765	1.	1.	1.	0	0	0	0.00	28.00	194.00

CCHV= 0.100 CEHV= 0.300
1490 NH CARD USED
*SECNO 2270.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.29

2270.000	4.11	586.71	0.00	0.00	587.39	0.68	2.47	0.17	583.10
380.0	26.3	326.8	26.9	12.1	46.3	12.3	8.3	3.3	583.10
0.15	2.18	7.06	2.18	0.090	0.050	0.090	0.000	582.60	901.29
0.009371	1220.	1340.	1259.	4	0	0	0.00	25.54	926.82

1490 NH CARD USED
*SECNO 3200.000

3301 HV CHANGED MORE THAN HVINS

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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  3.20


3470 ENCROACHMENT STATIONS=          0.0     1100.0  TYPE=      1  TARGET=      1099.999
  3200.000      5.74     589.44       0.00       0.00     589.47       0.03       2.02       0.06     588.60
     380.0      51.4      211.4      117.2       69.1      154.2       84.0       12.4        5.4     587.20
      0.35      0.74       1.37       1.40      0.055      0.080      0.050      0.000     583.70     816.32
  0.000914      950.       950.       950.          4          0          0       0.00     168.68     984.99

CCHV=     0.300 CEHV=     0.500
1490 NH CARD USED
*SECNO 3662.000
  3662.000      7.68     589.88       0.00       0.00     589.92       0.04       0.44       0.01     588.40
     380.0     155.6      185.2       39.1      157.9       83.4       56.6       15.7        7.3     588.40
      0.44      0.99       2.22       0.69      0.058      0.050      0.084      0.000     582.20     803.47
  0.001003      462.       462.       462.          3          0          0       0.00     180.94     984.41

*SECNO 3663.000

3370 NORMAL BRIDGE, NRD=    9 MIN ELTRD=    588.30 MAX ELLC=    587.30

  3663.000      7.70     589.90       0.00       0.00     589.93       0.03       0.00       0.00     588.40
     380.0     203.0      124.7       52.4      158.4       71.4       56.8       15.7        7.3     588.40
      0.44      1.28       1.75       0.92      0.060      0.051      0.085      0.000     582.20     803.34
  0.001820        1.         1.         1.          1          0          0     -12.10     181.11     984.45

*SECNO 3675.000

3370 NORMAL BRIDGE, NRD=    9 MIN ELTRD=    588.30 MAX ELLC=    587.30

  3675.000      7.72     589.92       0.00       0.00     589.95       0.03       0.02       0.00     588.40
     380.0     204.6      122.7       52.8      161.7       71.6       58.0       15.7        7.3     588.40
      0.44      1.26       1.71       0.91      0.060      0.051      0.085      0.000     582.20     802.57
  0.001738       12.        12.        12.          0          0          0     -12.10     182.06     984.63

1490 NH CARD USED
*SECNO 3676.000
  3676.000      7.71     589.91       0.00       0.00     589.96       0.04       0.00       0.01     588.40
     380.0     158.4      181.7       39.9      162.7       83.8       58.3       15.7        7.3     588.40
      0.44      0.97       2.17       0.68      0.058      0.050      0.084      0.000     582.20     802.35
  0.000949        1.         1.         1.          0          0          0       0.00     182.34     984.68
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

CCHV=    0.200 CEHV=     0.400
1490 NH CARD USED
*SECNO 4800.000

3470 ENCROACHMENT STATIONS=      190.0      233.0  TYPE=       1  TARGET=       43.000
  4800.000      6.21    591.01      0.00    590.39    591.11      0.11      1.13      0.03    588.90
     380.0      12.9     364.1       3.0      18.3     135.9       5.9      21.6      10.1    589.80
      0.56      0.71      2.68      0.51     0.095     0.050     0.095     0.000    584.80    190.00
  0.001101     1074.     1124.     1074.         2         0         0      0.00     43.00    233.00

CCHV=    0.300 CEHV=     0.500
*SECNO 4892.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  0.65

3470 ENCROACHMENT STATIONS=      886.5      908.2  TYPE=       1  TARGET=       21.700
  4892.000      5.92    591.02      0.00    590.40    591.21      0.19      0.05      0.04    588.90
     360.0       0.0     360.0       0.0       0.0     102.3       0.0      21.7      10.1    589.80
      0.56      0.00      3.52      0.01     0.000     0.050     0.095     0.000    585.10    886.50
  0.002354       34.       34.       34.         2         0         0      0.00     21.70    908.20


SPECIAL BRIDGE

SB  XK         XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.00      2.00      2.95      0.00     21.67      0.00    123.60      0.00    585.10    585.10

*SECNO 4926.000

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS=      0.000  EGLWC=     591.209  ELLC=     592.000  PCWSE=     591.017  ELTRD=     594.600

3370 NORMAL BRIDGE, NRD=  29 MIN ELTRD=    594.60 MAX ELLC=    592.00

3470 ENCROACHMENT STATIONS=      886.5      908.2  TYPE=       1  TARGET=       21.700
  4926.000      6.02    591.12      0.00    590.47    591.30      0.18      0.09      0.00    588.90
     360.0       0.0     360.0       0.0       0.0     104.5       0.0      21.8      10.2    589.80
      0.56      0.00      3.44      0.00     0.000     0.050     0.000     0.000    585.10    886.50
  0.002748       36.       36.       36.         2         0         0     -0.04     21.70    908.20
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 SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
 Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
 TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
 SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

1490 NH CARD USED
*SECNO 5101.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.28

  5101.000     6.41    591.48      0.00    590.73    591.52      0.04      0.18      0.04    589.17
     360.0     33.6     270.0      56.3      49.3     141.6      89.3      22.6      10.5    590.07
      0.59     0.68      1.91      0.63     0.055     0.050     0.055     0.000    585.07    157.32
  0.000528     175.      175.      175.         2         0         0      0.00    165.82    323.14

CCHV=     0.100 CEHV=     0.300
*SECNO 6610.000
  6610.000     7.30    592.30      0.00    591.55    592.37      0.07      0.84      0.01    590.00
     360.0     10.2     332.5      17.3      13.6     155.4      22.5      30.7      14.5    590.00
      0.80     0.75      2.14      0.77     0.055     0.050     0.055     0.000    585.00    151.20
  0.000587    1509.     1509.     1509.         3         0         0      0.00     60.78    211.98

*SECNO 7390.000
  7390.000     7.00    592.60      0.00    591.78    592.62      0.02      0.25      0.00    590.00
     265.0      6.2     252.4       6.4      13.7     203.2      15.2      34.5      15.5    590.00
      0.98     0.45      1.24      0.42     0.055     0.050     0.055     0.000    585.60     57.01
  0.000171     720.      780.      800.         2         0         0      0.00     59.06    116.07

*SECNO 8510.000
  8510.000     6.60    592.80      0.00    591.95    592.81      0.01      0.19      0.00    590.00
     265.0      5.7     148.1     111.2      13.7     128.5     166.2      41.5      17.7    588.40
      1.32     0.42      1.15      0.67     0.055     0.050     0.055     0.000    586.20     25.22
  0.000162    1100.     1120.     1160.         2         0         0      0.00    110.68    135.90

*SECNO 10220.000
 10220.000     6.45    593.05      0.00    592.20    593.06      0.02      0.25      0.00    588.40
     265.0     50.7     158.9      55.4      63.1     131.2      74.3      52.9      21.6    588.50
      1.78     0.80      1.21      0.75     0.040     0.045     0.050     0.000    586.60     59.54
  0.000135    1710.     1710.     1740.         2         0         0      0.00     81.89    141.42
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T1 CLINTON TOWNSHIP FLOOD INSURANCE STUDY
T2 UPDATED 100 YEAR FLOOD 430 CFS STS CONSULTANTS LTD. 12/93 MMW
T3 MILLER DRAIN

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-1.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	584.2	0.0
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	3.0	0.0	-1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 3


CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 0.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
    0.000      7.80    584.20      0.00    584.20    584.21      0.01      0.00      0.00    581.90
    430.0      37.8     152.9     239.3      72.4     180.2     270.0       0.0       0.0    581.00
     0.00      0.52      0.85      0.89     0.050     0.079     0.050     0.000    576.40    190.38
 0.000206        0.        0.        0.         0         0         0      0.00    191.82    382.20

1490 NH CARD USED
*SECNO 850.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  0.18

  850.000      5.11    584.61      0.00      0.00    584.76      0.15      0.51      0.04    585.00
    430.0       0.0     330.6      99.4       0.0      99.8      47.2       6.5       2.7    584.10
     0.08      0.00      3.31      2.11     0.000     0.078     0.050     0.000    579.50    250.63
 0.006657      850.      850.      850.         2         0         0      0.00     88.71    339.34

CCHV=    0.300 CEHV=    0.500
*SECNO 989.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  3.21

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       588.00 ELREA=       588.00

  989.000      5.42    584.92      0.00      0.00    585.05      0.13      0.29      0.01    580.00
    430.0       0.0     430.0       0.0       0.0     149.4       0.0       7.2       3.0    580.00
     0.10      0.00      2.88      0.00     0.000     0.040     0.000     0.000    579.50    166.00
 0.000647      200.      190.      190.         2         0         0      0.00     28.00    194.00

*SECNO 990.000

3370 NORMAL BRIDGE, NRD=  10 MIN ELTRD=    588.70 MAX ELLC=    586.00

  990.000      5.42    584.92      0.00      0.00    585.05      0.13      0.00      0.00    580.00
    430.0       0.6     428.8       0.6       2.0     149.5       2.0       7.2       3.0    580.00
     0.10      0.31      2.87      0.31     0.050     0.030     0.050     0.000    579.50    165.18
 0.000361        1.        1.        1.         0         0         0      0.00     29.64    194.82
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 1010.000

3370 NORMAL BRIDGE, NRD= 10 MIN ELTRD= 588.70 MAX ELLC= 586.00

1010.000	5.44	584.94	0.00	0.00	585.07	0.13	0.02	0.00	580.00
430.0	0.6	428.7	0.6	2.0	150.2	2.0	7.4	3.0	580.00
0.10	0.31	2.85	0.31	0.050	0.030	0.050	0.000	579.50	165.17
0.000355	53.	53.	53.	0	0	0	0.00	29.65	194.83

*SECNO 1011.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.66

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 588.70 ELREA= 588.70

1011.000	5.44	584.94	0.00	0.00	585.07	0.13	0.00	0.00	580.00
430.0	0.0	430.0	0.0	0.0	150.0	0.0	7.4	3.0	580.00
0.10	0.00	2.87	0.00	0.000	0.045	0.000	0.000	579.50	166.00
0.000806	1.	1.	1.	0	0	0	0.00	28.00	194.00

CCHV= 0.100 CEHV= 0.300
1490 NH CARD USED
*SECNO 2270.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.32

2270.000	4.48	587.08	586.06	0.00	587.70	0.62	2.48	0.15	583.10
430.0	31.4	351.4	47.1	14.6	50.6	30.8	11.1	4.9	583.10
0.16	2.15	6.95	1.53	0.090	0.050	0.080	0.000	582.60	900.62
0.008059	1220.	1340.	1259.	7	14	0	0.00	102.03	1002.65

1490 NH CARD USED
*SECNO 3200.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 3.01

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     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3470 ENCROACHMENT STATIONS=         0.0     1100.0  TYPE=       1  TARGET=       1099.999
  3200.000       5.93     589.63       0.00       0.00     589.66       0.03       1.90       0.06     588.60
     430.0       69.7      225.5      134.9       85.6      161.7       92.9       15.9        8.0     587.20
      0.36       0.81       1.39       1.45      0.055      0.080      0.050      0.000     583.70     810.70
  0.000889       950.       950.       950.          3          0          0       0.00     175.37     986.07


CCHV=     0.300 CEHV=     0.500
1490 NH CARD USED
*SECNO 3662.000
  3662.000       7.86     590.06       0.00       0.00     590.10       0.04       0.43       0.01     588.40
     430.0      190.8      191.3       47.9      181.0       85.4       64.5       19.4        9.9     588.40
      0.45       1.05       2.24       0.74      0.058      0.050      0.083      0.000     582.20     798.58
  0.000990       462.       462.       462.          3          0          0       0.00     187.10     985.67


*SECNO 3663.000

3370 NORMAL BRIDGE, NRD=    9 MIN ELTRD=    588.30 MAX ELLC=   587.30

  3663.000       7.88     590.08       0.00       0.00     590.11       0.03       0.00       0.00     588.40
     430.0      241.8      126.2       62.0      181.7       73.3       64.8       19.4        9.9     588.40
      0.45       1.33       1.72       0.96      0.060      0.051      0.085      0.000     582.20     798.45
  0.001703         1.         1.         1.          1          0          0     -12.10     187.26     985.71


*SECNO 3675.000

3370 NORMAL BRIDGE, NRD=    9 MIN ELTRD=    588.30 MAX ELLC=   587.30

  3675.000       7.90     590.10       0.00       0.00     590.13       0.03       0.02       0.00     588.40
     430.0      243.4      124.4       62.3      184.9       73.6       65.9       19.5        9.9     588.40
      0.45       1.32       1.69       0.95      0.060      0.051      0.085      0.000     582.20     797.88
  0.001633        12.        12.        12.          0          0          0     -12.10     188.00     985.88


1490 NH CARD USED
*SECNO 3676.000
  3676.000       7.89     590.09       0.00       0.00     590.13       0.04       0.00       0.01     588.40
     430.0      193.7      187.7       48.5      185.8       85.8       66.2       19.5        9.9     588.40
      0.45       1.04       2.19       0.73      0.058      0.050      0.083      0.000     582.20     797.72
  0.000938         1.         1.         1.          0          0          0       0.00     188.21     985.93
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      SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
      Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
      TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
      SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


   CCHV=     0.200 CEHV=     0.400
   1490 NH CARD USED
   *SECNO 4800.000

   3470 ENCROACHMENT STATIONS=      190.0      233.0  TYPE=       1  TARGET=       43.000
     4800.000       6.42     591.22       0.00     590.39     591.34       0.12       1.18       0.03     588.90
        430.0       16.1      409.9        4.0       20.5      141.8        7.0       25.9       12.8     589.80
         0.56       0.79       2.89       0.58      0.095      0.050      0.095      0.000     584.80     190.00
     0.001210      1074.      1124.      1074.          2          0          0       0.00      43.00     233.00

   CCHV=     0.300 CEHV=     0.500
   *SECNO 4892.000

   3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  0.64

   3470 ENCROACHMENT STATIONS=      886.5      908.2  TYPE=       1  TARGET=       21.700
     4892.000       6.12     591.22       0.00     590.40     591.45       0.23       0.06       0.05     588.90
        410.0        0.0      410.0        0.0        0.0      106.8        0.0       26.0       12.8     589.80
         0.56       0.00       3.84       0.01      0.000      0.050      0.095      0.000     585.10     886.50
     0.002673        34.        34.        34.          2          0          0       0.00      21.70     908.20


   SPECIAL BRIDGE

   SB  XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
         0.00       2.00       2.95       0.00      21.67       0.00     123.60       0.00     585.10     585.10

   *SECNO 4926.000

   6070,LOW FLOW BY NORMAL BRIDGE

   EGPRS=       0.000  EGLWC=     591.453  ELLC=     592.000  PCWSE=     591.224  ELTRD=     594.600

   3370 NORMAL BRIDGE, NRD=  29 MIN ELTRD=   594.60 MAX ELLC=    592.00

   3470 ENCROACHMENT STATIONS=      886.5      908.2  TYPE=       1  TARGET=       21.700
     4926.000       6.24     591.34       0.00     590.47     591.56       0.22       0.10       0.00     588.90
        410.0        0.0      410.0        0.0        0.0      109.4        0.0       26.1       12.9     589.80
         0.56       0.00       3.75       0.00      0.000      0.050      0.000      0.000     585.10     886.50
     0.003179        36.        36.        36.          2          0          0      -0.04      21.70     908.20
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

1490 NH CARD USED
*SECNO 5101.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.53

5101.000	6.68	591.75	0.00	590.73	591.79	0.04	0.18	0.05	589.17
410.0	43.8	285.4	80.8	61.5	149.2	116.1	27.0	13.3	590.07
0.60	0.71	1.91	0.70	0.055	0.050	0.055	0.000	585.07	152.32
0.000496	175.	175.	175.	2	0	0	0.00	178.55	330.87

CCHV= 0.100 CEHV= 0.300
*SECNO 6610.000

6610.000	7.57	592.57	0.00	591.55	592.64	0.07	0.84	0.01	590.00
410.0	14.7	370.9	24.5	17.7	162.8	27.7	36.2	17.5	590.00
0.79	0.83	2.28	0.88	0.055	0.050	0.055	0.000	585.00	147.92
0.000626	1509.	1509.	1509.	3	0	0	0.00	65.76	213.68

*SECNO 7390.000

7390.000	7.28	592.88	0.00	591.78	592.91	0.03	0.27	0.00	590.00
300.0	8.7	281.9	9.4	17.0	212.3	20.3	40.3	18.7	590.00
0.96	0.51	1.33	0.46	0.055	0.050	0.055	0.000	585.60	55.58
0.000185	720.	780.	800.	2	0	0	0.00	64.35	119.93

*SECNO 8510.000

8510.000	6.89	593.09	0.00	591.95	593.10	0.02	0.19	0.00	590.00
300.0	7.4	160.4	132.1	16.7	135.3	190.0	48.0	21.0	588.40
1.29	0.44	1.19	0.70	0.055	0.050	0.055	0.000	586.20	24.19
0.000160	1100.	1120.	1160.	2	0	0	0.00	117.60	141.78

*SECNO 10220.000

10220.000	6.74	593.34	0.00	592.20	593.36	0.02	0.25	0.00	588.40
300.0	61.6	174.0	64.4	73.1	138.0	82.3	60.6	25.1	588.50
1.74	0.84	1.26	0.78	0.040	0.045	0.050	0.000	586.60	56.59
0.000137	1710.	1710.	1740.	2	0	0	0.00	85.94	142.53

T1 CLINTON TOWNSHIP FLOOD INSURANCE STUDY
T2 UPDATED 500 YEAR FLOOD 590 CFS STS CONSULTANTS LTD. 12/93 MMW
T3 MILLER DRAIN

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-1.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0	587.0	0.0

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	15.0	0.0	-1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*PROF 4


CCHV=     0.100 CEHV=     0.300
1490 NH CARD USED
*SECNO 0.000
     0.000      10.60     587.00       0.00     587.00     587.00       0.00       0.00       0.00     581.90
     590.0      132.5      126.4      331.1      321.1      264.1      611.1        0.0        0.0     581.00
      0.00       0.41       0.48       0.54      0.050      0.079      0.050      0.000     576.40     118.18
  0.000039         0.         0.         0.          0          0          0       0.00     303.22     421.40

1490 NH CARD USED
*SECNO 850.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  0.28

   850.000       7.57     587.07       0.00       0.00     587.09       0.03       0.08       0.01     585.00
     590.0       42.9      221.9      325.2       59.0      173.1      246.6       16.3        4.8     584.10
      0.19       0.73       1.28       1.32      0.050      0.079      0.050      0.000     579.50     194.87
  0.000496       850.       850.       850.          2          0          0       0.00     184.06     378.93

CCHV=     0.300 CEHV=     0.500
*SECNO 989.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       588.00 ELREA=       588.00

   989.000       7.60     587.10       0.00       0.00     587.22       0.12       0.08       0.05     580.00
     590.0        0.0      590.0        0.0        0.0      210.7        0.0       17.9        5.2     580.00
      0.21       0.00       2.80       0.00      0.000      0.040      0.000      0.000     579.50     166.00
  0.000387       200.       190.       190.          1          0          0       0.00      28.00     194.00

*SECNO 990.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  0.65

3370 NORMAL BRIDGE, NRD=  10 MIN ELTRD=   588.70 MAX ELLC=   586.00

   990.000       7.58     587.08       0.00       0.00     587.25       0.17       0.00       0.02     580.00
     590.0        1.5      586.9        1.5        3.0      179.6        3.0       17.9        5.2     580.00
      0.21       0.51       3.27       0.51      0.050      0.030      0.050      0.000     579.50     119.09
  0.000922         1.         1.         1.          2          0          0    -171.18     193.97     313.06
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  SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
  Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
  TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
  SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*SECNO 1010.000

3370 NORMAL BRIDGE, NRD=  10 MIN ELTRD=    588.70 MAX ELLC=    586.00

  1010.000       7.63     587.13       0.00       0.00     587.29       0.17       0.05       0.00     580.00
     590.0        1.5      586.9        1.5        3.0      179.6        3.0       18.1        5.5     580.00
      0.21       0.51       3.27       0.51      0.050      0.030      0.050      0.000     579.50     117.31
  0.000922        53.        53.        53.          1          0          0    -179.35     196.52     313.83

*SECNO 1011.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=        588.70 ELREA=         588.70

  1011.000       7.69     587.19       0.00       0.00     587.31       0.12       0.00       0.01     580.00
     590.0        0.0      590.0        0.0        0.0      212.9        0.0       18.1        5.5     580.00
      0.21       0.00       2.77       0.00      0.000      0.045      0.000      0.000     579.50     166.00
  0.000473         1.         1.         1.          2          0          0       0.00      28.00     194.00

CCHV=     0.100 CEHV=     0.300
1490 NH CARD USED
*SECNO 2270.000

3265 DIVIDED FLOW


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  0.45

  2270.000       5.74     588.34       0.00       0.00     588.52       0.18       1.19       0.02     583.10
     590.0       45.8      297.0      247.2       33.3       65.9      153.6       25.1        8.3     583.10
      0.33       1.37       4.50       1.61      0.085      0.050      0.061      0.000     582.60     881.83
  0.002380      1220.      1340.      1259.          2          0          0       0.00     164.70    1108.62

1490 NH CARD USED
*SECNO 3200.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.49


3470 ENCROACHMENT STATIONS=          0.0     1100.0  TYPE=       1  TARGET=       1099.999
  3200.000       6.26     589.96       0.00       0.00     590.00       0.04       1.46       0.01     588.60
     590.0      120.2      281.7      188.2      116.2      174.4      108.5       32.2       12.1     587.20
      0.50       1.03       1.62       1.73      0.055      0.080      0.050      0.000     583.70     801.13
  0.001076       950.       950.       950.          2          0          0       0.00     186.79     987.91
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      SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
      Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
      TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
      SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


CCHV=     0.300 CEHV=     0.500
1490 NH CARD USED
*SECNO 3662.000
   3662.000       8.25     590.45       0.00       0.00     590.50       0.05       0.50       0.01     588.40
      590.0      298.8      217.3       73.9      233.7       89.6       82.4       36.4       14.2     588.40
       0.58       1.28       2.42       0.90      0.057      0.050      0.082      0.000     582.20     789.57
   0.001085       462.       462.       462.          2          0          0       0.00     198.83     988.40


*SECNO 3663.000

3370 NORMAL BRIDGE, NRD=    9 MIN ELTRD=    588.30 MAX ELLC=    587.30

   3663.000       8.27     590.47       0.00       0.00     590.51       0.04       0.00       0.00     588.40
      590.0      360.9      138.8       90.3      235.5       77.7       83.0       36.5       14.2     588.40
       0.58       1.53       1.79       1.09      0.060      0.051      0.085      0.000     582.20     789.26
   0.001699         1.         1.         1.          1          0          0     -12.10     199.23     988.49


*SECNO 3675.000

3370 NORMAL BRIDGE, NRD=    9 MIN ELTRD=    588.30 MAX ELLC=    587.30

   3675.000       8.29     590.49       0.00       0.00     590.53       0.04       0.02       0.00     588.40
      590.0      362.3      137.1       90.6      238.9       77.9       84.1       36.6       14.2     588.40
       0.58       1.52       1.76       1.08      0.060      0.051      0.085      0.000     582.20     788.70
   0.001639        12.        12.        12.          0          0          0     -12.10     199.96     988.66


1490 NH CARD USED
*SECNO 3676.000
   3676.000       8.29     590.49       0.00       0.00     590.53       0.05       0.00       0.00     588.40
      590.0      302.3      213.0       74.7      239.8       90.1       84.4       36.6       14.2     588.40
       0.58       1.26       2.36       0.88      0.057      0.050      0.082      0.000     582.20     788.55
   0.001025         1.         1.         1.          0          0          0       0.00     200.15     988.70


CCHV=     0.200 CEHV=     0.400
1490 NH CARD USED
*SECNO 4800.000

3470 ENCROACHMENT STATIONS=        1.0      560.0  TYPE=       1  TARGET=       559.000
   4800.000       6.85     591.65       0.00     590.39     591.75       0.11       1.20       0.02     588.90
      590.0       45.5      457.2       87.3       69.5      153.8      133.2       46.2       19.0     589.80
       0.71       0.65       2.97       0.66      0.095      0.050      0.095      0.000     584.80     149.30
   0.001150      1074.      1124.      1074.          2          0          0       0.00     186.23     335.53
```

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

CCHV= 0.300 CEHV= 0.500
*SECNO 4892.000

3470 ENCROACHMENT STATIONS= 1.0 1871.5 TYPE= 1 TARGET= 1870.500

4892.000	6.57	591.67	0.00	590.40	591.82	0.15	0.05	0.02	588.90
560.0	25.2	413.7	121.0	38.3	116.7	144.8	46.5	19.1	589.80
0.71	0.66	3.54	0.84	0.095	0.050	0.095	0.000	585.10	844.98
0.001795	34.	34.	34.	0	0	0	0.00	176.11	1021.09

SPECIAL BRIDGE

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
0.00	2.00	2.95	0.00	21.67	0.00	123.60	0.00	585.10	585.10

*SECNO 4926.000

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS= 0.000 EGLWC= 591.821 ELLC= 592.000 PCWSE= 591.674 ELTRD= 594.600

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.63

3370 NORMAL BRIDGE, NRD= 29 MIN ELTRD= 594.60 MAX ELLC= 592.00

3470 ENCROACHMENT STATIONS= 1.0 1871.5 TYPE= 1 TARGET= 1870.500

4926.000	6.56	591.66	589.02	590.47	592.02	0.36	0.10	0.11	588.90
560.0	0.0	560.0	0.0	0.0	116.4	0.0	46.6	19.3	589.80
0.71	0.00	4.81	0.00	0.000	0.050	0.000	0.000	585.10	845.38
0.004538	36.	36.	36.	2	15	0	-180.52	175.22	1020.60

1490 NH CARD USED
*SECNO 5101.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.98

5101.000	7.21	592.28	0.00	590.73	592.32	0.04	0.20	0.09	589.17
560.0	72.9	339.0	148.1	89.1	163.9	173.9	47.7	20.1	590.07
0.74	0.82	2.07	0.85	0.055	0.050	0.055	0.000	585.07	142.63
0.000511	175.	175.	175.	2	0	0	0.00	203.23	345.85

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

CCHV= 0.100 CEHV= 0.300

*SECNO 6610.000

6610.000	8.17	593.17	0.00	591.55	593.27	0.10	0.93	0.02	590.00
560.0	31.1	480.9	48.0	30.2	179.6	41.3	59.5	24.9	590.00
0.91	1.03	2.68	1.16	0.055	0.050	0.055	0.000	585.00	140.39
0.000757	1509.	1509.	1509.	3	0	0	0.00	77.21	217.60

*SECNO 7390.000

7390.000	7.97	593.57	0.00	591.78	593.60	0.04	0.33	0.01	590.00
415.0	17.8	375.7	21.5	26.6	234.1	37.1	64.4	26.3	590.00
1.06	0.67	1.60	0.58	0.055	0.050	0.055	0.000	585.60	52.17
0.000237	720.	780.	800.	2	0	0	0.00	76.96	129.13

*SECNO 8510.000

8510.000	7.61	593.81	0.00	591.95	593.83	0.02	0.23	0.00	590.00
415.0	13.4	200.5	201.1	25.4	151.9	255.7	73.9	29.0	588.40
1.36	0.53	1.32	0.79	0.055	0.050	0.055	0.000	586.20	21.66
0.000170	1100.	1120.	1160.	2	0	0	0.00	134.56	156.22

*SECNO 10220.000

10220.000	7.48	594.08	0.00	592.20	594.11	0.02	0.28	0.00	588.40
415.0	99.0	222.3	93.7	102.1	155.1	103.8	89.6	33.6	588.50
1.76	0.97	1.43	0.90	0.040	0.045	0.050	0.000	586.60	49.38
0.000151	1710.	1710.	1740.	2	0	0	0.00	97.07	146.45

THIS RUN EXECUTED 23DEC93 08:26:59

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**************************************
HEC-2 WATER SURFACE PROFILES

Version 4.6.0; February 1991
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

R DRAIN

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	0.000	0.00	0.00	0.00	576.40	260.00	581.10	0.00	581.19	46.45	2.59	112.56	38.15
	0.000	0.00	0.00	0.00	576.40	380.00	583.10	0.00	583.12	5.52	1.21	333.22	161.78
	0.000	0.00	0.00	0.00	576.40	430.00	584.20	0.00	584.21	2.06	0.85	522.58	299.47
	0.000	0.00	0.00	0.00	576.40	590.00	587.00	0.00	587.00	0.39	0.48	1196.34	940.58
	850.000	850.00	0.00	0.00	579.50	260.00	584.41	0.00	584.48	32.69	2.26	130.43	45.47
*	850.000	850.00	0.00	0.00	579.50	380.00	584.20	0.00	584.40	99.50	3.79	112.42	38.10
*	850.000	850.00	0.00	0.00	579.50	430.00	584.61	0.00	584.76	66.57	3.31	146.95	52.70
*	850.000	850.00	0.00	0.00	579.50	590.00	587.07	0.00	587.09	4.96	1.28	478.73	265.02
*	989.000	190.00	0.00	0.00	579.50	260.00	584.57	0.00	584.62	2.97	1.86	139.46	150.82
*	989.000	190.00	0.00	0.00	579.50	380.00	584.62	0.00	584.73	6.15	2.70	140.78	153.20
*	989.000	190.00	0.00	0.00	579.50	430.00	584.92	0.00	585.05	6.47	2.88	149.36	169.09
	989.000	190.00	0.00	0.00	579.50	590.00	587.10	0.00	587.22	3.87	2.80	210.67	299.97
	990.000	1.00	588.70	586.00	579.50	260.00	584.57	0.00	584.62	1.66	1.86	143.04	201.88
	990.000	1.00	588.70	586.00	579.50	380.00	584.62	0.00	584.73	3.42	2.69	144.62	205.51
	990.000	1.00	588.70	586.00	579.50	430.00	584.92	0.00	585.05	3.61	2.87	153.54	226.45
*	990.000	1.00	588.70	586.00	579.50	590.00	587.08	0.00	587.25	9.22	3.27	185.60	194.30
	1010.000	53.00	588.70	586.00	579.50	260.00	584.58	0.00	584.63	1.65	1.85	143.38	202.65
	1010.000	53.00	588.70	586.00	579.50	380.00	584.64	0.00	584.75	3.37	2.67	145.28	207.03
	1010.000	53.00	588.70	586.00	579.50	430.00	584.94	0.00	585.07	3.55	2.85	154.29	228.24
	1010.000	53.00	588.70	586.00	579.50	590.00	587.13	0.00	587.29	9.22	3.27	185.60	194.30
*	1011.000	1.00	0.00	0.00	579.50	260.00	584.58	0.00	584.63	3.73	1.86	139.79	134.60
*	1011.000	1.00	0.00	0.00	579.50	380.00	584.64	0.00	584.75	7.65	2.69	141.52	137.39
*	1011.000	1.00	0.00	0.00	579.50	430.00	584.94	0.00	585.07	8.06	2.87	150.04	151.44
	1011.000	1.00	0.00	0.00	579.50	590.00	587.19	0.00	587.31	4.73	2.77	212.90	271.35
*	2270.000	1340.00	0.00	0.00	582.60	260.00	585.60	0.00	586.32	151.14	7.14	44.53	21.15
*	2270.000	1340.00	0.00	0.00	582.60	380.00	586.71	0.00	587.39	93.71	7.06	70.71	39.26
*	2270.000	1340.00	0.00	0.00	582.60	430.00	587.08	586.06	587.70	80.59	6.95	95.98	47.90
*	2270.000	1340.00	0.00	0.00	582.60	590.00	588.34	0.00	588.52	23.80	4.50	252.92	120.95

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
*	3200.000	950.00	0.00	0.00	583.70	260.00	588.88	0.00	588.90	10.58	1.33	216.73	79.95
*	3200.000	950.00	0.00	0.00	583.70	380.00	589.44	0.00	589.47	9.14	1.37	307.29	125.67
*	3200.000	950.00	0.00	0.00	583.70	430.00	589.63	0.00	589.66	8.89	1.39	340.11	144.22
*	3200.000	950.00	0.00	0.00	583.70	590.00	589.96	0.00	590.00	10.78	1.62	399.09	179.68
	3662.000	462.00	0.00	0.00	582.20	260.00	589.35	0.00	589.40	10.52	2.17	207.34	80.15
	3662.000	462.00	0.00	0.00	582.20	380.00	589.88	0.00	589.92	10.03	2.22	297.88	120.00
	3662.000	462.00	0.00	0.00	582.20	430.00	590.06	0.00	590.10	9.90	2.24	330.89	136.68
	3662.000	462.00	0.00	0.00	582.20	590.00	590.45	0.00	590.50	10.85	2.42	405.65	179.10
*	3663.000	1.00	588.30	587.30	582.20	260.00	589.38	0.00	589.41	23.02	1.86	198.74	54.19
	3663.000	1.00	588.30	587.30	582.20	380.00	589.90	0.00	589.93	18.20	1.75	286.62	89.08
	3663.000	1.00	588.30	587.30	582.20	430.00	590.08	0.00	590.11	17.03	1.72	319.80	104.20
	3663.000	1.00	588.30	587.30	582.20	590.00	590.47	0.00	590.51	16.99	1.79	396.15	143.13
	3675.000	12.00	588.30	587.30	582.20	260.00	589.40	0.00	589.44	22.06	1.83	202.02	55.36
	3675.000	12.00	588.30	587.30	582.20	380.00	589.92	0.00	589.95	17.38	1.71	291.33	91.14
	3675.000	12.00	588.30	587.30	582.20	430.00	590.10	0.00	590.13	16.33	1.69	324.41	106.42
	3675.000	12.00	588.30	587.30	582.20	590.00	590.49	0.00	590.53	16.39	1.76	401.00	145.75
*	3676.000	1.00	0.00	0.00	582.20	260.00	589.40	0.00	589.44	9.68	2.09	215.92	83.56
	3676.000	1.00	0.00	0.00	582.20	380.00	589.91	0.00	589.96	9.49	2.17	304.83	123.38
	3676.000	1.00	0.00	0.00	582.20	430.00	590.09	0.00	590.13	9.38	2.19	337.78	140.40
	3676.000	1.00	0.00	0.00	582.20	590.00	590.49	0.00	590.53	10.25	2.36	414.34	184.32
	4800.000	1124.00	0.00	0.00	584.80	260.00	590.39	0.00	590.46	8.38	2.14	133.61	89.79
	4800.000	1124.00	0.00	0.00	584.80	380.00	591.01	0.00	591.11	11.01	2.68	160.13	114.50
	4800.000	1124.00	0.00	0.00	584.80	430.00	591.22	0.00	591.34	12.10	2.89	169.28	123.62
	4800.000	1124.00	0.00	0.00	584.80	590.00	591.65	0.00	591.75	11.50	2.97	356.55	173.98
*	4892.000	34.00	0.00	0.00	585.10	245.00	590.40	0.00	590.52	16.73	2.75	89.19	59.91
*	4892.000	34.00	0.00	0.00	585.10	360.00	591.02	0.00	591.21	23.54	3.52	102.35	74.21
*	4892.000	34.00	0.00	0.00	585.10	410.00	591.22	0.00	591.45	26.73	3.84	106.85	79.31
	4892.000	34.00	0.00	0.00	585.10	560.00	591.67	0.00	591.82	17.95	3.54	299.93	132.16
	4926.000	36.00	594.60	592.00	585.10	245.00	590.47	0.00	590.58	18.40	2.71	90.45	57.12
	4926.000	36.00	594.60	592.00	585.10	360.00	591.12	0.00	591.30	27.48	3.44	104.53	68.68
	4926.000	36.00	594.60	592.00	585.10	410.00	591.34	0.00	591.56	31.79	3.75	109.39	72.72
*	4926.000	36.00	594.60	592.00	585.10	560.00	591.66	589.02	592.02	45.38	4.81	116.36	83.13
*	5101.000	175.00	0.00	0.00	585.07	245.00	590.73	0.00	590.78	6.19	1.85	168.75	98.50
*	5101.000	175.00	0.00	0.00	585.07	360.00	591.48	0.00	591.52	5.28	1.91	280.18	156.71
*	5101.000	175.00	0.00	0.00	585.07	410.00	591.75	0.00	591.79	4.96	1.91	326.77	184.16
*	5101.000	175.00	0.00	0.00	585.07	560.00	592.28	0.00	592.32	5.11	2.07	426.91	247.69
	6610.000	1509.00	0.00	0.00	585.00	245.00	591.55	0.00	591.60	4.84	1.76	150.64	111.39
	6610.000	1509.00	0.00	0.00	585.00	360.00	592.30	0.00	592.37	5.87	2.14	191.51	148.61
	6610.000	1509.00	0.00	0.00	585.00	410.00	592.57	0.00	592.64	6.26	2.28	208.10	163.90
	6610.000	1509.00	0.00	0.00	585.00	560.00	593.17	0.00	593.27	7.57	2.68	251.18	203.49

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
*	7390.000	780.00	0.00	0.00	585.60	180.00	591.78	0.00	591.80	1.32	1.00	189.84	156.47
	7390.000	780.00	0.00	0.00	585.60	265.00	592.60	0.00	592.62	1.71	1.24	232.06	202.44
	7390.000	780.00	0.00	0.00	585.60	300.00	592.88	0.00	592.91	1.85	1.33	249.69	220.77
	7390.000	780.00	0.00	0.00	585.60	415.00	593.57	0.00	593.60	2.37	1.60	297.85	269.73
	8510.000	1120.00	0.00	0.00	586.20	180.00	591.95	0.00	591.97	1.68	1.05	223.60	138.76
	8510.000	1120.00	0.00	0.00	586.20	265.00	592.80	0.00	592.81	1.62	1.15	308.40	208.40
	8510.000	1120.00	0.00	0.00	586.20	300.00	593.09	0.00	593.10	1.60	1.19	341.99	237.22
	8510.000	1120.00	0.00	0.00	586.20	415.00	593.81	0.00	593.83	1.70	1.32	432.99	318.39
	10220.000	1710.00	0.00	0.00	586.60	180.00	592.20	0.00	592.22	1.28	1.06	205.12	158.90
	10220.000	1710.00	0.00	0.00	586.60	265.00	593.05	0.00	593.06	1.35	1.21	268.65	228.38
	10220.000	1710.00	0.00	0.00	586.60	300.00	593.34	0.00	593.36	1.37	1.26	293.37	256.65
	10220.000	1710.00	0.00	0.00	586.60	415.00	594.08	0.00	594.11	1.51	1.43	360.94	337.56

R DRAIN

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	0.000	260.00	581.10	0.00	0.00	0.00	76.47	0.00
	0.000	380.00	583.10	2.00	0.00	0.00	150.13	0.00
	0.000	430.00	584.20	1.10	0.00	0.00	191.82	0.00
	0.000	590.00	587.00	2.80	0.00	0.00	303.22	0.00
	850.000	260.00	584.41	0.00	3.31	0.00	83.06	850.00
*	850.000	380.00	584.20	-0.21	1.10	0.00	76.42	850.00
*	850.000	430.00	584.61	0.41	0.41	0.00	88.71	850.00
*	850.000	590.00	587.07	2.45	0.07	0.00	184.06	850.00
*	989.000	260.00	584.57	0.00	0.15	0.00	28.00	190.00
*	989.000	380.00	584.62	0.05	0.42	0.00	28.00	190.00
*	989.000	430.00	584.92	0.30	0.31	0.00	28.00	190.00
	989.000	590.00	587.10	2.18	0.03	0.00	28.00	190.00
	990.000	260.00	584.57	0.00	0.00	0.00	29.52	1.00
	990.000	380.00	584.62	0.05	0.00	0.00	29.54	1.00
	990.000	430.00	584.92	0.30	0.00	0.00	29.64	1.00
*	990.000	590.00	587.08	2.16	-0.02	0.00	193.97	1.00
	1010.000	260.00	584.58	0.00	0.01	0.00	29.53	53.00
	1010.000	380.00	584.64	0.06	0.02	0.00	29.55	53.00
	1010.000	430.00	584.94	0.30	0.02	0.00	29.65	53.00
	1010.000	590.00	587.13	2.19	0.05	0.00	196.52	53.00
*	1011.000	260.00	584.58	0.00	0.00	0.00	28.00	1.00
*	1011.000	380.00	584.64	0.06	0.00	0.00	28.00	1.00
*	1011.000	430.00	584.94	0.30	0.00	0.00	28.00	1.00
	1011.000	590.00	587.19	2.25	0.06	0.00	28.00	1.00
*	2270.000	260.00	585.60	0.00	1.02	0.00	21.35	1340.00
*	2270.000	380.00	586.71	1.11	2.07	0.00	25.54	1340.00
*	2270.000	430.00	587.08	0.36	2.13	0.00	102.03	1340.00
*	2270.000	590.00	588.34	1.27	1.15	0.00	164.70	1340.00
*	3200.000	260.00	588.88	0.00	3.28	0.00	148.67	950.00
*	3200.000	380.00	589.44	0.57	2.73	0.00	168.68	950.00
*	3200.000	430.00	589.63	0.19	2.56	0.00	175.37	950.00
*	3200.000	590.00	589.96	0.33	1.62	0.00	186.79	950.00
	3662.000	260.00	589.35	0.00	0.47	0.00	161.68	462.00
	3662.000	380.00	589.88	0.52	0.43	0.00	180.94	462.00
	3662.000	430.00	590.06	0.18	0.43	0.00	187.10	462.00
	3662.000	590.00	590.45	0.40	0.49	0.00	198.83	462.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	3663.000	260.00	589.38	0.00	0.02	0.00	162.47	1.00
	3663.000	380.00	589.90	0.52	0.02	0.00	181.11	1.00
	3663.000	430.00	590.08	0.18	0.02	0.00	187.26	1.00
	3663.000	590.00	590.47	0.39	0.02	0.00	199.23	1.00
	3675.000	260.00	589.40	0.00	0.03	0.00	163.21	12.00
	3675.000	380.00	589.92	0.51	0.02	0.00	182.06	12.00
	3675.000	430.00	590.10	0.18	0.02	0.00	188.00	12.00
	3675.000	590.00	590.49	0.39	0.02	0.00	199.96	12.00
*	3676.000	260.00	589.40	0.00	0.00	0.00	163.61	1.00
	3676.000	380.00	589.91	0.51	0.00	0.00	182.34	1.00
	3676.000	430.00	590.09	0.18	0.00	0.00	188.21	1.00
	3676.000	590.00	590.49	0.39	0.00	0.00	200.15	1.00
	4800.000	260.00	590.39	0.00	0.99	0.00	43.00	1124.00
	4800.000	380.00	591.01	0.62	1.09	0.62	43.00	1124.00
	4800.000	430.00	591.22	0.21	1.13	0.83	43.00	1124.00
	4800.000	590.00	591.65	0.43	1.16	1.26	186.23	1124.00
*	4892.000	245.00	590.40	0.00	0.01	0.00	21.70	34.00
*	4892.000	360.00	591.02	0.62	0.01	0.62	21.70	34.00
*	4892.000	410.00	591.22	0.21	0.01	0.82	21.70	34.00
	4892.000	560.00	591.67	0.45	0.03	1.27	176.11	34.00
	4926.000	245.00	590.47	0.00	0.07	0.00	21.70	36.00
	4926.000	360.00	591.12	0.65	0.10	0.65	21.70	36.00
	4926.000	410.00	591.34	0.22	0.12	0.87	21.70	36.00
*	4926.000	560.00	591.66	0.32	-0.01	1.20	175.22	36.00
*	5101.000	245.00	590.73	0.00	0.26	0.00	130.42	175.00
*	5101.000	360.00	591.48	0.75	0.36	0.75	165.82	175.00
*	5101.000	410.00	591.75	0.27	0.41	1.02	178.55	175.00
*	5101.000	560.00	592.28	0.52	0.61	1.55	203.23	175.00
	6610.000	245.00	591.55	0.00	0.82	0.00	48.96	1509.00
	6610.000	360.00	592.30	0.75	0.82	0.75	60.78	1509.00
	6610.000	410.00	592.57	0.26	0.82	1.01	65.76	1509.00
	6610.000	560.00	593.17	0.60	0.89	1.61	77.21	1509.00
*	7390.000	180.00	591.78	0.00	0.23	0.00	46.27	780.00
	7390.000	265.00	592.60	0.81	0.29	0.81	59.06	780.00
	7390.000	300.00	592.88	0.29	0.32	1.10	64.35	780.00
	7390.000	415.00	593.57	0.68	0.40	1.78	76.96	780.00
	8510.000	180.00	591.95	0.00	0.17	0.00	91.02	1120.00
	8510.000	265.00	592.80	0.84	0.20	0.84	110.68	1120.00
	8510.000	300.00	593.09	0.29	0.21	1.14	117.60	1120.00
	8510.000	415.00	593.81	0.72	0.25	1.86	134.56	1120.00

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Clinton Twp.

3) WATERCOURSE: Miller Drain

4) DOCUMENT TYPE: 10, 50, 100, 500 Yr. flood & encroached

00BREAK00

THIS RUN EXECUTED 23DEC93 08:26:53

****
HEC-2 WATER SURFACE PROFILES

Version 4.6.0; February 1991
****

T1 CLINTON TOWNSHIP FLOOD INSURANCE STUDY
T2 UPDATED 10 YEAR FLOOD STS CONSULTANTS LTD. 12/93 MMW
T3 MILLER DRAIN

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-1.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	581.1	0.0

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	1.0	0.0	-1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

J3 VARIABLE CODES FOR SUMMARY PRINTOUT

150.0

QT	4.0	260.0	380.0	430.0	590.0	0.0	0.0	0.0	0.0	0.0
NC	0.0	0.0	0.0	.10	.30	0.0	0.0	0.0	0.0	0.0
NH	5.0	.05	250.0	.09	259.0	.05	269.0	.09	280.0	.05
NH	520.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
X1	0.0	16.0	250.0	280.0	0.0	0.0	0.0	0.0	-3.1	0.0
GR	593.1	0.0	591.6	50.0	589.4	150.0	586.8	200.0	585.0	250.0
GR	579.5	259.0	580.1	264.0	579.6	269.0	584.1	280.0	583.2	300.0
GR	585.0	350.0	590.5	427.0	590.4	450.0	590.8	461.0	590.9	488.0
GR	594.1	520.0								
NH	5.0	.05	250.0	.09	259.0	.05	269.0	.09	280.0	.05
NH	520.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
X1	850.0	0.0	0.0	0.0	850.0	850.0	850.0	0.0	3.1	0.0
NC	0.05	0.05	0.04	0.3	0.5	0.0	0.0	0.0	0.0	0.0
X1	989.0	15.0	166.0	194.0	200.0	190.0	190.0	0.0	0.0	0.0
X3	10.0	0.0	0.0	0.0	0.0	0.0	0.0	588.0	588.0	0.0
GR	589.6	0.0	588.0	80.0	586.0	165.0	580.0	166.0	579.6	168.0
GR	579.5	180.0	579.6	192.0	580.0	194.0	586.0	195.0	586.0	222.0
GR	586.0	237.0	586.1	295.0	588.0	330.0	589.5	400.0	589.8	450.0
NC	0.0	0.0	.03	0.0	0.0	0.0	0.0	0.0	0.0	0.0
X1	990.0	0.0	0.0	0.0	1.0	1.0	1.0	0.0	0.0	0.0
BT	10.0	0.0	589.6	589.6	80.0	589.0	586.0	165.0	588.7	586.0
BT	194.0	588.7	586.0	195.0	588.7	586.0	237.0	589.0	586.0	295.0
BT	589.4	586.1	330.0	589.6	588.0	400.0	589.7	589.5	450.0	589.8
BT	589.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

X1	1010.0	0.0	0.0	0.0	53.0	53.0	53.0	0.0	0.0	0.0
X2	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0 0
NC	0 0	0.0	0.045	0.0	0.0	0.0	0.0	0.0	0.0	0.0
X1	1011.0	0.0	0.0	0.0	1.0	1.0	1.0	0.0	0.0	0.0
X3	10 0	0.0	0.0	0.0	0.0	0.0	0.0	588.7	588.7	0.0
NC	0.0	0.0	0.0	0.1	0.3	0.0	0.0	0.0	0.0	0.0
NH	5 0	.055	900.0	.09	908.0	.05	920.0	.09	927.0	.055
NH	1600.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
X1	2270.0	23.0	908.0	920.0	1220.0	1259.0	1340.0	0.0	0.0	0.0
GR	597 2	0 0	597.3	100.0	597.1	200.0	596.4	300.0	596.5	405.0
GR	596.5	500.0	595.2	600.0	595.0	700.0	593.1	800.0	588.7	875.0
GR	587.4	900.0	583.1	908.0	582.6	915.0	583.1	920.0	586.8	927.0
GR	586 9	1000.0	589.4	1040.0	588.0	1100.0	592.0	1200.0	595.4	1300.0
GR	595.6	1400.0	595.7	1500.0	595.3	1600.0	0.0	0.0	0.0	0.0
NH	7 0	035	400.0	.055	900.0	.09	910.0	.05	923.0	.095
NH	939 0	05	1900.0	.095	2300.0	0.0	0.0	0.0	0.0	0.0
X1	3200 0	33 0	900.0	939.0	950.0	950.0	950.0	0.0	0.0	0.0
X3	0 0	0.0	0.0	0.0	0.0	1100.0	0.0	0.0	0.0	0 0
GR	597 9	0 0	597.9	100.0	597.6	200.0	597.1	300.0	596.6	400 0
GR	596 2	500 0	596.5	583.0	595.7	603.0	594.3	700.0	590.0	800 0
GR	588.3	850 0	588.6	900.0	584.5	910.0	583.7	915.0	584.7	918.0
GR	584 4	923.0	587.2	939.0	587.5	974.0	592.1	1000.0	595.4	1028.0
GR	596.0	1100 0	595.8	1200.0	593.0	1300.0	593.9	1400.0	595.8	1500.0
GR	596 9	1600 0	595.7	1700.0	595.7	1800.0	596.9	1900.0	597.3	2000.0
GR	596 2	2100 0	596.5	2200.0	596.8	2300.0	0.0	0.0	0.0	0.0
NC	0 0	0.0	0.0	0.3	0.5	0.0	0.0	0.0	0.0	0.0
NH	5 0	05	900.0	.09	930.0	.05	941.0	.09	974.0	.05
NH	1028.0	0 0	0.0	0.0	0.0	0 0	0.0	0.0	0.0	0.0
X1	3662 0	20.0	930.0	941.0	462.0	462.0	462.0	0.0	0.0	0.0
GR	597 9	0 0	597.9	100.0	597.6	200.0	597.1	300.0	596.6	400.0
GR	596.2	500.0	596.5	583.0	595.7	603.0	594.3	700.0	590.0	800.0
GR	588 3	850.0	588.4	900.0	588.4	930.0	582.4	930.0	582.2	935.0
GR	582 4	941.0	588.4	941.0	588.4	974.0	592.1	1000.0	595.4	1028.00
NC	.06	085	.051	0.0	0.0	0.0	0.0	0.0	0.0	0.0
X1	3663.0	0 0	0.0	0.0	1.0	1.0	1.0	0.0	0.0	0.0
BT	9.0	700.0	594.3	580.0	800.0	590.0	580.0	850.0	588.3	580.0
BT	900.0	588.4	580.0	930.0	588.4	587.3	941.0	588.4	587.3	974.0
BT	588.4	580.0	1000.0	592.1	580.0	1028.0	595.4	580.0	0.0	0.0
X1	3675.0	0.0	0.0	0.0	12.0	12.0	12.0	0.0	0.0	0.0
X2							1.0			
NH	5.0	05	900.0	.09	930.0	.05	941.0	.09	974.0	.05
NH	1028.0									

X1	3676.0	0.0	0.0	0.0	1.0	1.0	1.0	0.0	0.0	0.0
NC	0.0	0.0	0.0	0.2	0.4	0.0	0.0	0.0	0.0	0.0
NH	3.0	.095	200.0	.05	228.0	.095	700.0	0.0	0.0	0.0
ET	0.0	6.1	6.1	6.1	8.1	190.0	233 0	1.0	560.0	0.0
X1	4800.0	15.00	200.0	228.0	1074.0	1074.0	1124.0	0.0	0.0	0.0
GR	596.2	0.0	595.1	72.0	594 3	86.0	594.3	105.0	593.5	115.0
GR	588.9	200.0	586.3	203.0	584.8	211.0	585.5	221.0	589.8	228.0
GR	590.4	300.0	593.9	400.0	596.3	500.0	597.5	600.0	597.8	700.0
QT	4.0	245.0	360.0	410.0	560.0	0.0	0.0	0.0	0.0	0.0
ET	0.0	6.1	6.1	6.1	8.1	886.5	908.2	1.0	1871.5	0.0
NC	.095	.095	.05	0.3	0.5	0.0	0.0	0.0	0.0	0.0
X1	4892.0	31.0	900 0	922.0	34.0	34.0	34.0	.985	0.0	0.0
GR	597.7	0.0	597.6	100.0	597.3	200.0	597.1	300.0	596 5	400.0
GR	596.7	500.0	597.0	600.0	595.5	700.0	595.1	772.0	594.3	786.0
GR	594.3	805 0	593.5	815.0	590.0	897.5	588.9	900.0	586.2	905.0
GR	585 7	910 0	585.1	914.0	585.5	918.0	588.6	922.0	589.8	922.0
GR	589 8	922 5	590.4	1000.0	593.9	1100.0	596.3	1200.0	597.5	1300.0
GR	597 8	1400 0	598.4	1500.0	598.0	1600.0	597.7	1700.0	597.3	1800.0
GR	596.9	1900 0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SB	0.0	2.0	2.95	0.0	21.67	0.0	123 6	0.0	585.1	585.1
ET	0.0	6.1	6.1	6.1	8.1	886.5	908.2	1.0	1871.5	0.0
NC	.055	.055	.05	0.0	0.0	0.0	0 0	0.0	0.0	0.0
X1	4926.0	32.0	900.0	922.0	36.0	36.0	36.0	.985	0.0	0.0
X2	0.0	0.0	1.0	592.0	594.6	0.0	0 0	0.0	.985	0.0
X4	1.0	594.45	1106.155							
BT	29.0	0.0	597.7	580.0	100.0	597.6	580 0	200.0	597.3	580.0
BT	300.0	597.1	580.0	400.0	596.5	580.0	500.0	596.7	580.0	600.0
BT	597.0	580.0	700.0	595.5	580.0	772.0	595.1	580.0	805 0	594.9
BT	580.0	897 5	594.6	580.0	897.5	595.5	580.0	900.0	595.5	588.9
BT	900.0	595.5	592.0	922.0	595.5	592.0	922.0	595.5	589.8	922.5
BT	595.5	589.8	922.5	594.6	580.0	1000.0	594.7	580.0	1100.0	595.5
BT	580.0	1123.0	595.4	580.0	1200.0	597.1	580.0	1300.0	598.0	580.0
BT	1400.0	598 2	580.0	1500.0	598.4	580.0	1600.0	598.0	580.0	1700.0
BT	597.7	580.0	1800.0	597.3	580.0	1900.0	596.9	580.0	0.0	0.0
GR	597 7	0.0	597.6	100.0	597.3	200.0	597.1	300.0	596.5	400.0
GR	596.7	500 0	597.0	600.0	595.5	700.0	595.1	772.0	594.3	786.0
GR	594.3	805.0	593.5	815.0	590.0	897.5	588.9	900.0	586.2	905.0
GR	585 7	910.0	585.1	914.0	585.5	918.0	588.6	922.0	589.8	922.0
GR	589.8	922.5	590.4	1000.0	593.9	1100.0	594.5	1123.0	596.3	1200.0
GR	597.5	1300 0	597.8	1400.0	598.4	1500.0	598.0	1600.0	597.7	1700.0
GR	597.3	1800.0	596.9	1900.0	0.0	0.0	0.0	0.0	0.0	0.0
NH	3.0	.055	200.0	.05	228.0	.055	700.0	0.0	0.0	0.0
X1	5101.0	15.0	200.0	228.0	175.0	175.0	175.0	0.0	.27	0.0
GR	596.2	0.0	595.1	72.0	594.3	86.0	594.3	105.0	593.5	115.0
GR	588.9	200.0	586.3	203.0	584.8	211.0	585.5	221.0	589.8	228.0
GR	590.4	300.0	593.9	400.0	596.3	500.0	597.5	600.0	597.8	700.0

NC	0.055	0.055	0.05	.10	.30	0.0	0.0	0.0	0.0	0.0
X1	6610.0	15.0	165.0	193.0	1509.0	1509.0	1509.0	0.0	0.0	0.0
GR	598.0	0.0	596.0	100.0	594.0	130.0	592.0	155.0	590.0	165.0
GR	586.2	170.0	585.6	172.0	585.0	176.0	585.0	179.0	585.8	183.0
GR	590.0	193.0	592.0	210.0	594.0	223.0	596.0	295.0	597.0	395.0
QT	4.0	180.0	265.0	300.0	415.0	0.0	0.0	0.0	0.0	0.0
X1	7390.0	13.0	68.0	100.0	720.0	800.0	780.0	0.0	0.0	0.0
GR	598.0	0.0	596.0	20.0	594.0	50.0	592.0	60.0	590.0	68.0
GR	586.5	73.0	585.6	75.0	585.6	97.0	590.0	100.0	592.0	108.0
GR	594.0	135.0	595.1	230.0	596.0	300.0	0.0	0.0	0.0	0.0
X1	8510.0	11.0	35.0	58.0	1100.0	1160.0	1120.0	0.0	0.0	0.0
GR	600.0	0.0	590.0	35.0	587.1	40.0	586.2	47.0	586.9	54.0
GR	588.4	58.0	590.0	85.0	592.0	120.0	594.0	160.0	596.0	212.0
GR	596.4	280.0								
NC	0.04	0.05	0.045	0.0	0.0	0.0	0.0	0.0	0.0	0.0
X1	10220	15.0	92.0	115.0	1710.0	1740.0	1710.0	0.0	0.0	0.0
GR	598.0	0.0	596.0	35.0	594.0	50.0	592.0	70.0	590.0	85.0
GR	588.4	92.0	587.6	95.0	586.6	101.0	587.6	112.0	588.5	115.0
GR	590.0	130.0	594.0	145.0	596.0	180.0	598.0	195.0	599.8	220.0

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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*PROF 1


CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 0.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
      0.000       4.70     581.10       0.00     581.10     581.19       0.09       0.00       0.00     581.90
      260.0        0.0      227.3       32.7        0.0       87.7       24.9        0.0        0.0     581.00
       0.00       0.00       2.59       1.31      0.000      0.078      0.050      0.000     576.40     251.31
   0.004645          0         0.         0.          0          0          0       0.00      76.47     327.78


1490 NH CARD USED
*SECNO 850.000
    850.000       4.91     584.41       0.00       0.00     584.48       0.07       3.29       0.00     585.00
      260.0        0.0      212.4       47.6        0.0       94.1       36.3        2.4        1.6     584.10
       0.11       0.00       2.26       1.31      0.000      0.078      0.050      0.000     579.50     250.94
   0.003269        850       850.       850.          3          0          0       0.00      83.06     334.00


CCHV=    0.300 CEHV=    0.500
*SECNO 989.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  3.32


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       588.00 ELREA=       588.00

    989.000       5.07     584.57       0.00       0.00     584.62       0.05       0.13       0.00     580.00
      260.0        0.0      260.0        0.0        0.0      139.5        0.0        3.0        1.8     580.00
       0.14       0.00       1.86       0.00      0.000      0.040      0.000      0.000     579.50     166.00
   0.000297       200.       190.       190.          2          0          0       0.00      28.00     194.00


*SECNO 990.000

3370 NORMAL BRIDGE, NRD=  10 MIN ELTRD=    588.70 MAX ELLC=    586.00

    990.000       5.07     584.57       0.00       0.00     584.62       0.05       0.00       0.00     580.00
      260.0        0.3      259.3        0.3        1.7      139.6        1.7        3.0        1.8     580.00
       0.14       0.20       1.86       0.20      0.050      0.030      0.050      0.000     579.50     165.24
   0.000166         1.         1.         1.          0          0          0       0.00      29.52     194.76
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 SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
 Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
 TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
 SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*SECNO 1010.000

3370 NORMAL BRIDGE, NRD=  10 MIN ELTRD=    588.70 MAX ELLC=    586.00

  1010.000       5.08     584.58       0.00       0.00     584.63       0.05       0.01       0.00     580.00
     260.0        0.3      259.3        0.3        1.7      139.9        1.7        3.1        1.8     580.00
      0.15       0.20       1.85       0.20      0.050      0.030      0.050      0.000     579.50     165.24
  0.000165         53        53.        53.          0          0          0       0.00      29.53     194.76

*SECNO 1011.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   0.66

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=        588.70 ELREA=        588.70

  1011.000       5.08     584.58       0.00       0.00     584.63       0.05       0.00       0.00     580.00
     260.0        0.0      260.0        0.0        0.0      139.8        0.0        3.1        1.8     580.00
      0.15       0.00       1.86       0.00      0.000      0.045      0.000      0.000     579.50     166.00
  0.000373         1.         1.         1.          0          0          0       0.00      28.00     194.00

CCHV=      0.100 CEHV=      0.300
1490 NH CARD USED
*SECNO 2270.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   0.16

  2270.000       3.00     585.60       0.00       0.00     586.32       0.72       1.49       0.20     583.10
     260.0       12.5      234.8       12.7        5.8       32.9        5.9        6.0        2.6     583.10
      0.21       2.16       7.14       2.16      0.090      0.050      0.090      0.000     582.60     903.37
  0.015114       1220      1340.      1259.          4          0          0       0.00      21.35     924.71

1490 NH CARD USED
*SECNO 3200.000

3301 HV CHANGED MORE THAN HVINS
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  3.78


3470 ENCROACHMENT STATIONS=        0.0    1100.0  TYPE=      1  TARGET=     1099.999
  3200.000      5.18    588.88      0.00      0.00    588.90      0.03      2.51      0.07    588.60
     260.0      12.4     175.3      72.3      26.1     132.0      58.7       8.8       4.4    587.20
      0.41      0.48      1.33      1.23     0.055     0.080     0.050     0.000    583.70    833.10
  0.001058      950.      950.      950.         5         0         0      0.00    148.67    981.77

CCHV=    0.300 CEHV=     0.500
1490 NH CARD USED
*SECNO 3662 000
  3662.000      7 15    589.35      0.00      0.00    589.40      0.05      0.49      0.01    588.40
     260.0      73.6     168.2      18.2      95.1      77.6      34.7      11.1       6.1    588.40
      0.49      0.77      2.17      0.52     0.058     0.050     0.086     0.000    582.20    819.02
  0.001052      462.      462.      462.         4         0         0      0.00    161.68    980.70


*SECNO 3663 000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  0.68


3370 NORMAL BRIDGE, NRD=   9 MIN ELTRD=   588.30 MAX ELLC=   587.30

  3663.000      7.18    589.38      0.00      0.00    589.41      0.03      0.00      0.00    588.40
     260.0     109 4     122.3      28.3      97.5      65.7      35.5      11.1       6.1    588.40
      0.49      1.12      1.86      0.80     0.060     0.051     0.085     0.000    582.20    818.38
  0.002302        1.        1.        1.         2         0         0    -12.10    162.47    980.85


*SECNO 3675 000

3370 NORMAL BRIDGE, NRD=   9 MIN ELTRD=   588.30 MAX ELLC=   587.30

  3675.000      7.20    589.40      0.00      0.00    589.44      0.03      0.03      0.00    588.40
     260.0     111.0     120.4      28.7      99.8      65.9      36.3      11.1       6.1    588.40
      0 49      1.11      1.83      0.79     0.060     0.051     0.085     0.000    582.20    817.79
  0.002206       12.       12.       12.         0         0         0    -12.10    163.21    980.99
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   SECNO        DEPTH       CWSEL       CRIWS       WSELK       EG          HV          HL          OLOSS       L-BANK ELEV
   Q            QLOB        QCH         QROB        ALOB        ACH         AROB        VOL         TWA         R-BANK ELEV
   TIME         VLOB        VCH         VROB        XNL         XNCH        XNR         WTN         ELMIN       SSTA
   SLOPE        XLOBL       XLCH        XLOBR       ITRIAL      IDC         ICONT       CORAR       TOPWID      ENDST

1490 NH CARD USED
*SECNO 3676.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.51

  3676.000        7.20      589.40        0.00        0.00      589.44        0.05        0.00        0.01      588.40
     260.0        77.4       163.4        19.2       101 0        78.2        36.8        11.1         6.1      588.40
      0.50        0.77        2.09        0.52       0.058       0.050       0.086       0.000      582.20      817.46
  0.000968           1          1.          1.           0           0           0        0.00      163.61      981.07


CCHV=     0.200 CEHV=     0.400
1490 NH CARD USED
*SECNO 4800.000

3470 ENCROACHMENT STATIONS=       190.0       233.0  TYPE=        1  TARGET=        43.000
  4800.000        5 59      590.39        0.00        0.00      590.46        0.07        1.00        0.01      588.90
     260.0         5 9       253.3         0.8        12.2       118.6         2.8        15.5         8.7      589.80
      0.64        0 49        2.14        0.29       0.095       0.050       0.095       0.000      584.80      190.00
  0.000838        1074       1124.       1074.           3           0           0        0.00       43.00      233.00


CCHV=     0.300 CEHV=     0.500
*SECNO 4892 000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  0.67


3470 ENCROACHMENT STATIONS=       886.5       908.2  TYPE=        1  TARGET=        21.700
  4892.000        5 30      590.40        0.00        0.00      590.52        0.12        0.04        0.02      588.90
     245.0         0 0       245.0         0.0         0.0        89.2         0.0        15.6         8.7      589.80
      0.65        0.00        2.75        0.01       0.000       0.050       0.095       0.000      585.10      886.50
  0.001673         34.         34.         34.           1           0           0        0.00       21.70      908.20


SPECIAL BRIDGE

SB  XK          XKOR        COFQ        RDLEN       BWC         BWP         BAREA       SS          ELCHU       ELCHD
      0.00        2 00        2.95        0.00       21.67        0.00      123.60        0.00      585.10      585.10

*SECNO 4926.000
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 SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
 Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
 TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
 SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


6070,LOW FLOW BY NORMAL BRIDGE

EGPRS=      0 000  EGLWC=     590.520  ELLC=     592.000  PCWSE=     590.402  ELTRD=     594.600

3370 NORMAL BRIDGE, NRD=  29 MIN ELTRD=    594.60 MAX ELLC=    592.00


3470 ENCROACHMENT STATIONS=       886.5      908.2  TYPE=       1  TARGET=       21.700
   4926.000       5.37     590.47       0.00       0.00     590.58       0.11       0.06       0.00     588.90
      245.0        0.0      245.0        0.0        0.0       90.4        0.0       15.7        8.7     589.80
       0.65       0.00       2.71       0.00      0.000      0.050      0.000      0.000     585.10     886.50
   0.001840        36.        36.        36.          2          0          0      -0.02      21.70     908.20


1490 NH CARD USED
*SECNO 5101 000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.72

   5101.000       5.66     590.73       0.00       0.00     590.78       0.05       0.17       0.02     589.17
      245.0       12.7      223.6        8.7       22.4      120.6       25.8       16.2        9.1     590.07
       0.68       0 57       1.85       0.34      0.055      0.050      0.055      0.000     585.07     171.22
   0.000619        175       175.       175.          2          0          0       0.00     130 42     301.64


CCHV=     0.100 CEHV=     0.300
*SECNO 6610 000
   6610.000       6 55     591.55       0.00       0.00     591.60       0.05       0.82       0.00     590.00
      245 0        3.0      236.9        5.1        6.0      134.4       10.2       21.8       12.2     590.00
       0 92       0.50       1.76       0.50      0.055      0.050      0.055      0.000     585.00     157.24
   0.000484      1509.      1509.      1509.          3          0          0       0.00      48.96     206.20


*SECNO 7390.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.40

   7390.000       6.18     591.78       0.00       0.00     591.80       0.02       0.20       0.00     590.00
      180.0        1.8      176.4        1.8        6.4      177.1        6.4       24.8       13.0     590.00
       1.14       0.28       1.00       0.28      0.055      0.050      0.055      0.000     585.60      60.87
   0.000132       720.       780.       800.          2          0          0       0.00      46.27     107.13
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SECNO Q TIME SLOPE	DEPTH QLOB VLOB XLOBL	CWSEL QCH VCH XLCH	CRIWS QROB VROB XLOBR	WSELK ALOB XNL ITRIAL	EG ACH XNCH IDC	HV AROB XNR ICONT	HL VOL WTN CORAR	OLOSS TWA ELMIN TOPWID	L-BANK ELEV R-BANK ELEV SSTA ENDST
*SECNO 8510.000									
8510.000	5.75	591.95	0.00	0.00	591.97	0.01	0.17	0.00	590.00
180.0	2.2	115.1	62.6	6.7	109.2	107.7	30.2	14.8	588.40
1.50	0.34	1.05	0.58	0.055	0.050	0.055	0.000	586.20	28.16
0.000168	1100	1120.	1160.	2	0	0	0.00	91.02	119.19
*SECNO 10220.000									
10220.000	5.60	592.20	0.00	0.00	592.22	0.01	0.25	0.00	588.40
180.0	26.9	119.2	34.0	39.5	112.0	53.6	38.6	18.0	588.50
2.01	0.68	1.06	0.63	0.040	0.045	0.050	0.000	586.60	67.88
0.000128	1710	1710.	1740.	0	0	0	0.00	70.41	138.29

T1 CLINTON TOWNSHIP FLOOD INSURANCE STUDY
T2 UPDATED 50 YEAR FLOOD 380 CFS STS CONSULTANTS LTD. 12/93 MMW
T3 MILLER DRAIN

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-1.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	583.1	0.0

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	2.0	0.0	-1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*PROF 2

CCHV= 0.100 CEHV= 0.300
1490 NH CARD USED
*SECNO 0.000

0.000	6.70	583.10	0.00	583.10	583.12	0.02	0.00	0.00	581.90
380.0	9.9	178.5	191.5	20.0	147.1	166.1	0.0	0.0	581.00
0.00	0.50	1.21	1.15	0.050	0.079	0.050	0.000	576.40	216.67
0.000552	0	0.	0.	0	0	0	0.00	150.13	366.80

1490 NH CARD USED
*SECNO 850.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3302 WARNING CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.24

850.000	4.70	584.20	0.00	0.00	584.40	0.20	1.23	0.05	585.00
380.0	0.0	332.4	47.6	0.0	87.6	24.8	4.3	2.2	584.10
0.07	0.00	3.79	1.92	0.000	0.078	0.050	0.000	579.50	251.31
0.009950	850.	850.	850.	3	0	0	0.00	76.42	327.73

CCHV= 0.300 CEHV= 0.500
*SECNO 989.000

3302 WARNING. CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 4.02

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 588.00 ELREA= 588.00

989.000	5.12	584.62	0.00	0.00	584.73	0.11	0.30	0.03	580.00
380.0	0.0	380.0	0.0	0.0	140.8	0.0	4.9	2.4	580.00
0.09	0.00	2.70	0.00	0.000	0.040	0.000	0.000	579.50	166.00
0.000615	200	190.	190.	2	0	0	0.00	28.00	194.00

*SECNO 990.000

3370 NORMAL BRIDGE, NRD= 10 MIN ELTRD= 588.70 MAX ELLC= 586.00

990.000	5.12	584.62	0.00	0.00	584.73	0.11	0.00	0.00	580.00
380.0	0.5	379.0	0.5	1.8	141.1	1.8	4.9	2.4	580.00
0.09	0.29	2.69	0.29	0.050	0.030	0.050	0.000	579.50	165.23
0.000342	1.	1.	1.	0	0	0	0.00	29.54	194.77

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 SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
 Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
 TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
 SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*SECNO 1010 000

3370 NORMAL BRIDGE, NRD=  10 MIN ELTRD=   588.70 MAX ELLC=   586.00

  1010.000      5.14    584.64      0.00      0.00    584.75      0.11      0.02      0.00    580.00
     380.0       0.5     379.0       0.5       1.8     141.7       1.8       5.1       2.5    580.00
      0.09      0.29      2.67      0.29     0.050     0.030     0.050     0.000    579.50    165.23
  0.000337       53.       53.       53.         0         0         0      0.00     29.55    194.77

*SECNO 1011 000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  0.66

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       588.70 ELREA=       588.70

  1011.000      5.14    584.64      0.00      0.00    584.75      0.11      0.00      0.00    580.00
     380.0       0.0     380.0       0.0       0.0     141.5       0.0       5.1       2.5    580.00
      0.09      0.00      2.69      0.00     0.000     0.045     0.000     0.000    579.50    166.00
  0.000765        1.        1.        1.         0         0         0      0.00     28.00    194.00

CCHV=     0.100 CEHV=     0.300
1490 NH CARD USED
*SECNO 2270 000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  0.29

  2270.000      4.11    586.71      0.00      0.00    587.39      0.68      2.47      0.17    583.10
     380.0      26.3     326.8      26.9      12.1      46.3      12.3       8.3       3.3    583.10
      0.15      2.18      7.06      2.18     0.090     0.050     0.090     0.000    582.60    901.29
  0.009371     1220.     1340.     1259.         4         0         0      0.00     25.54    926.82

1490 NH CARD USED
*SECNO 3200.000

3301 HV CHANGED MORE THAN HVINS
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   SECNO        DEPTH       CWSEL       CRIWS       WSELK       EG          HV          HL          OLOSS       L-BANK ELEV
   Q            QLOB        QCH         QROB        ALOB        ACH         AROB        VOL         TWA         R-BANK ELEV
   TIME         VLOB        VCH         VROB        XNL         XNCH        XNR         WTN         ELMIN       SSTA
   SLOPE        XLOBL       XLCH        XLOBR       ITRIAL      IDC         ICONT       CORAR       TOPWID      ENDST


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  3.20


3470 ENCROACHMENT STATIONS=         0.0    1100.0  TYPE=       1  TARGET=     1099.999
  3200.000      5.74     589.44      0.00        0.00     589.47       0.03       2.02       0.06     588.60
     380.0      51.4      211.4     117.2        69.1      154.2       84.0       12.4        5.4     587.20
      0.35      0.74       1.37      1.40       0.055      0.080      0.050      0.000     583.70     816.32
  0.000914      950.       950.      950.           4          0          0       0.00     168.68     984.99


CCHV=     0.300 CEHV=     0.500
1490 NH CARD USED
*SECNO 3662.000
  3662.000      7.68     589.88      0.00        0.00     589.92       0.04       0.44       0.01     588.40
     380.0     155.6      185.2      39.1       157.9       83.4       56.6       15.7        7.3     588.40
      0.44      0.99       2.22      0.69       0.058      0.050      0.084      0.000     582.20     803.47
  0.001003       462       462.      462.           3          0          0       0.00     180.94     984.41


*SECNO 3663.000

3370 NORMAL BRIDGE, NRD=   9 MIN ELTRD=   588.30 MAX ELLC=   587.30

  3663.000      7.70     589.90      0.00        0.00     589.93       0.03       0.00       0.00     588.40
     380.0     203.0      124.7      52.4       158.4       71.4       56.8       15.7        7.3     588.40
      0.44      1.28       1.75      0.92       0.060      0.051      0.085      0.000     582.20     803.34
  0.001820         1         1.        1.           1          0          0     -12.10     181.11     984.45


*SECNO 3675.000

3370 NORMAL BRIDGE, NRD=   9 MIN ELTRD=   588.30 MAX ELLC=   587.30

  3675.000      7.72     589.92      0.00        0.00     589.95       0.03       0.02       0.00     588.40
     380.0     204.6      122.7      52.8       161.7       71.6       58.0       15.7        7.3     588.40
      0.44      1.26       1.71      0.91       0.060      0.051      0.085      0.000     582.20     802.57
  0.001738       12.        12.       12.           0          0          0     -12.10     182.06     984.63


1490 NH CARD USED
*SECNO 3676.000
  3676.000      7.71     589.91      0.00        0.00     589.96       0.04       0.00       0.01     588.40
     380.0     158.4      181.7      39.9       162.7       83.8       58.3       15.7        7.3     588.40
      0.44      0.97       2.17      0.68       0.058      0.050      0.084      0.000     582.20     802.35
  0.000949        1.         1.        1.           0          0          0       0.00     182.34     984.68
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


CCHV=    0.200 CEHV=     0.400
1490 NH CARD USED
*SECNO 4800.000

3470 ENCROACHMENT STATIONS=       190.0      233.0  TYPE=      1  TARGET=       43.000
  4800.000      6.21    591.01      0.00    590.39    591.11      0.11      1.13      0.03    588.90
     380.0      12.9     364.1       3.0      18.3     135.9       5.9      21.6      10.1    589.80
      0.56      0.71      2.68      0.51     0.095     0.050     0.095     0.000    584.80    190.00
  0.001101     1074.     1124.     1074.         2         0         0      0.00     43.00    233.00


CCHV=    0.300 CEHV=     0.500
*SECNO 4892.000

3302 WARNING-  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  0.65


3470 ENCROACHMENT STATIONS=       886.5      908.2  TYPE=      1  TARGET=       21.700
  4892.000      5.92    591.02      0.00    590.40    591.21      0.19      0.05      0.04    588.90
     360.0       0.0     360.0       0.0       0.0     102.3       0.0      21.7      10.1    589.80
      0.56      0.00      3.52      0.01     0.000     0.050     0.095     0.000    585.10    886.50
  0.002354       34.       34.       34.         2         0         0      0.00     21.70    908.20



SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.00      2.00      2.95      0.00     21.67      0.00    123.60      0.00    585.10    585.10

*SECNO 4926.000

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS=      0.000  EGLWC=    591.209  ELLC=    592.000  PCWSE=    591.017  ELTRD=    594.600

3370 NORMAL BRIDGE, NRD=  29 MIN ELTRD=    594.60 MAX ELLC=    592.00


3470 ENCROACHMENT STATIONS=       886.5      908.2  TYPE=      1  TARGET=       21.700
  4926.000      6.02    591.12      0.00    590.47    591.30      0.18      0.09      0.00    588.90
     360.0       0.0     360.0       0.0       0.0     104.5       0.0      21.8      10.2    589.80
      0.56      0.00      3.44      0.00     0.000     0.050     0.000     0.000    585.10    886.50
  0.002748       36.       36.       36.         2         0         0     -0.04     21.70    908.20
```

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

1490 NH CARD USED
*SECNO 5101 000

3302 WARNING CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.28

5101.000	6 41	591.48	0.00	590.73	591.52	0.04	0.18	0.04	589.17
360 0	33.6	270.0	56.3	49.3	141.6	89.3	22.6	10.5	590.07
0.59	0 68	1.91	0.63	0.055	0.050	0.055	0.000	585.07	157.32
0.000528	175.	175.	175.	2	0	0	0.00	165.82	323.14

CCHV= 0 100 CEHV= 0.300
*SECNO 6610 000

6610.000	7 30	592.30	0.00	591.55	592.37	0.07	0.84	0.01	590.00
360 0	10 2	332 5	17.3	13.6	155 4	22 5	30.7	14.5	590.00
0.80	0 75	2.14	0.77	0.055	0.050	0.055	0.000	585.00	151.20
0.000587	1509.	1509.	1509	3	0	0	0.00	60.78	211.98

*SECNO 7390 000

7390.000	7 00	592.60	0.00	591.78	592.62	0.02	0.25	0.00	590.00
265.0	6.2	252.4	6.4	13.7	203.2	15.2	34.5	15.5	590.00
0.98	0 45	1.24	0.42	0.055	0.050	0.055	0.000	585.60	57.01
0.000171	720.	780.	800.	2	0	0	0.00	59.06	116.07

*SECNO 8510.000

8510.000	6 60	592.80	0.00	591.95	592.81	0.01	0.19	0.00	590 00
265 0	5.7	148.1	111.2	13.7	128.5	166.2	41.5	17.7	588.40
1.32	0 42	1.15	0.67	0.055	0.050	0.055	0.000	586.20	25.22
0.000162	1100.	1120.	1160.	2	0	0	0.00	110.68	135.90

*SECNO 10220 000

10220.000	6 45	593.05	0.00	592.20	593.06	0.02	0.25	0.00	588.40
265.0	50 7	158.9	55.4	63.1	131.2	74.3	52.9	21.6	588.50
1.78	0 80	1.21	0.75	0.040	0.045	0.050	0.000	586.60	59.54
0.000135	1710.	1710.	1740.	2	0	0	0.00	81.89	141.42

T1 CLINTON TOWNSHIP FLOOD INSURANCE STUDY
T2 UPDATED 100 YEAR FLOOD 430 CFS STS CONSULTANTS LTD. 12/93 MMW
T3 MILLER DRAIN

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-1.0	4.0	0.0	0.0	0.0	0 0	0.0	0.0	584.2	0.0

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	3.0	0.0	-1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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   SECNO     DEPTH      CWSEL      CRIWS      WSELK       EG         HV         HL        OLOSS     L-BANK ELEV
   Q         QLOB       QCH        QROB       ALOB        ACH        AROB       VOL       TWA       R-BANK ELEV
   TIME      VLOB       VCH        VROB       XNL         XNCH       XNR        WTN       ELMIN     SSTA
   SLOPE     XLOBL      XLCH       XLOBR      ITRIAL      IDC        ICONT      CORAR     TOPWID    ENDST

*PROF 3


CCHV=     0.100 CEHV=     0.300
1490 NH CARD USED
*SECNO 0.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
     0.000       7.80     584.20       0.00     584.20     584.21       0.01       0.00       0.00     581.90
     430.0       37.8      152.9      239.3       72.4      180.2      270.0        0.0        0.0     581.00
      0.00       0.52       0.85       0.89      0.050      0.079      0.050      0.000     576.40     190.38
  0.000206         0.         0.         0.          0          0          0       0.00     191.82     382.20

1490 NH CARD USED
*SECNO 850.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  0.18

   850.000       5.11     584.61       0.00       0.00     584.76       0.15       0.51       0.04     585.00
     430.0        0.0      330.6       99.4        0.0       99.8       47.2        6.5        2.7     584.10
      0.08       0.00       3.31       2.11      0.000      0.078      0.050      0.000     579.50     250.63
  0.006657       850.       850.       850.          2          0          0       0.00      88.71     339.34

CCHV=     0.300 CEHV=     0.500
*SECNO 989.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  3.21


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=        588.00 ELREA=        588.00

   989.000       5.42     584.92       0.00       0.00     585.05       0.13       0.29       0.01     580.00
     430.0        0.0      430.0        0.0        0.0      149.4        0.0        7.2        3.0     580.00
      0.10       0.00       2.88       0.00      0.000      0.040      0.000      0.000     579.50     166.00
  0.000647       200.       190.       190.          2          0          0       0.00      28.00     194.00

*SECNO 990.000

3370 NORMAL BRIDGE, NRD=  10 MIN ELTRD=    588.70 MAX ELLC=    586.00

   990.000       5.42     584.92       0.00       0.00     585.05       0.13       0.00       0.00     580.00
     430.0        0.6      428.8        0.6        2.0      149.5        2.0        7.2        3.0     580.00
      0.10       0.31       2.87       0.31      0.050      0.030      0.050      0.000     579.50     165.18
  0.000361         1.         1.         1.          0          0          0       0.00      29.64     194.82
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 1010 000

3370 NORMAL BRIDGE, NRD= 10 MIN ELTRD= 588.70 MAX ELLC= 586.00

1010.000	5.44	584.94	0.00	0.00	585.07	0.13	0.02	0.00	580.00
430.0	0.6	428.7	0.6	2.0	150.2	2.0	7.4	3.0	580.00
0.10	0.31	2.85	0.31	0.050	0.030	0.050	0 000	579.50	165.17
0.000355	53.	53.	53.	0	0	0	0.00	29.65	194.83

*SECNO 1011.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.66

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 588.70 ELREA= 588.70

1011.000	5 44	584.94	0.00	0.00	585.07	0.13	0.00	0.00	580.00
430.0	0.0	430.0	0.0	0.0	150.0	0.0	7.4	3.0	580.00
0.10	0 00	2.87	0.00	0.000	0.045	0.000	0.000	579.50	166.00
0.000806	1.	1.	1.	0	0	0	0.00	28.00	194.00

CCHV= 0.100 CEHV= 0.300
1490 NH CARD USED
*SECNO 2270.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.32

2270.000	4.48	587.08	586.06	0.00	587.70	0.62	2.48	0.15	583.10
430.0	31.4	351.4	47.1	14.6	50.6	30.8	11.1	4.9	583.10
0.16	2.15	6.95	1.53	0.090	0.050	0.080	0.000	582.60	900.62
0.008059	1220	1340.	1259.	7	14	0	0.00	102.03	1002.65

1490 NH CARD USED
*SECNO 3200 000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 3.01

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 SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    L-BANK ELEV
 Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA      R-BANK ELEV
 TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN    SSTA
 SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID   ENDST


3470 ENCROACHMENT STATIONS=       0.0    1100.0  TYPE=      1  TARGET=     1099.999
  3200.000     5.93    589.63     0.00     0.00   589.66     0 03     1.90     0.06   588.60
     430.0     69.7     225.5    134.9     85.6    161.7     92.9     15.9     87.0   587.20
      0.36     0.81      1.39     1.45    0.055    0.080    0 050    0.000   583.70   810.70
  0.000889     950.      950.     950.        3        0        0     0.00   175.37   986.07


CCHV=     0 300 CEHV=     0.500
1490 NH CARD USED
*SECNO 3662 000
  3662.000     7.86    590.06     0.00     0.00   590.10     0.04     0.43     0.01   588.40
     430 0    190.8     191.3     47.9    181.0     85.4     64.5     19.4      9.9   588.40
      0.45     1 05      2.24     0.74    0.058    0.050    0 083    0.000   582.20   798.58
  0.000990     462       462.     462         3        0        0     0.00   187.10   985.67


*SECNO 3663 000

3370 NORMAL BRIDGE, NRD=   9 MIN ELTRD=   588.30 MAX ELLC=   587.30

  3663.000     7.88    590.08     0.00     0.00   590.11     0.03     0.00     0.00   588.40
     430.0    241.8     126.2     62.0    181.7     73.3     64.8     19.4      9.9   588.40
      0.45     1 33      1.72     0.96    0.060    0.051    0.085    0.000   582.20   798.45
  0.001703        1        1.       1.        1        0        0   -12.10   187.26   985.71


*SECNO 3675 000

3370 NORMAL BRIDGE, NRD=   9 MIN ELTRD=   588.30 MAX ELLC=   587.30

  3675.000     7.90    590.10     0.00     0.00   590.13     0.03     0.02     0.00   588.40
     430.0    243 4     124.4     62.3    184.9     73.6     65.9     19.5      9.9   588.40
      0.45     1 32      1.69     0.95    0.060    0.051    0.085    0.000   582.20   797.88
  0.001633       12       12.      12.        0        0        0   -12.10   188.00   985.88


1490 NH CARD USED
*SECNO 3676 000
  3676.000     7.89    590.09     0.00     0.00   590.13     0.04     0.00     0.01   588.40
     430.0    193.7     187.7     48.5    185.8     85.8     66.2     19.5      9.9   588.40
      0.45     1.04      2.19     0.73    0.058    0.050    0.083    0.000   582.20   797.72
  0.000938       1.        1.       1.        0        0        0     0.00   188.21   985.93
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  SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
  Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
  TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
  SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


CCHV=     0.200 CEHV=     0.400
1490 NH CARD USED
*SECNO 4800.000

3470 ENCROACHMENT STATIONS=       190.0      233.0  TYPE=       1  TARGET=       43.000
   4800.000       6.42     591.22       0.00     590.39     591.34       0.12       1.18       0.03     588.90
      430 0       16.1      409.9        4.0       20.5      141.8        7.0       25.9       12.8     589.80
       0.56       0.79       2.89       0.58      0.095      0.050      0.095      0.000     584.80     190.00
   0.001210      1074.      1124.      1074.          2          0          0       0.00      43.00     233.00


CCHV=     0.300 CEHV=     0.500
*SECNO 4892.000

3302 WARNING   CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  0.64

3470 ENCROACHMENT STATIONS=       886.5      908.2  TYPE=       1  TARGET=       21.700
   4892.000       6.12     591.22       0.00     590.40     591.45       0.23       0.06       0.05     588.90
      410.0        0.0      410.0        0.0        0.0      106.8        0.0       26 0       12.8     589.80
       0.56       0.00       3.84       0.01      0.000      0.050      0.095      0.000     585.10     886.50
   0.002673         34        34.        34.          2          0          0       0.00      21.70     908.20


SPECIAL BRIDGE

SB  XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
      0.00       2.00       2.95       0.00      21.67       0.00     123.60       0.00     585.10     585.10

*SECNO 4926.000

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS=       0.000  EGLWC=     591.453  ELLC=     592.000  PCWSE=     591.224  ELTRD=     594.600

3370 NORMAL BRIDGE, NRD=  29 MIN ELTRD=    594.60 MAX ELLC=    592.00

3470 ENCROACHMENT STATIONS=       886.5      908.2  TYPE=       1  TARGET=       21.700
   4926.000       6.24     591.34       0.00     590.47     591.56       0.22       0.10       0.00     588.90
      410 0        0.0      410.0        0.0        0.0      109.4        0.0       26.1       12.9     589.80
       0.56       0.00       3.75       0.00      0.000      0.050      0.000      0.000     585.10     886.50
   0.003179        36.        36.        36.          2          0          0      -0.04      21.70     908.20
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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

1490 NH CARD USED
*SECNO 5101.000

3302 WARNING   CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.53

  5101.000       6.68     591.75       0.00     590.73     591.79       0.04       0.18       0.05     589.17
     410.0       43.8      285.4       80.8       61.5      149.2      116.1       27.0       13.3     590.07
      0.60       0.71       1.91       0.70      0.055      0.050      0.055      0.000     585.07     152.32
  0.000496       175.       175.       175.          2          0          0       0.00     178.55     330.87

CCHV=     0.100 CEHV=     0.300
*SECNO 6610.000
  6610.000       7.57     592.57       0.00     591.55     592.64       0.07       0.84       0.01     590.00
     410.0       14.7      370.9       24.5       17.7      162.8       27.7       36.2       17.5     590.00
      0.79       0.83       2.28       0.88      0.055      0.050      0.055      0.000     585.00     147.92
  0.000626      1509.      1509.      1509.          3          0          0       0.00      65.76     213.68

*SECNO 7390.000
  7390.000       7.28     592.88       0.00     591.78     592.91       0.03       0.27       0.00     590.00
     300.0        8.7      281.9        9.4       17.0      212.3       20.3       40.3       18.7     590.00
      0.96       0.51       1.33       0.46      0.055      0.050      0.055      0.000     585.60      55.58
  0.000185       720.       780.       800.          2          0          0       0.00      64.35     119.93

*SECNO 8510.000
  8510.000       6.89     593.09       0.00     591.95     593.10       0.02       0.19       0.00     590.00
     300.0        7.4      160.4      132.1       16.7      135.3      190.0       48.0       21.0     588.40
      1.29       0.44       1.19       0.70      0.055      0.050      0.055      0.000     586.20      24.19
  0.000160      1100.      1120.      1160.          2          0          0       0.00     117.60     141.78

*SECNO 10220.000
 10220.000       6.74     593.34       0.00     592.20     593.36       0.02       0.25       0.00     588.40
     300.0       61.6      174.0       64.4       73.1      138.0       82.3       60.6       25.1     588.50
      1.74       0.84       1.26       0.78      0.040      0.045      0.050      0.000     586.60      56.59
  0.000137      1710.      1710.      1740.          2          0          0       0.00      85.94     142.53
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T1 CLINTON TOWNSHIP FLOOD INSURANCE STUDY
T2 UPDATED 500 YEAR FLOOD 590 CFS STS CONSULTANTS LTD. 12/93 MMW
T3 MILLER DRAIN

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-1.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0	587.0	0.0
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	15.0	0.0	-1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*PROF 4


CCHV=    0.100 CEHV=     0.300
1490 NH CARD USED
*SECNO 0.000
     0.000      10.60     587.00       0.00     587.00     587.00       0.00       0.00       0.00     581.90
     590.0      132.5      126.4      331.1      321.1      264.1      611.1        0.0        0.0     581.00
      0.00       0.41       0.48       0.54      0.050      0.079      0.050      0.000     576.40     118.18
  0.000039          0         0.         0.          0          0          0       0.00     303.22     421.40

1490 NH CARD USED
*SECNO 850.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  0.28

   850.000       7.57     587.07       0.00       0.00     587.09       0.03       0.08       0.01     585.00
     590.0       42.9      221.9      325.2       59.0      173.1      246.6       16.3        4.8     584.10
      0.19       0.7[illegible]       1.28       1.32      0.050      0.079      0.050      0.000     579.50     194.87
  0.000496        850       850.       850.          2          0          0       0.00     184.06     378.93

CCHV=    0.300 CEHV=     0.500
*SECNO 989.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       588.00 ELREA=       588.00

   989.000       7.60     587.10       0.00       0.00     587.22       0.12       0.08       0.05     580.00
     590.0        0.0      590.0        0.0        0.0      210.7        0.0       17.9        5.2     580.00
      0.21       0.00       2.80       0.00      0.000      0.040      0.000      0.000     579.50     166.00
  0.000387       200.       190.       190.          1          0          0       0.00      28.00     194.00

*SECNO 990.000

3302 WARNING.  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  0.65

3370 NORMAL BRIDGE, NRD=  10 MIN ELTRD=   588.70 MAX ELLC=   586.00

   990.000       7.58     587.08       0.00       0.00     587.25       0.17       0.00       0.02     580.00
     590.0        1.5      586.9        1.5        3.0      179.6        3.0       17.9        5.2     580.00
      0.21       0.51       3.27       0.51      0.050      0.030      0.050      0.000     579.50     119.09
  0.000922          1         1.         1.          2          0          0    -171.18     193.97     313.06
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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*SECNO 1010.000

3370 NORMAL BRIDGE, NRD=  10 MIN ELTRD=   588.70 MAX ELLC=   586.00

  1010.000       7.63     587.13       0.00       0.00     587.29       0.17       0.05       0.00     580.00
     590.0        1.5      586.9        1.5        3.0      179.6        3.0       18.1        5.5     580.00
      0.21       0.51       3.27       0.51      0.050      0.030      0.050      0.000     579.50     117.31
  0.000922        53.        53.        53.          1          0          0    -179.35     196.52     313.83

*SECNO 1011.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       588.70 ELREA=       588 70

  1011.000       7 69     587.19       0.00       0.00     587.31       0.12       0.00       0.01     580.00
     590.0        0.0      590.0        0.0        0.0      212.9        0.0       18.1        5.5     580.00
      0.21       0.00       2.77       0.00      0.000      0.045      0.000      0.000     579.50     166.00
  0.000473         1.          1         1.          2          0          0       0.00      28.00     194.00

CCHV=     0 100 CEHV=      0.300
1490 NH CARD USED
*SECNO 2270 000

3265 DIVIDED FLOW


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  0.45

  2270.000       5.74     588.34       0.00       0.00     588.52       0.18       1.19       0.02     583.10
     590.0       45.8      297.0      247.2       33.3       65.9      153.6       25.1        8.3     583.10
      0.33       1.37       4.50       1.61      0.085      0.050      0.061      0.000     582.60     881.83
  0.002380      1220.      1340.      1259.          2          0          0       0.00     164.70    1108.62

1490 NH CARD USED
*SECNO 3200.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.49

3470 ENCROACHMENT STATIONS=          0.0     1100.0  TYPE=        1  TARGET=      1099.999
  3200.000       6.26     589.96       0.00       0.00     590.00       0.04       1.46       0.01     588.60
     590.0      120.2      281.7      188.2      116.2      174.4      108.5       32.2       12.1     587.20
      0.50       1.03       1.62       1.73      0.055      0.080      0.050      0.000     583.70     801.13
  0.001078       950.       950.       950.          2          0          0       0.00     186.79     987.91
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

CCHV=     0.300 CEHV=     0.500
1490 NH CARD USED
*SECNO 3662.000
  3662.000       8.25     590.45       0.00       0.00     590.50       0.05       0.50       0.01     588.40
     590.0      298.8      217.3       73.9      233.7       89.6       82.4       36.4       14.2     588.40
      0.58       1.28       2.42       0.90      0.057      0.050      0.082      0.000     582.20     789.57
  0.001085        462       462.       462.          2          0          0       0.00     198.83     988.40

*SECNO 3663.000

3370 NORMAL BRIDGE, NRD=    9 MIN ELTRD=    588.30 MAX ELLC=    587.30

  3663.000       8.27     590.47       0.00       0.00     590.51       0.04       0.00       0.00     588.40
     590.0      360.9      138.8       90.3      235.5       77.7       83.0       36.5       14.2     588.40
      0.58       1.53       1.79       1.09      0.060      0.051      0.085      0.000     582.20     789.26
  0.001699          1         1.         1.          1          0          0     -12.10     199.23     988.49

*SECNO 3675.000

3370 NORMAL BRIDGE, NRD=    9 MIN ELTRD=    588.30 MAX ELLC=    587.30

  3675.000       8.29     590.49       0.00       0.00     590.53       0.04       0.02       0.00     588.40
     590.0      362.3      137.1       90.6      238.9       77.9       84.1       36.6       14.2     588.40
      0.58       1.52       1.76       1.08      0.060      0.051      0.085      0.000     582.20     788.70
  0.001639         12        12.        12.          0          0          0     -12.10     199.96     988.66

1490 NH CARD USED
*SECNO 3676.000
  3676.000       8.29     590.49       0.00       0.00     590.53       0.05       0.00       0.00     588.40
     590.0      302.3      213.0       74.7      239.8       90.1       84.4       36.6       14.2     588.40
      0.58       1.26       2.36       0.88      0.057      0.050      0.082      0.000     582.20     788.55
  0.001025          1         1.         1.          0          0          0       0.00     200.15     988.70

CCHV=     0.200 CEHV=     0.400
1490 NH CARD USED
*SECNO 4800.000

3470 ENCROACHMENT STATIONS=       1.0      560.0  TYPE=       1  TARGET=       559.000
  4800.000       6.85     591.65       0.00     590.39     591.75       0.11       1.20       0.02     588.90
     590.0       45.5      457.2       87.3       69.5      153.8      133.2       46.2       19.0     589.80
      0.71       0.65       2.97       0.66      0.095      0.050      0.095      0.000     584.80     149.30
  0.001150       1074      1124.      1074.          2          0          0       0.00     186.23     335.53
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     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

 CCHV=     0.300 CEHV=     0.500
 *SECNO 4892.000

 3470 ENCROACHMENT STATIONS=        1.0     1871.5   TYPE=       1   TARGET=     1870.500
   4892.000       6.57     591.67       0.00     590.40     591.82       0.15       0.05       0.02     588.90
      560.0       25.2      413.7      121.0       38.3      116.7      144.8       46.5       19.1     589.80
       0.71       0.66       3.54       0.84      0.095      0.050      0.095      0.000     585.10     844.98
   0.001795        34.        34.        34.          0          0          0       0.00     176.11    1021.09


 SPECIAL BRIDGE

 SB  XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
     0.00       2.00       2.95       0.00      21.67       0.00     123.60       0.00     585.10     585.10

 *SECNO 4926.000

 6070,LOW FLOW BY NORMAL BRIDGE

 EGPRS=      0.000  EGLWC=     591.821  ELLC=     592.000  PCWSE=     591.674  ELTRD=     594.600

 3302 WARNING   CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  0.63


 3370 NORMAL BRIDGE, NRD=  29 MIN ELTRD=   594.60 MAX ELLC=   592.00


 3470 ENCROACHMENT STATIONS=        1.0     1871.5   TYPE=       1   TARGET=     1870.500
   4926.000       6.56     591.66     589.02     590.47     592.02       0.36       0.10       0.11     588.90
      560.0        0.0      560.0        0.0        0.0      116.4        0.0       46.6       19.3     589.80
       0.71       0.00       4.81       0.00      0.000      0.050      0.000      0.000     585.10     845.38
   0.004538        36.        36.        36.          2         15          0    -180.52     175.22    1020.60

 1490 NH CARD USED
 *SECNO 5101.000

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.98

   5101.000       7.21     592.28       0.00     590.73     592.32       0.04       0.20       0.09     589.17
      560.0       72.9      339.0      148.1       89.1      163.9      173.9       47.7       20.1     590.07
       0.74       0.82       2.07       0.85      0.055      0.050      0.055      0.000     585.07     142.63
   0.000511       175.       175.       175.          2          0          0       0.00     203.23     345.85
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 SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
 Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
 TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
 SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

CCHV=     0.100 CEHV=     0.300
*SECNO 6610.000
  6610.000      8.17    593.17      0.00    591.55    593.27      0.10      0.93      0.02    590.00
     560.0      31.1     480.9      48.0      30.2     179.6      41.3      59.5      24.9    590.00
      0.91      1.03      2.68      1.16     0.055     0.050     0.055     0.000    585.00    140.39
  0.000757     1509.     1509.     1509.         3         0         0      0.00     77.21    217.60

*SECNO 7390.000
  7390.000      7.97    593.57      0.00    591.78    593.60      0.04      0.33      0.01    590.00
     415.0      17.8     375.7      21.5      26.6     234.1      37.1      64.4      26.3    590.00
      1.06      0.67      1.60      0.58     0.055     0.050     0.055     0.000    585.60     52.17
  0.000237      720.      780.      800.         2         0         0      0.00     76.96    129.13

*SECNO 8510.000
  8510.000      7.61    593.81      0.00    591.95    593.83      0.02      0.23      0.00    590.00
     415.0      13.4     200.5     201.1      25.4     151.9     255.7      73.9      29.0    588.40
      1.36      0.53      1.32      0.79     0.055     0.050     0.055     0.000    586.20     21.66
  0.000170     1100.     1120.     1160.         2         0         0      0.00    134.56    156.22

*SECNO 10220.000
 10220.000      7.48    594.08      0.00    592.20    594.11      0.02      0.28      0.00    588.40
     415.0      99.0     222.3      93.7     102.1     155.1     103.8      89.6      33.6    588.50
      1.76      0.97      1.43      0.90     0.040     0.045     0.050     0.000    586.60     49.38
  0.000151     1710.     1710.     1740.         2         0         0      0.00     97.07    146.45
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THIS RUN EXECUTED 23DEC93 08:26:59

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**************************************
HEC-2 WATER SURFACE PROFILES

Version 4.6.0, February 1991
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

R DRAIN

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	0.000	0.00	0.00	0.00	576.40	260.00	581.10	0.00	581.19	46.45	2.59	112.56	38.15
	0.000	0.00	0.00	0.00	576.40	380.00	583.10	0.00	583.12	5.52	1.21	333.22	161.78
	0.000	0.00	0.00	0.00	576.40	430.00	584.20	0.00	584.21	2.06	0.85	522.58	299.47
	0.000	0.00	0.00	0.00	576.40	590.00	587.00	0.00	587.00	0.39	0.48	1196.34	940.58
	850.000	850.00	0.00	0.00	579.50	260.00	584.41	0.00	584.48	32.69	2.26	130.43	45.47
*	850.000	850.00	0.00	0.00	579.50	380.00	584.20	0.00	584.40	99.50	3.79	112.42	38.10
*	850.000	850.00	0.00	0.00	579.50	430.00	584.61	0.00	584.76	66.57	3.31	146.95	52.70
*	850.000	850.00	0.00	0.00	579.50	590.00	587.07	0.00	587.09	4.96	1.28	478.73	265.02
*	989.000	190.00	0.00	0.00	579.50	260.00	584.57	0.00	584.62	2.97	1.86	139.46	150.82
*	989.000	190.00	0.00	0.00	579.50	380.00	584.62	0.00	584.73	6.15	2.70	140.78	153.20
*	989.000	190.00	0.00	0.00	579.50	430.00	584.92	0.00	585.05	6.47	2.88	149.36	169.09
	989.000	190.00	0.00	0.00	579.50	590.00	587.10	0.00	587.22	3.87	2.80	210.67	299.97
	990.000	1.00	588.70	586.00	579.50	260.00	584.57	0.00	584.62	1.66	1.86	143.04	201.88
	990.000	1.00	588.70	586.00	579.50	380.00	584.62	0.00	584.73	3.42	2.69	144.62	205.51
	990.000	1.00	588.70	586.00	579.50	430.00	584.92	0.00	585.05	3.61	2.87	153.54	226.45
*	990.000	1.00	588.70	586.00	579.50	590.00	587.08	0.00	587.25	9.22	3.27	185.60	194.30
	1010.000	53.00	588.70	586.00	579.50	260.00	584.58	0.00	584.63	1.65	1.85	143.38	202.65
	1010.000	53.00	588.70	586.00	579.50	380.00	584.64	0.00	584.75	3.37	2.67	145.28	207.03
	1010.000	53.00	588.70	586.00	579.50	430.00	584.94	0.00	585.07	3.55	2.85	154.29	228.24
	1010.000	53.00	588.70	586.00	579.50	590.00	587.13	0.00	587.29	9.22	3.27	185.60	194.30
*	1011.000	1.00	0.00	0.00	579.50	260.00	584.58	0.00	584.63	3.73	1.86	139.79	134.60
*	1011.000	1.00	0.00	0.00	579.50	380.00	584.64	0.00	584.75	7.65	2.69	141.52	137.39
*	1011.000	1.00	0.00	0.00	579.50	430.00	584.94	0.00	585.07	8.06	2.87	150.04	151.44
	1011.000	1.00	0.00	0.00	579.50	590.00	587.19	0.00	587.31	4.73	2.77	212.90	271.35
*	2270.000	1340.00	0.00	0.00	582.60	260.00	585.60	0.00	586.32	151.14	7.14	44.53	21.15
*	2270.000	1340.00	0.00	0.00	582.60	380.00	586.71	0.00	587.39	93.71	7.06	70.71	39.26
*	2270.000	1340.00	0.00	0.00	582.60	430.00	587.08	586.06	587.70	80.59	6.95	95.98	47.90
*	2270.000	1340.00	0.00	0.00	582.60	590.00	588.34	0.00	588.52	23.80	4.50	252.92	120.95

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
*	3200 000	950.00	0.00	0.00	583.70	260.00	588.88	0.00	588.90	10.58	1.33	216.73	79.95
*	3200.000	950.00	0.00	0.00	583.70	380.00	589.44	0.00	589.47	9.14	1.37	307.29	125.67
*	3200.000	950.00	0.00	0.00	583.70	430.00	589.63	0.00	589.66	8.89	1.39	340.11	144.22
*	3200.000	950.00	0.00	0.00	583.70	590.00	589.96	0.00	590.00	10.78	1.62	399.09	179.68
	3662.000	462.00	0.00	0.00	582.20	260.00	589.35	0.00	589.40	10.52	2.17	207.34	80.15
	3662.000	462.00	0.00	0.00	582.20	380.00	589.88	0.00	589.92	10.03	2.22	297.88	120.00
	3662.000	462.00	0.00	0.00	582.20	430.00	590.06	0.00	590.10	9.90	2.24	330.89	136.68
	3662 000	462.00	0.00	0.00	582.20	590.00	590.45	0.00	590.50	10.85	2.42	405.65	179.10
*	3663 000	1.00	588.30	587.30	582.20	260.00	589.38	0.00	589.41	23.02	1.86	198.74	54.19
	3663 000	1.00	588.30	587.30	582.20	380 00	589.90	0.00	589.93	18.20	1.75	286.62	89.08
	3663 000	1.00	588.30	587.30	582.20	430.00	590.08	0.00	590.11	17.03	1.72	319.80	104.20
	3663.000	1.00	588.30	587.30	582.20	590.00	590.47	0.00	590.51	16.99	1.79	396.15	143.13
	3675.000	12 00	588.30	587.30	582.20	260.00	589.40	0.00	589.44	22.06	1.83	202.02	55.36
	3675.000	12.00	588.30	587.30	582.20	380.00	589.92	0.00	589.95	17.38	1 71	291.33	91.14
	3675.000	12.00	588.30	587.30	582.20	430.00	590.10	0.00	590.13	16.33	1.69	324.41	106.42
	3675 000	12.00	588.30	587.30	582.20	590.00	590.49	0.00	590.53	16.39	1.76	401.00	145.75
*	3676.000	1.00	0.00	0.00	582.20	260.00	589.40	0.00	589.44	9.68	2.09	215.92	83.56
	3676.000	1 00	0.00	0.00	582.20	380.00	589.91	0.00	589.96	9.49	2.17	304.83	123.38
	3676.000	1 00	0.00	0.00	582.20	430.00	590.09	0.00	590.13	9.38	2.19	337.78	140.40
	3676.000	1 00	0.00	0.00	582.20	590.00	590.49	0.00	590.53	10.25	2.36	414.34	184.32
	4800.000	1124 00	0.00	0.00	584.80	260.00	590.39	0.00	590.46	8.38	2.14	133.61	89.79
	4800.000	1124.00	0.00	0.00	584.80	380.00	591.01	0.00	591.11	11.01	2.68	160.13	114.50
	4800.000	1124 00	0.00	0.00	584.80	430.00	591.22	0.00	591.34	12.10	2.89	169.28	123.62
	4800 000	1124 00	0.00	0.00	584.80	590 00	591.65	0.00	591.75	11.50	2.97	356.55	173.98
*	4892.000	34 00	0.00	0.00	585.10	245.00	590.40	0.00	590.52	16.73	2.75	89.19	59.91
*	4892.000	34 00	0.00	0.00	585.10	360.00	591.02	0.00	591.21	23.54	3.52	102.35	74.21
*	4892 000	34.00	0.00	0.00	585.10	410.00	591.22	0.00	591.45	26.73	3.84	106.85	79.31
	4892 000	34.00	0.00	0.00	585.10	560.00	591.67	0.00	591.82	17.95	3.54	299.93	132.16
	4926.000	36.00	594.60	592.00	585.10	245.00	590.47	0.00	590.58	18.40	2.71	90.45	57.12
	4926 000	36.00	594.60	592.00	585.10	360.00	591.12	0.00	591.30	27.48	3.44	104.53	68.68
	4926.000	36.00	594.60	592.00	585.10	410.00	591.34	0.00	591.56	31.79	3.75	109.39	72.72
*	4926.000	36.00	594.60	592.00	585.10	560.00	591.66	589.02	592.02	45.38	4.81	116.36	83.13
*	5101.000	175.00	0.00	0.00	585.07	245.00	590.73	0.00	590.78	6.19	1.85	168.75	98.50
*	5101.000	175 00	0.00	0.00	585.07	360.00	591.48	0.00	591.52	5.28	1.91	280.18	156.71
*	5101.000	175.00	0.00	0.00	585.07	410.00	591.75	0.00	591.79	4.96	1.91	326.77	184.16
*	5101 000	175.00	0.00	0.00	585.07	560.00	592.28	0.00	592.32	5.11	2.07	426.91	247.69
	6610 000	1509.00	0.00	0.00	585.00	245.00	591.55	0.00	591.60	4.84	1.76	150.64	111.39
	6610 000	1509.00	0.00	0.00	585.00	360.00	592.30	0.00	592.37	5.87	2.14	191.51	148.61
	6610.000	1509.00	0.00	0.00	585.00	410.00	592.57	0.00	592.64	6.26	2.28	208.10	163.90
	6610.000	1509.00	0.00	0.00	585.00	560.00	593.17	0.00	593.27	7.57	2.68	251.18	203.49

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
*	7390 000	780.00	0.00	0.00	585.60	180.00	591.78	0.00	591.80	1.32	1.00	189.84	156.47
	7390.000	780.00	0.00	0.00	585.60	265.00	592.60	0.00	592.62	1.71	1.24	232.06	202.44
	7390.000	780.00	0.00	0.00	585.60	300.00	592.88	0.00	592.91	1.85	1.33	249.69	220.77
	7390.000	780.00	0.00	0.00	585.60	415.00	593 57	0.00	593.60	2.37	1.60	297.85	269.73
	8510.000	1120.00	0.00	0.00	586.20	180.00	591.95	0.00	591.97	1.68	1.05	223.60	138.76
	8510.000	1120.00	0.00	0.00	586.20	265.00	592.80	0.00	592.81	1.62	1.15	308.40	208.40
	8510.000	1120.00	0.00	0.00	586.20	300.00	593.09	0.00	593.10	1.60	1.19	341.99	237.22
	8510.000	1120.00	0.00	0.00	586.20	415.00	593.81	0.00	593.83	1.70	1.32	432.99	318.39
	10220.000	1710.00	0.00	0.00	586.60	180.00	592.20	0.00	592.22	1.28	1.06	205.12	158.90
	10220.000	1710.00	0.00	0.00	586.60	265.00	593.05	0.00	593.06	1.35	1.21	268.65	228.38
	10220 000	1710.00	0.00	0.00	586.60	300.00	593.34	0.00	593.36	1.37	1.26	293.37	256.65
	10220.000	1710 00	0.00	0.00	586.60	415.00	594 08	0.00	594.11	1 51	1.43	360.94	337.56

R DRAIN

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	0.000	260.00	581.10	0.00	0.00	0.00	76.47	0.00
	0.000	380.00	583.10	2.00	0.00	0.00	150.13	0.00
	0.000	430.00	584.20	1.10	0.00	0.00	191.82	0.00
	0.000	590.00	587.00	2.80	0.00	0.00	303.22	0.00
	850.000	260.00	584.41	0.00	3.31	0.00	83.06	850.00
*	850.000	380.00	584.20	-0.21	1.10	0.00	76.42	850.00
*	850.000	430.00	584.61	0.41	0.41	0.00	88.71	850.00
*	850.000	590.00	587.07	2.45	0.07	0.00	184.06	850.00
*	989.000	260.00	584.57	0.00	0.15	0.00	28.00	190.00
*	989.000	380.00	584.62	0.05	0.42	0.00	28.00	190.00
*	989.000	430.00	584.92	0.30	0.31	0.00	28.00	190.00
	989.000	590.00	587.10	2.18	0.03	0.00	28.00	190.00
	990.000	260.00	584.57	0.00	0.00	0.00	29.52	1.00
	990.000	380.00	584.62	0.05	0.00	0.00	29.54	1.00
	990.000	430.00	584.92	0.30	0.00	0.00	29.64	1.00
*	990.000	590.00	587.08	2.16	-0.02	0.00	193.97	1.00
	1010.000	260.00	584.58	0.00	0.01	0.00	29.53	53.00
	1010.000	380.00	584.64	0.06	0.02	0.00	29.55	53.00
	1010.000	430.00	584.94	0.30	0.02	0.00	29.65	53.00
	1010.000	590.00	587.13	2.19	0.05	0.00	196.52	53.00
*	1011.000	260.00	584.58	0.00	0.00	0.00	28.00	1.00
*	1011.000	380.00	584.64	0.06	0.00	0.00	28.00	1.00
*	1011.000	430.00	584.94	0.30	0.00	0.00	28.00	1.00
	1011.000	590.00	587.19	2.25	0.06	0.00	28.00	1.00
*	2270.000	260.00	585.60	0.00	1.02	0.00	21.35	1340.00
*	2270.000	380.00	586.71	1.11	2.07	0.00	25.54	1340.00
*	2270.000	430.00	587.08	0.36	2.13	0.00	102.03	1340.00
*	2270.000	590.00	588.34	1.27	1.15	0.00	164.70	1340.00
*	3200.000	260.00	588.88	0.00	3.28	0.00	148.67	950.00
*	3200.000	380.00	589.44	0.57	2.73	0.00	168.68	950.00
*	3200.000	430.00	589.63	0.19	2.56	0.00	175.37	950.00
*	3200.000	590.00	589.96	0.33	1.62	0.00	186.79	950.00
	3662.000	260.00	589.35	0.00	0.47	0.00	161.68	462.00
	3662.000	380.00	589.88	0.52	0.43	0.00	180.94	462.00
	3662.000	430.00	590.06	0.18	0.43	0.00	187.10	462.00
	3662.000	590.00	590.45	0.40	0.49	0.00	198.83	462.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	3663.000	260.00	589.38	0.00	0.02	0.00	162.47	1.00
	3663.000	380.00	589.90	0.52	0.02	0.00	181.11	1.00
	3663.000	430.00	590.08	0.18	0.02	0.00	187.26	1.00
	3663.000	590.00	590.47	0.39	0.02	0.00	199.23	1.00
	3675.000	260.00	589.40	0.00	0.03	0.00	163.21	12.00
	3675.000	380.00	589.92	0.51	0.02	0.00	182.06	12.00
	3675.000	430.00	590.10	0.18	0.02	0.00	188.00	12.00
	3675.000	590.00	590.49	0.39	0.02	0.00	199.96	12.00
*	3676.000	260.00	589.40	0.00	0.00	0.00	163.61	1.00
	3676.000	380.00	589.91	0.51	0.00	0.00	182.34	1.00
	3676.000	430.00	590.09	0.18	0.00	0.00	188.21	1.00
	3676.000	590.00	590.49	0.39	0.00	0.00	200.15	1.00
	4800.000	260.00	590.39	0.00	0.99	0.00	43.00	1124.00
	4800.000	380.00	591.01	0.62	1.09	0.62	43.00	1124.00
	4800.000	430.00	591.22	0.21	1.13	0.83	43.00	1124.00
	4800.000	590.00	591.65	0.43	1.16	1.26	186.23	1124.00
*	4892.000	245.00	590.40	0.00	0.01	0.00	21.70	34.00
*	4892.000	360.00	591.02	0.62	0.01	0.62	21.70	34.00
*	4892.000	410.00	591.22	0.21	0.01	0.82	21.70	34.00
	4892.000	560.00	591.67	0.45	0.03	1.27	176.11	34.00
	4926.000	245.00	590.47	0.00	0.07	0.00	21.70	36.00
	4926.000	360.00	591.12	0.65	0.10	0.65	21.70	36.00
	4926.000	410.00	591.34	0.22	0.12	0.87	21.70	36.00
*	4926.000	560.00	591.66	0.32	-0.01	1.20	175.22	36.00
*	5101.000	245.00	590.73	0.00	0.26	0.00	130.42	175.00
*	5101.000	360.00	591.48	0.75	0.36	0.75	165.82	175.00
*	5101.000	410.00	591.75	0.27	0.41	1.02	178.55	175.00
*	5101.000	560.00	592.28	0.52	0.61	1.55	203.23	175.00
	6610.000	245.00	591.55	0.00	0.82	0.00	48.96	1509.00
	6610.000	360.00	592.30	0.75	0.82	0.75	60.78	1509.00
	6610.000	410.00	592.57	0.26	0.82	1.01	65.76	1509.00
	6610.000	560.00	593.17	0.60	0.89	1.61	77.21	1509.00
*	7390.000	180.00	591.78	0.00	0.23	0.00	46.27	780.00
	7390.000	265.00	592.60	0.81	0.29	0.81	59.06	780.00
	7390.000	300.00	592.88	0.29	0.32	1.10	64.35	780.00
	7390.000	415.00	593.57	0.68	0.40	1.78	76.96	780.00
	8510.000	180.00	591.95	0.00	0.17	0.00	91.02	1120.00
	8510.000	265.00	592.80	0.84	0.20	0.84	110.68	1120.00
	8510.000	300.00	593.09	0.29	0.21	1.14	117.60	1120.00
	8510.000	415.00	593.81	0.72	0.25	1.86	134.56	1120.00

1) COUNTY: Macomb

2) STUDY NAME: Clinton Twp

3) WATERCOURSE: Miller Drain

4) DOCUMENT TYPE: 100 yr. Updated flow

THIS RUN EXECUTED 7JAN94 14:00:07

****
HEC-2 WATER SURFACE PROFILES

Version 4.6.0; February 1991
****

T1 CLINTON TOWNSHIP FLOOD INSURANCE STUDY
T2 UPDATED 100 YEAR FLOOD- 430CFS STS CONSULTANTS LTD. 12/93 MMW
T3 MILLER DRAIN -NATURAL 100 YEAR PROFILE

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-1.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	584.2	0.0

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	1.0	0.0	-1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

J3 VARIABLE CODES FOR SUMMARY PRINTOUT

150.0	110.0	200.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

NC	0 0	0.0	0.0	.10	.30	0.0	0.0	0.0	0 0	0.0
NH	5 0	05	250.0	.09	259.0	.05	269.0	.09	280 0	.05
NH	520.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
QT	2.0	430.0	430.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ET	0 0	0.0	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
X1	0.0	16.0	250.0	280.0	0.0	0.0	0.0	0.0	-3.1	0.0
GR	593.1	0.0	591.6	50.0	589.4	150.0	586.8	200.0	585.0	250.0
GR	579.5	259.0	580.1	264.0	579.6	269.0	584.1	280.0	583.2	300.0
GR	585.0	350.0	590.5	427.0	590.4	450.0	590.8	461.0	590.9	488.0
GR	594.1	520.0								
NH	5.0	.05	250.0	.09	259.0	.05	269.0	.09	280.0	.05
NH	520.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
X1	850.0	0.0	0.0	0.0	850.0	850.0	850.0	0.0	3.1	0.0
NC	0.05	0.05	0.04	0.3	0.5	0.0	0.0	0.0	0.0	0.0
ET	0.0	6.1	6.1	0.0	0.0	166.0	194.0	0.0	0.0	0.0
X1	989.0	15.0	166.0	194.0	200.0	190.0	190.0	0.0	0.0	0.0
GR	589.6	0.0	588.0	80.0	586.0	165.0	580.0	166.0	579.6	168.0
GR	579.5	180.0	579.6	192.0	580.0	194.0	586.0	195.0	586.0	222.0
GR	586.0	237.0	586.1	295.0	588.0	330.0	589.5	400.0	589.8	450.0
NC	0.0	0.0	.03	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ET	0 0	6.1	6.1	0.0	0.0	166.0	194.0	0.0	0.0	0.0
X1	990.0	0.0	0.0	0.0	1.0	1.0	1.0	0.0	0.0	0.0
BT	10.0	0.0	589.6	589.6	80.0	589.0	586.0	165.0	588.7	586.0
BT	194.0	588.7	586.0	195.0	588.7	586.0	237.0	589.0	586.0	295.0
BT	589.4	586.1	330.0	589.6	588.0	400.0	589.7	589.5	450.0	589.8
BT	589.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

ET	0.0	6.1	6.1	0.0	0.0	166.0	194.0	0.0	0.0	0.0
X1	1010.0	0.0	0.0	0.0	53.0	53.0	53.0	0.0	0.0	0.0
X2	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0
NC	0.0	0.0	0.045	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ET	0.0	6.1	6.1	0.0	0.0	166.0	194.0	0.0	0.0	0.0
X1	1011.0	0.0	0.0	0.0	1.0	1.0	1.0	0.0	0.0	0.0
NC	0.0	0.0	0.0	0.1	0.3	0.0	0.0	0.0	0.0	0.0
NH	5.0	.055	900.0	.09	908.0	.05	920.0	.09	927.0	.055
NH	1600.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ET	0.0	0.0	1.4							
X1	2270.0	23.0	908.0	920.0	1220.0	1259.0	1340.0	0.0	0.0	0.0
GR	597.2	0.0	597.3	100.0	597.1	200.0	596.4	300.0	596.5	405.0
GR	596.5	500.0	595.2	600.0	595.0	700.0	593.1	800.0	588.7	875.0
GR	587.4	900.0	583.1	908.0	582.6	915.0	583.1	920.0	586.8	927.0
GR	586.9	1000.0	589.4	1040.0	588.0	1100.0	592.0	1200.0	595.4	1300.0
GR	595.6	1400.0	595.7	1500.0	595.3	1600.0	0.0	0.0	0.0	0.0
NH	7.0	0_5	400.0	.055	900.0	.09	910.0	.05	923.0	.095
NH	939.0	.05	1900.0	.095	2300.0	0.0	0.0	0.0	0.0	0.0
X1	3200.0	33.0	900.0	939.0	950.0	950.0	950.0	0.0	0.0	0.0
GR	597.9	0.0	597.9	100.0	597.6	200.0	597.1	300.0	596.6	400.0
GR	596.2	500.0	596.5	583.0	595.7	603.0	594.3	700.0	590.0	800.0
GR	588.3	850.0	588.6	900.0	584.5	910.0	583.7	915.0	584.7	918.0
GR	584.4	923.0	587.2	939.0	587.5	974.0	592.1	1000.0	595.4	1028.0
GR	596.0	1100.0	595.8	1200.0	593.0	1300.0	593.9	1400.0	595.8	1500.0
GR	596.9	1600.0	595.7	1700.0	595.7	1800.0	596.9	1900.0	597.3	2000.0
GR	596.2	2100.0	596.5	2200.0	596.8	2300.0	0.0	0.0	0.0	0.0
NC	0.0	0.0	0.0	0.3	0.5	0.0	0.0	0.0	0.0	0.0
NH	5.0	05	900.0	.09	930.0	.05	941.0	.09	974.0	.05
NH	1028.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
X1	3662.0	20.0	930.0	941.0	462.0	462.0	462.0	0.0	0.0	0.0
GR	597.9	0.0	597.9	100.0	597.6	200.0	597.1	300.0	596.6	400.0
GR	596.2	500.0	596.5	583.0	595.7	603.0	594.3	700.0	590.0	800.0
GR	588.3	850.0	588.4	900.0	588.4	930.0	582.4	930.0	582.2	935.0
GR	582.4	941.0	588.4	941.0	588.4	974.0	592.1	1000.0	595.4	1028.00
NC	.06	.085	.051	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ET	0.0	0.0	1.41							
X1	3663.0	0.0	0.0	0.0	1.0	1.0	1.0	0.0	0.0	0.0
BT	9.0	700.0	594.3	580.0	800.0	590.0	580.0	850.0	588.3	580.0
BT	900.0	588.4	580.0	930.0	588.4	587.3	941.0	588.4	587.3	974.0
BT	588.4	580.0	1000.0	592.1	580.0	1028.0	595.4	580.0	0.0	0.0
X1	3675.0	0.0	0.0	0.0	12.0	12.0	12.0	0.0	0.0	0.0
X2							1.0			

NH	5.0	.05	900.0	.09	930 0	.05	941.0	.09	974.0	.05
NH	1028.0									
X1	3676 0	0.0	0.0	0.0	1.0	1.0	1.0	0.0	0.0	0.0
NC	0.0	0.0	0.0	0.2	0.4	0.0	0.0	0.0	0.0	0.0
NH	3.0	.095	200.0	.05	228.0	.095	700.0	0.0	0.0	0.0
ET	0.0	0.0	1.4							
X1	4800.0	15.00	200.0	228.0	1074.0	1074.0	1124.0	0.0	0.0	0.0
GR	596.2	0.0	595.1	72.0	594.3	86.0	594.3	105.0	593.5	115.0
GR	588.9	200.0	586.3	203.0	584.8	211.0	585.5	221.0	589.8	228.0
GR	590.4	300.0	593.9	400.0	596.3	500.0	597.5	600.0	597.8	700.0
NC	.095	.095	.05	0.3	0.5	0.0	0.0	0.0	0.0	0.0
QT	2.0	410.0	410.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ET	0.0	0.0	1.41							
X1	4892.0	31.0	900.0	922.0	34.0	34.0	34.0	.985	0.0	0.0
GR	597.7	0.0	597.6	100.0	597.3	200.0	597.1	300.0	596.5	400.0
GR	596.7	500.0	597.0	600.0	595.5	700.0	595.1	772.0	594.3	786.0
GR	594.3	805.0	593 5	815.0	590.0	897.5	588.9	900.0	586.2	905.0
GR	585.7	910.0	585 1	914.0	585.5	918.0	588 6	922.0	589 8	922.0
GR	589.8	922.5	590.4	1000.0	593.9	1100.0	596 3	1200.0	597.5	1300.0
GR	597.8	1400.0	598.4	1500.0	598.0	1600.0	597.7	1700.0	597.3	1800.0
GR	596.9	1900.0	0 0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SB	0.0	2.0	2.95	0.0	21.67	0.0	123 6	0.0	585.1	585.1
NC	.055	.055	.05	0.0	0.0	0.0	0 0	0.0	0 0	0.0
X1	4926.0	32.0	900.0	922.0	36.0	36.0	36.0	.985	0 0	0.0
X2	0.0	0 0	1.0	592.0	594.6	0.0	0.0	0.0	.985	0.0
X4	1.0	594.45	1106.155							
BT	29.0	0.0	597 7	580.0	100.0	597.6	580.0	200.0	597.3	580.0
BT	300.0	597.1	580.0	400.0	596.5	580.0	500.0	596.7	580.0	600.0
BT	597.0	580.0	700.0	595.5	580.0	772.0	595.1	580.0	805.0	594.9
BT	580.0	897.5	594.6	580.0	897.5	595.5	580.0	900.0	595.5	588.9
BT	900.0	595.5	592.0	922.0	595.5	592.0	922.0	595.5	589.8	922.5
BT	595.5	589.8	922.5	594.6	580.0	1000.0	594.7	580.0	1100.0	595.5
BT	580.0	1123.0	595 4	580.0	1200.0	597.1	580.0	1300.0	598.0	580.0
BT	1400.0	598.2	580.0	1500.0	598.4	580.0	1600.0	598.0	580.0	1700.0
BT	597.7	580.0	1800.0	597.3	580.0	1900.0	596.9	580.0	0.0	0.0
GR	597.7	0.0	597.6	100.0	597.3	200.0	597.1	300.0	596.5	400.0
GR	596.7	500.0	597.0	600.0	595.5	700.0	595.1	772.0	594.3	786.0
GR	594.3	805.0	593.5	815.0	590.0	897.5	588.9	900.0	586.2	905.0
GR	585.7	910.0	585.1	914.0	585.5	918.0	588.6	922.0	589.8	922.0
GR	589.8	922.5	590.4	1000.0	593.9	1100.0	594.5	1123.0	596.3	1200.0
GR	597.5	1300.0	597.8	1400.0	598.4	1500.0	598.0	1600.0	597.7	1700.0
GR	597.3	1800.0	596.9	1900.0	0.0	0.0	0.0	0.0	0.0	0.0
NH	3.0	.055	200.0	.05	228.0	.055	700.0	0.0	0.0	0.0
ET	0.0	0.0	1.4							
X1	5101.0	15.0	200.0	228.0	175.0	175.0	175.0	0.0	.27	0.0
GR	596.2	0.0	595.1	72.0	594.3	86.0	594.3	105.0	593.5	115.0
GR	588.9	200.0	586.3	203.0	584.8	211.0	585.5	221.0	589.8	228.0
GR	590.4	300.0	593.9	400.0	596.3	500.0	597.5	600.0	597.8	700.0

NC	0.055	0.055	0.05	.10	.30	0.0	0.0	0.0	0.0	0.0
X1	6610.0	15.0	165.0	193.0	1509.0	1509.0	1509.0	0.0	0.0	0.0
GR	598.0	0.0	596.0	100.0	594.0	130.0	592.0	155.0	590.0	165.0
GR	586.2	170.0	585.6	172.0	585.0	176.0	585.0	179.0	585.8	183.0
GR	590.0	193.0	592.0	210.0	594.0	223.0	596.0	295.0	597.0	395.0
QT	2.0	300.0	300.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
X1	7390.0	13.0	68.0	100.0	720.0	800.0	780.0	0.0	0.0	0.0
GR	598.0	0.0	596.0	20.0	594.0	50.0	592.0	60.0	0.0	0.0
GR	586.5	73.0	585.6	75.0	585.6	97.0	590.0	100.0	590.0	68.0
GR	594.0	135 0	595.1	230.0	596.0	300.0	0.0	0.0	592.0	108.0
X1	8510.0	11.0	35.0	58.0	1100.0	1160.0	1120.0	0.0	0.0	0.0
GR	600.0	0.0	590.0	35.0	587.1	40.0	586.2	47.0	586.9	54.0
GR	588.4	58 0	590.0	85.0	592.0	120.0	594.0	160.0	596.0	212.0
GR	596.4	280.0								
NC	0.04	0 05	0.045	0.0	0.0	0.0	0.0	0.0	0.0	0.0
X1	10220.	15 0	92.0	115.0	1710.0	1740.0	1710.0	0.0	0.0	0.0
GR	598 0	0.0	596.0	35 0	594.0	50.0	592.0	70.0	590.0	85.0
GR	588.4	92.0	587.6	95 0	586.6	101.0	587.6	112.0	588.5	115.0
GR	590.0	130.0	594.0	145 0	596.0	180.0	598.0	195.0	599.8	220.0

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SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


*PROF 1


CCHV=     0.100 CEHV=     0.300
1490 NH CARD USED
*SECNO 0.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
     0.000       7.80     584.20       0.00     584.20     584.21       0.01       0.00       0.00     581.90
     430.0       37.8      152.9      239.3       72.4      180.2      270.0        0.0        0.0     581.00
      0.00       0.52       0.85       0.89      0.050      0.079      0.050      0.000     576.40     190.38
  0.000206         0.         0.         0.          0          0          0       0.00     191.82     382.20


1490 NH CARD USED
*SECNO 850.000

3302 WARNING  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  0.18

   850.000       5.11     584.61       0.00       0.00     584.76       0.15       0.51       0.04     585.00
     430.0        0.0      330.6       99.4        0.0       99.8       47.2        6.5        2.7     584.10
      0.08       0.00       3.31       2.11      0.000      0.078      0.050      0.000     579.50     250.63
  0.006657       850.       850.       850.          2          0          0       0.00      88.71     339.34


CCHV=     0.300 CEHV=     0.500
*SECNO 989.000

3302 WARNING.  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.69


3470 ENCROACHMENT STATIONS=       166.0      194.0  TYPE=       1  TARGET=       28.000
   989.000       5.51     585.01       0.00       0.00     585.14       0.12       0.37       0.01     580.00
     430.0        0.0      430.0        0.0        0.0      151.9        0.0        7.2        3.0 100000.00
      0.10       0.00       2.83       0.00      0.000      0.040      0.000      0.000     579.50     166.00
  0.000918       200.       190.       190.          2          0          0       0.00      28.00     194.00


*SECNO 990.000

3370 NORMAL BRIDGE, NRD=  10 MIN ELTRD=   588.70 MAX ELLC=    586.00


3470 ENCROACHMENT STATIONS=       166.0      194.0  TYPE=       1  TARGET=       28.000
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100-YR ON CLINTON
594.1

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 SECNO      DEPTH     CWSEL     CRIWS     WSELK      EG        HV        HL       OLOSS    L-BANK ELEV
 Q          QLOB      QCH       QROB      ALOB       ACH       AROB      VOL      TWA      R-BANK ELEV
 TIME       VLOB      VCH       VROB      XNL        XNCH      XNR       WTN      ELMIN    SSTA
 SLOPE      XLOBL     XLCH      XLOBR     ITRIAL     IDC       ICONT     CORAR    TOPWID   ENDST


  990.000      5.51    585.01      0.00      0.00    585.14      0.12      0.00      0.00    580.00
    430.0       0.0     430.0       0.0       0.0     152.0       0.0       7.2       3.0 100000.00
     0.10      0.00      2.83      0.00     0.000     0.030     0.000     0.000    579.50    166.00
 0.000515        1.        1.        1.         0         0         0      0.00     28.00    194.00

*SECNO 1010.000

3370 NORMAL BRIDGE, NRD=  10 MIN ELTRD=   588.70 MAX ELLC=   586.00

3470 ENCROACHMENT STATIONS=      166.0     194.0  TYPE=      1  TARGET=       28.000
 1010.000      5.54    585.04      0.00      0.00    585.16      0.12      0.03      0.00    580.00
    430.0       0.0     430.0       0.0       0.0     153.0       0.0       7.4       3.0 100000.00
     0.10      0.00      2.81      0.00     0.000     0.030     0.000     0.000    579.50    166.00
 0.000505       53.       53.       53.         0         0         0      0.00     28.00    194.00

*SECNO 1011.000

3302 WARNING.  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  0.67

3470 ENCROACHMENT STATIONS=      166.0     194.0  TYPE=      1  TARGET=       28.000
 1011.000      5.54    585.04      0.00      0.00    585.17      0.12      0.00      0.00    580.00
    430.0       0.0     430.0       0.0       0.0     152.8       0.0       7.4       3.0 100000.00
     0.10      0.00      2.81      0.00     0.000     0.045     0.000     0.000    579.50    166.00
 0.001142        1.        1.        1.         0         0         0      0.00     28.00    194.00

CCHV=    0.100 CEHV=     0.300
1490 NH CARD USED
*SECNO 2270.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  0.52

 2270.000      4.92    587.52      0.00      0.00    587.84      0.32      2.61      0.06    583.10
    430.0      30.7     299.2     100.1      18.3      56.0      69.6      11.8       5.1    583.10
     0.19      1.68      5.34      1.44     0.090     0.050     0.067     0.000    582.60    897.77
 0.004166     1220.     1340.     1259.         4         0         0      0.00    112.09   1009.86
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594.1
on clinton

4

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 SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
 Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
 TIME       VLOB       VCH        VROB       XNL        ANCH       XNR        WTN        ELMIN      SSTA
 SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

1490 NH CARD USED
*SECNO 3200.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.04

 3200.000      5.85     589.55       0.00       0.00     589.58       0.03       1.72       0.03     588.60
    430.0      64.6      231.4      134.0       78.0      158.3       88.9       17.0        8.2     587.20
     0.38      0.83       1.46       1.51      0.055      0.080      0.050      0.000     583.70     813.22
 0.001004      950.       950.       950.          3          0          0       0.00     172.37     985.59

CCHV=    0 300 CEHV=    0.500
1490 NH CARD USED
*SECNO 3662 000
 3662.000      7 82     590.02       0.00       0.00     590.06       0.05       0.48       0 01     588.40
    430.0     187 2      195.7       47.1      175.3       84.9       62.6       20.4       10.1     588.40
     0.46      1.07       2.31       0.75      0.058      0.050      0.084      0.000     582.20     799.58
 0.001055      462.       462.       462.          3          0          0       0.00     185 78     985.37

*SECNO 3663 000

3370 NORMAL BRIDGE, NRD=   9 MIN ELTRD=   588.30 MAX ELLC=   587.30

 3663.000      7.84     590.04       0.00       0.00     590.07       0.03       0.00       0.00     588.40
    430 0     239.2      129.4       61.5      176.6       72.9       63.0       20.4       10.1     588.40
     0.46      1.35       1.77       0.98      0.060      0.051      0.085      0.000     582.20     799.37
 0.001824        1.         1.         1.          1          0          0     -12.10     186.07     985.43

*SECNO 3675 000

3370 NORMAL BRIDGE, NRD=   9 MIN ELTRD=   588.30 MAX ELLC=   587.30

 3675.000      7.86     590.06       0.00       0.00     590.09       0.03       0.02       0.00     588.40
    430.0     240.9      127.2       61.8      180.0       73.2       64.2       20.5       10.1     588.40
     0.46      1.34       1.74       0.96      0.060      0.051      0.085      0.000     582.20     798.75
 0.001741       12.        12.        12.          0          0          0     -12.10     186.87     985.62

1490 NH CARD USED
*SECNO 3676.000
 3676.000      7.85     590.05       0.00       0.00     590.10       0.04       0.00       0.01     588.40
    430.0     190.8      191.3       47.9      181.0       85.4       64.5       20.5       10.1     588.40
     0.46      1.05       2.24       0.74      0.058      0.050      0.083      0.000     582.20     798.58
 0.000990        1.         1.         1.          0          0          0       0.00     187.09     985.67
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588.1 on
Clinton R.

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

CCHV= 0.200 CEHV= 0.400
1490 NH CARD USED
*SECNO 4800.000

4800.000	6.34	591.14	0.00	0.00	591.23	0.09	1.11	0.02	588.90
430.0	24.7	365.4	39.9	46.1	139.5	82.0	28.0	14.5	589.80
0.60	0.54	2.62	0.49	0.095	0.050	0.095	0.000	584.80	158.74
0.001017	1074.	1124.	1074.	2	0	0	0.00	162.19	320.93

CCHV= 0.300 CEHV= 0.500
*SECNO 4892.000

4892.000	6.06	591.16	0.00	0.00	591.29	0.14	0.04	0.02	588.90
410.0	10.8	341.1	58.1	20.0	105.5	90.1	28.2	14.6	589.80
0.60	0.54	3.23	0.64	0.095	0.050	0.095	0.000	585.10	857.01
0.001710	34.	34.	34.	1	0	0	0.00	149.49	1006.50

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.00	2.95	0.00	21.67	0.00	123.60	0.00	585.10	585.10

*SECNO 4926.000

594.1 on
Clinton R.

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS= 0.000 EGLWC= 591.294 ELLC= 592.000 PCWSE= 591.158 ELTRD= 594.600

3370 NORMAL BRIDGE, NRD= 29 MIN ELTRD= 594.60 MAX ELLC= 592.00

4926.000	6.09	591.19	0.00	0.00	591.42	0.23	0.08	0.05	588.90
410.0	0.0	410.0	0.0	0.0	106.1	0.0	28.3	14.7	589.80
0.60	0.00	3.86	0.00	0.000	0.050	0.000	0.000	585.10	856.39
0.003111	36.	36.	36.	2	0	0	-113.49	150.86	1007.25

1490 NH CARD USED
*SECNO 5101.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.32

5101.000	6.56	591.63	0.00	0.00	591.68	0.05	0.20	0.06	589.17
410.0	41.2	295.8	73.0	55.5	145.6	102.9	29.2	15.4	590.07
0.63	0.74	2.03	0.71	0.055	0.050	0.055	0.000	585.07	154.73
0.000578	175.	175.	175.	1	0	0	0.00	172.42	327.14

```
 SECNO       DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
 Q           QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
 TIME        VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
 SLOPE       XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

CCHV=     0.100 CEHV=      0.300
*SECNO 6610.000
  6610.000      7.53     592.53       0.00       0.00     592.60       0.08       0.92       0.01     590.00
     410.0      14.2      372.0       23.8       17.0      161.7       26.9       38.0       19.5     590.00
      0.83      0.83       2.30       0.88      0.055      0.050      0.055      0.000     585.00     148.39
  0.000643     1509.      1509.      1509.          3          0          0       0.00      65.05     213.44

*SECNO 7390.000
  7390.000      7.25     592.85       0.00       0.00     592.88       0.03       0.27       0.00     590.00
     300.0       8.5      282.3        9.2       16.6      211.4       19.7       42.0       20.6     590.00
      0.99      0.51       1.34       0.46      0.055      0.050      0.055      0.000     585.60      55.73
  0.000188      720.       780.       800.          2          0          0       0.00      63.78     119.52

*SECNO 8510.000
  8510.000      6.86     593.06       0.00       0.00     593.08       0.02       0.20       0.00     590.00
     300.0       7.3      161.1      131.6       16.4      134.7      187.8       49.7       23.0     588.40
      1.32      0.45       1.20       0.70      0.055      0.050      0.055      0.000     586.20      24.28
  0.000164     1100.      1120.      1160.          2          0          0       0.00     116.98     141.26

*SECNO 10220.000
 10220.000      6.72     593.32       0.00       0.00     593.34       0.02       0.26       0.00     588.40
     300.0      61.3      174.4       64.2       72.3      137.5       81.7       62.1       27.0     588.50
      1.76      0.85       1.27       0.79      0.040      0.045      0.050      0.000     586.60      56.80
  0.000139      1710      1710.      1740.          2          0          0       0.00      85.64     142.45
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594.1
on Clinton R.

T1 CLINTON TOWNSHIP FLOOD INSURANCE STUDY
T2 UPDATED 100 YEAR FLOOD 430 CFS STS CONSULTANTS LTD. 12/93 MMW
T3 MILLER DRAIN - FLOODWAY RUN

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-1.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	584.3	0.0
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	15.0	0.0	-1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

```
 SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
 Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
 TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
 SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*PROF 2


CCHV=     0.100 CEHV=     0.300
1490 NH CARD USED
*SECNO 0.000
 2800 NAT Q1=      299.47  WSEL=      584.20  ENC Q1=      299.47  WSEL=      584.30  RATIO=   0.0000
 NAT Q1=      315.  RATIOS LOB, CH, ROB=   0.0941  0.3474  0.5584  WSEL=      584.30

3470 ENCROACHMENT STATIONS=       224.8      355.8  TYPE=       4  TARGET=          0.049
     0.000       7.90     584.30       0.00     584.20     584.31       0.01       0.00       0.00     581.90
     430.0       31.5      157.4      241.1       49.1      183.1      252.7        0.0        0.0     581.00
      0.00       0 64       0.86       0.95      0.050      0.079      0.050      0.000     576.40     224.78
  0.000207          0         0.         0.          0          0          0       0.00     131.03     355.81


1490 NH CARD USED
*SECNO 850 000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
 2800 NAT Q1=       52.70  WSEL=      584.61  ENC Q1=       52.70  WSEL=      584.71  RATIO=   0.0000
 NAT Q1=       57.  RATIOS LOB, CH, ROB=   0.0000  0.7459  0.2541  WSEL=      584.71

3302 WARNING   CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  0.18


3470 ENCROACHMENT STATIONS=       250.0      308.5  TYPE=       4  TARGET=          0.069
   850.000       5.20     584.70       0.00     584.61     584.87       0.16       0.51       0.04     585.00
     430.0        0 0      345.4       84.6        0.0      102.4       32.6        6.0        1.8     584.10
      0.07       0.00       3.37       2.60      0.000      0.079      0.050      0.000     579.50     250.48
  0.006726       850.       850.       850.          3          0          0       0.00      58.00     308.48


CCHV=     0 300 CEHV=     0.500
*SECNO 989 000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.78


3470 ENCROACHMENT STATIONS=       166.0      194.0  TYPE=       1  TARGET=        . 28.000
   989.000       5.62     585.12       0.00     585.01     585.24       0.12       0.36       0.01     580.00
     430.0        0.0      430.0        0.0        0.0      154.8        0.0        6.7        2.0 100000.00
      0.09       0.00       2.78       0.00      0.000      0.040      0.000      0.000     579.50     166.00
  0.000868       200.       190.       190.          2          0          0       0.00      28.00     194.00
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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*SECNO 990.000

3370 NORMAL BRIDGE, NRD=  10 MIN ELTRD=   588.70 MAX ELLC=   586.00


3470 ENCROACHMENT STATIONS=       166.0      194.0  TYPE=       1  TARGET=       28.000
   990.000       5.62     585.12       0.00     585.01     585.24       0.12       0.00       0.00     580.00
     430.0        0.0      430.0        0.0        0.0      155.0        0.0        6.7        2.0 100000.00
      0.09       0.00       2.77       0.00      0.000      0.030      0.000      0.000     579.50     166.00
  0.000487         1.         1.         1.          0          0          0       0.00      28.00     194.00

*SECNO 1010.000

3370 NORMAL BRIDGE, NRD=  10 MIN ELTRD=   588.70 MAX ELLC=   586.00


3470 ENCROACHMENT STATIONS=       166.0      194.0  TYPE=       1  TARGET=       28.000
  1010.000       5.65     585.15       0.00     585.04     585.26       0.12       0.03       0.00     580.00
     430.0        0.0      430.0        0.0        0.0      155.9        0.0        6.9        2.1 100000.00
      0.10       0.00       2.76       0.00      0.000      0.030      0.000      0.000     579.50     166.00
  0.000479        53.        53.        53.          0          0          0       0.00      28.00     194.00

*SECNO 1011.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  0.67


3470 ENCROACHMENT STATIONS=       166.0      194.0  TYPE=       1  TARGET=       28.000
  1011.000       5.65     585.15       0.00     585.04     585.26       0.12       0.00       0.00     580.00
     430.0        0.0      430.0        0.0        0.0      155.7        0.0        6.9        2.1 100000.00
      0.10       0.00       2.76       0.00      0.000      0.045      0.000      0.000     579.50     166.00
  0.001081         1.         1.         1.          0          0          0       0.00      28.00     194.00

CCHV=     0.100 CEHV=      0.300
1490 NH CARD USED
*SECNO 2270.000
 2800 NAT Q1=       66.62  WSEL=      587.52  ENC Q1=       66.62  WSEL=      587.62  RATIO=    0.0000
 NAT Q1=       72.  RATIOS LOB, CH, ROB=    0.0714   0.6687   0.2599  WSEL=      587.62
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SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  0.49


3470 ENCROACHMENT STATIONS=      905.5      987.6  TYPE=       4  TARGET=        0.072
  2270.000      4.96    587.56      0.00    587.52    587.93      0.37      2.59      0.08    583.10
     430.0      14.5     316.7      98.8       9.6      56.5      62.0      11.2       3.7    583.10
      0.18      1.52      5.60      1.59     0.090     0.050     0.068     0.000    582.60    905.47
  0.004516     1220.     1340.     1259.         2         0         0      0.00     82.16    987.64


1490 NH CARD USED
*SECNO 3200.000
 2800 NAT Q1=      135.71  WSEL=      589.55  ENC Q1=      135.71  WSEL=      589.65  RATIO=   0.0000
 NAT Q1=      146.  RATIOS LOB, CH, ROB=   0.1639  0.5221  0.3139  WSEL=      589.65

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.15


3470 ENCROACHMENT STATIONS=      848.4      974.6  TYPE=       4  TARGET=        0.068
  3200.000      5.96    589.66      0.00    589.55    589.69      0.03      1.73      0.03    588.60
     430.0      59.4     238.6     132.0      62.6     162.6      82.2      15.9       6.0    587.20
      0.36      0.95      1.47      1.61     0.055     0.080     0.050     0.000    583.70    848.43
  0.000977      950.      950.      950.         3         0         0      0.00    126.19    974.62


CCHV=    0.300 CEHV=    0.500
1490 NH CARD USED
*SECNO 3662.000
 2800 NAT Q1=      132.39  WSEL=      590.02  ENC Q1=      132.39  WSEL=      590.12  RATIO=   0.0000
 NAT Q1=      142.  RATIOS LOB, CH, ROB=   0.4541  0.4323  0.1137  WSEL=      590.12

3470 ENCROACHMENT STATIONS=      834.6      969.7  TYPE=       4  TARGET=        0.070
  3662.000      7.92    590.12      0.00    590.02    590.17      0.05      0.47      0.01    588.40
     430.0     193.8     199.7      36.5     164.1      86.0      49.3      19.1       7.4    588.40
      0.44      1.18      2.32      0.74     0.058     0.050     0.090     0.000    582.20    834.60
  0.001052      462.      462.      462.         2         0         0      0.00    135.07    969.67


*SECNO 3663.000
BTCARD, BRIDGE STENCL=     834.60    STENCR=      969.67
 2800 NAT Q1=      100.69  WSEL=      590.04  ENC Q1=      100.69  WSEL=      590.14  RATIO=   0.0000
 NAT Q1=      111.  RATIOS LOB, CH, ROB=   0.5725  0.2815  0.1460  WSEL=      590.14
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SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


3370 NORMAL BRIDGE, NRD=   9 MIN ELTRD=   588.30 MAX ELLC=   587.30


3470 ENCROACHMENT STATIONS=       836.0      967.7  TYPE=       4  TARGET=        0.090
  3663.000      7.94    590.14      0.00    590.04    590.17      0.04      0.00      0.00    588.40
     430.0     248.6     133.5      47.9     163.0      74.0      46.2      19.1       7.4    588.40
      0.44      1.53      1.80      1.04     0.060     0.051     0.085     0.000    582.20    835.99
  0.001846        1.        1.        1.         1         0         0    -12.10    131.75    967.73


*SECNO 3675 000
 2800 NAT Q1=      103.04  WSEL=      590.06  ENC Q1=      103.04  WSEL=      590 16  RATIO=   0.0000
 NAT Q1=     113.  RATIOS LOB, CH, ROB=   0.5757  0.2777  0.1466  WSEL=     590.16

3370 NORMAL BRIDGE, NRD=   9 MIN ELTRD=   588.30 MAX ELLC=   587.30


3470 ENCROACHMENT STATIONS=       835.0      968.3  TYPE=       4  TARGET=        0 086
  3675.000      7.96    590.16      0.00    590.06    590.20      0.04      0.02      0.00    588.40
     430 0     250.2     130.9      48.9     166.9      74.3      47.9      19.2       7.4    588.40
      0.44      1.50      1.76      1.02     0.060     0.051     0.085     0.000    582.20    834.98
  0.001752       12.       12.       12.         0         0         0    -12.10    133.31    968.29


1490 NH CARD USED
*SECNO 3676.000
 2800 NAT Q1=      136.67  WSEL=      590.05  ENC Q1=      136.67  WSEL=      590.15  RATIO=   0.0000
 NAT Q1=     146.  RATIOS LOB, CH, ROB=   0.4607  0.4242  0.1151  WSEL=     590.15

3470 ENCROACHMENT STATIONS=       832.9      970.8  TYPE=       4  TARGET=        0.066
  3676.000      7.96    590.16      0.00    590.05    590.20      0.05      0.00      0.00    588.40
     430 0     197.2     194.7      38.0     170.1      86.5      52.4      19.2       7.4    588.40
      0.44      1.16      2.25      0.73     0.058     0.050     0.090     0.000    582.20    832.92
  0.000983        1.        1.        1.         0         0         0      0.00    137.85    970.77


CCHV=    0.200 CEHV=    0.400
1490 NH CARD USED
*SECNO 4800.000
 2800 NAT Q1=      134.81  WSEL=      591.14  ENC Q1=      134.81  WSEL=      591.24  RATIO=   0.0000
 NAT Q1=     142.  RATIOS LOB, CH, ROB=   0.0615  0.8343  0.1042  WSEL=     591.24
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SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3470 ENCROACHMENT STATIONS=       189.3      279.9  TYPE=       4  TARGET=        0.051
  4800.000       6.43     591.23       0.00     591.14     591.33       0 10       1.11       0.02     588.90
     430.0       15.9      378.5       35.6       21.9      142.3       63.2       26.0       10.2     589.80
      0.57       0.73       2.66       0.56      0.095      0.050      0.095      0.000     584.80     189.30
  0.001021      1074.      1124.      1074.          2          0          0       0.00      90.61     279.91


CCHV=     0.300 CEHV=     0.500
*SECNO 4892.000
 2800 NAT Q1=        99.14  WSEL=      591.16  ENC Q1=        99.14  WSEL=      591.26  RATIO=    0.0000
 NAT Q1=      105.  RATIOS LOB, CH, ROB=   0.0294  0.8146  0.1559  WSEL=     591.26

3470 ENCROACHMENT STATIONS=       885 1      972.1  TYPE=       4  TARGET=        0.051
  4892.000       6 15     591.25       0.00     591.16     591.40       0 14       0.04       0.02     588.90
     410 0        1 6      352.3       56.1        2.8      107.5       77.2       26.1       10.3     589 80
      0.57       0 59       3.28       0 73      0.095      0.050      0.095      0.000     585.10     885.15
  0.001715        34         34.        34.          2          0          0       0.00      86.98     972.13



SPECIAL BRIDGE

SB  XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
    0.00       2 00       2.95       0.00      21.67       0.00     123.60       0.00     585.10     585.10

*SECNO 4926 000
BTCARD, BRIDGE STENCL=      885.15    STENCR=      972.13

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS=       0 000  EGLWC=     591.399  ELLC=      592.000  PCWSE=     591.254  ELTRD=      594.600
 2800 NAT Q1=        73.51  WSEL=      591.19  ENC Q1=        75.52  WSEL=      591.29  RATIO=   -0.0274
 NAT Q1=      111.  RATIOS LOB, CH, ROB=   0.0510  0.6834  0.2656  WSEL=     591.29

3370 NORMAL BRIDGE, NRD=  29 MIN ELTRD=    594.60 MAX ELLC=    592.00


3470 ENCROACHMENT STATIONS=       886.5      908.2  TYPE=       4  TARGET=        0.317
  4926.000       6 20     591.30       0.00     591.19     591.52       0.22       0.08       0.04     588.90
     410.0        0.0      410.0        0.0        0.0      108.5        0.0       26.3       10.3 100000.00
      0.58       0.00       3.78       0.00      0.000      0.050      0.000      0.000     585.10     886.50
  0.003242        36.        36.        36.          1          0          0       0.00      21.67     908.17
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


1490 NH CARD USED
*SECNO 5101.000
 2800 NAT Q1=      170.51  WSEL=      591.63  ENC Q1=      170.51  WSEL=      591.73  RATIO=    0.0000
 NAT Q1=      182.  RATIOS LOB, CH, ROB=   0.1057  0.7007  0.1936  WSEL=      591.73

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.36


3470 ENCROACHMENT STATIONS=       184.9      292.1  TYPE=       4  TARGET=        0.061
  5101.000       6.65     591.72       0.00     591.63     591.77       0.05       0.20       0.05     589.17
     410.0       32.6      306.6       70.9       32.3      148.3       88.6       27.0       10.6     590.07
      0.60       1.01       2.07       0.80      0.055      0.050      0.055      0.000     585.07     184.90
  0.000583       175.       175.       175.          2          0          0       0.00     107.18     292.08


CCHV=     0.100 CEHV=     0.300
*SECNO 6610.000
 2800 NAT Q1=      161.63  WSEL=      592.53  ENC Q1=      161.63  WSEL=      592.63  RATIO=    0.0000
 NAT Q1=      168.  RATIOS LOB, CH, ROB=   0.0377  0.9000  0.0624  WSEL=      592.63

3470 ENCROACHMENT STATIONS=       161.0      202.0  TYPE=       4  TARGET=        0.036
  6610.000       7.63     592.63       0.00     592.53     592.71       0.08       0.93       0.01     590.00
     410.0        8.1      383.0       18.9        9.0      164.3       18.8       35.0       13.2     590.00
      0.79       0.30       2.33       1.01      0.055      0.050      0.055      0.000     585.00     160.96
  0.000647      1509.      1509.      1509.          1          0          0       0.00      41.05     202.01


*SECNO 7390.000
 2800 NAT Q1=      218.75  WSEL=      592.85  ENC Q1=      218.75  WSEL=      592.95  RATIO=    0.0000
 NAT Q1=      225.  RATIOS LOB, CH, ROB=   0.0303  0.9365  0.0332  WSEL=      592.95

3470 ENCROACHMENT STATIONS=        64.2      104.7  TYPE=       4  TARGET=        0.030
  7390.000       7.36     592.96       0.00     592.85     592.98       0.03       0.27       0.01     590.00
     300.0        4.8      289.5        5.8        9.4      214.4       11.1       38.8       13.9     590.00
      0.95       0.51       1.35       0.52      0.055      0.050      0.055      0.000     585.60      64.20
  0.000188       720.       780.       800.          1          0          0       0.00      40.48     104.68


*SECNO 8510.000
 2800 NAT Q1=      234.54  WSEL=      593.06  ENC Q1=      234.54  WSEL=      593.16  RATIO=    0.0000
 NAT Q1=      245.  RATIOS LOB, CH, ROB=   0.0256  0.5291  0.4454  WSEL=      593.16

3470 ENCROACHMENT STATIONS=        34.1      115.3  TYPE=       4  TARGET=        0.042
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 SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
 Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
 TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
 SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


 8510.000      6.97     593.17       0.00     593.06     593.18       0.02       0.20       0.00     590.00
    300.0       0.7      166.1      133.2        2.6      136.9      176.3       46.0       15.5     588.40
     1.26      0.27       1.21       0.76      0.055      0.050      0.055      0.000     586.20      34.13
 0.000165     1100.      1120.      1160.          1          0          0       0.00      81.17     115.29


*SECNO 10220.000
 2800 NAT Q1=      254.55  WSEL=      593.32  ENC Q1=      254.55  WSEL=      593.42  RATIO=   0.0000
 NAT Q1=      265.  RATIOS LOB, CH, ROB=   0.2090  0.5751  0.2158  WSEL=      593.42

3470 ENCROACHMENT STATIONS=       70.7       132.8  TYPE=        4  TARGET=        0.038
 10220.000     6.83     593.43       0.00     593.32     593.45       0.02       0.26       0.00     588.40
    300.0      59.6      179.8       60.7       64.8      139.8       71.0       57.7       18.3     588.50
     1.69      0.92       1.29       0.85      0.040      0.045      0.050      0.000     586.60      70.69
 0.000140     1710.      1710.      1740.          0          0          0       0.00      62.09     132.78
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THIS RUN EXECUTED 7JAN94 14:00:11

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HEC-2 WATER SURFACE PROFILES

Version 4.6.0; February 1991
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

R DRAIN -NATURAL 100 YEA

SUMMARY PRINTOUT TABLE 110

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
	0.000	584.20	0.00	584.21	191.82	37.77	152.90	239.33	0.00	0.00	250.00	280.00	0.00
	0.000	584.30	0.10	584.31	131.03	31.46	157.42	241.12	0.05	224.78	250.00	280.00	355.81
*	850.000	584.61	0.00	584.76	88.71	0.00	330.58	99.42	0.00	0.00	250.00	280.00	0.00
*	850.000	584.70	0.09	584.87	58.00	0.00	345.42	84.58	0.07	250.00	250.00	280.00	308.49
*	989.000	585.01	0.00	585.14	28.00	0.00	430.00	0.00	28.00	166.00	166.00	194.00	194.00
*	989.000	585.12	0.10	585.24	28.00	0.00	430.00	0.00	28.00	166.00	166.00	194.00	194.00
	990.000	585.01	0.00	585.14	28.00	0.00	430.00	0.00	28.00	166.00	166.00	194.00	194.00
	990.000	585.12	0.10	585.24	28.00	0.00	430.00	0.00	28.00	166.00	166.00	194.00	194.00
	1010.000	585.04	0.00	585.16	28.00	0.00	430.00	0.00	28.00	166.00	166.00	194.00	194.00
	1010.000	585.15	0.10	585.26	28.00	0.00	430.00	0.00	28.00	166.00	166.00	194.00	194.00
*	1011.000	585.04	0.00	585.17	28.00	0.00	430.00	0.00	28.00	166.00	166.00	194.00	194.00
*	1011.000	585.15	0.10	585.26	28.00	0.00	430.00	0.00	28.00	166.00	166.00	194.00	194.00
*	2270.000	587.52	0.00	587.84	112.09	30.66	299.23	100.11	0.00	0.00	908.00	920.00	0.00
*	2270.000	587.56	0.04	587.93	82.16	14.51	316.72	98.77	0.07	905.47	908.00	920.00	987.64
*	3200.000	589.55	0.00	589.58	172.37	64.61	231.42	133.97	0.00	0.00	900.00	939.00	0.00
*	3200.000	589.66	0.11	589.69	126.19	59.44	238.59	131.97	0.07	848.43	900.00	939.00	974.62
	3662.000	590.02	0.00	590.06	185.78	187.18	195.70	47.12	0.00	0.00	930.00	941.00	0.00
	3662.000	590.12	0.10	590.17	135.07	193.84	199.71	36.45	0.07	834.60	930.00	941.00	969.67
	3663.000	590.04	0.00	590.07	186.07	239.15	129.36	61.48	0.00	0.00	930.00	941.00	0.00
	3663.000	590.14	0.10	590.17	131.75	248.61	133.47	47.92	0.09	835.99	930.00	941.00	967.74
	3675.000	590.06	0.00	590.09	186.87	240.94	127.25	61.81	0.00	0.00	930.00	941.00	0.00
	3675.000	590.16	0.10	590.20	133.31	250.23	130.87	48.90	0.09	834.98	930.00	941.00	968.29

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
3676.000	590.05	0.00	590.10	187.09	190.77	191.34	47.89	0.00	0.00	930.00	941.00	0.00
3676.000	590.16	0.10	590.20	137.85	197.23	194.72	38.05	0.07	832.92	930.00	941.00	970.77
4800.000	591.14	0.00	591.23	162.19	24.70	365.44	39.86	0.00	0.00	200.00	228.00	0.00
4800.000	591.23	0.10	591.33	90.61	15.90	378.55	35.55	0.05	189.30	200.00	228.00	279.91
4892.000	591.16	0.00	591.29	149.49	10.77	341.14	58.09	0.00	0.00	886.50	908.17	0.00
4892.000	591.25	0.10	591.40	86.98	1.63	352.25	56.12	0.05	885.15	886.50	908.17	972.13
4926.000	591.19	0.00	591.42	150.86	0.00	410.00	0.00	0.00	0.00	886.50	908.17	0.00
4926.000	591.30	0.11	591.52	21.67	0.00	410.00	0.00	0.32	886.50	886.50	908.17	908.17
* 5101.000	591.63	0.00	591.68	173.42	41.21	295.83	72.95	0.00	0.00	200.00	228.00	0.00
* 5101.000	591.72	0.09	591.77	107.18	32.56	306.56	70.88	0.06	184.90	200.00	228.00	292.08
6610.000	592.53	0.00	592.60	65.05	14.22	372.00	23.78	0.00	0.00	165.00	193.00	0.00
6610.000	592.63	0.10	592.71	41.05	8.10	382.96	18.94	0.04	160.96	165.00	193.00	202.01
7390.000	592.85	0.00	592.88	63.78	8.50	282.35	9.15	0.00	0.00	68.00	100.00	0.00
7390.000	592.96	0.10	592.98	40.48	4.75	289.46	5.79	0.03	64.20	68.00	100.00	104.68
8510.000	593.06	0.00	593.08	116.98	7.34	161.07	131.59	0.00	0.00	35.00	58.00	0.00
8510.000	593.17	0.10	593.18	81.17	0.72	166.07	133.21	0.04	34.13	35.00	58.00	115.29
10220.000	593.32	0.00	593.34	85.64	61.32	174.44	64.24	0.00	0.00	92.00	115.00	0.00
10220.000	593.43	0.11	593.45	62.09	59.58	179.77	60.65	0.04	70.69	92.00	115.00	132.78

R DRAIN -NATURAL 100 YEA

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	0.000	0.00	0.00	0.00	576.40	430.00	584.20	0.00	584.21	2.06	0.85	522.58	299.47
	0.000	0.00	0.00	0.00	576.40	430.00	584.30	0.00	584.31	2.07	0.86	484.96	298.99
*	850.000	850.00	0.00	0.00	579.50	430.00	584.61	0.00	584.76	66.57	3.31	146.95	52.70
*	850.000	850.00	0.00	0.00	579.50	430.00	584.70	0.00	584.87	67.26	3.37	134.96	52.43
*	989.000	190.00	0.00	0.00	579.50	430.00	585.01	0.00	585.14	9.18	2.83	151.92	141.92
*	989.000	190.00	0.00	0.00	579.50	430.00	585.12	0.00	585.24	8.68	2.78	154.85	145.97
	990.000	1.00	588.70	586.00	579.50	430.00	585.01	0.00	585.14	5.15	2.83	152.04	189.45
	990.000	1.00	588.70	586 00	579.50	430.00	585.12	0.00	585.24	4.87	2.77	154.97	194.86
	1010.000	53.00	588.70	586.00	579.50	430.00	585.04	0.00	585.16	5.05	2.81	153.03	191.26
	1010.000	53.00	588.70	586.00	579.50	430.00	585.15	0.00	585.26	4.79	2.76	155.89	196.57
*	1011.000	1.00	0.00	0.00	579.50	430.00	585.04	0.00	585.17	11.42	2.81	152.79	127.22
*	1011.000	1 00	0.00	0.00	579.50	430.00	585.15	0.00	585.26	10.81	2.76	155.67	130.77
*	2270.000	1340.00	0.00	0.00	582.60	430.00	587.52	0.00	587.84	41.66	5 34	143.86	66.62
*	2270 000	1340.00	0.00	0.00	582.60	430.00	587.56	0.00	587.93	45.16	5 60	128.10	63.99
*	3200.000	950.00	0.00	0.00	583.70	430.00	589.55	0.00	589.58	10.04	1.46	325.26	135.71
*	3200.000	950.00	0.00	0.00	583.70	430.00	589.66	0.00	589.69	9.77	1 47	307.35	137.60
	3662.000	462.00	0.00	0.00	582.20	430.00	590.02	0.00	590.06	10.55	2.31	322.81	132.39
	3662.000	462.00	0.00	0.00	582.20	430.00	590.12	0.00	590.17	10.52	2.32	299.37	132.59
	3663.000	1.00	588.30	587.30	582.20	430.00	590.04	0.00	590.07	18.24	1.77	312.45	100.69
	3663.000	1.00	588.30	587.30	582.20	430.00	590.14	0.00	590.17	18.46	1.80	283.20	100.07
	3675 000	12 00	588.30	587.30	582.20	430.00	590.06	0.00	590.09	17.41	1.74	317.39	103.04
	3675.000	12.00	588.30	587.30	582.20	430.00	590.16	0.00	590.20	17.52	1.76	289.11	102.74
	3676.000	1.00	0.00	0.00	582.20	430.00	590.05	0.00	590.10	9.90	2.24	330.86	136.67
	3676.000	1.00	0.00	0.00	582.20	430.00	590.16	0.00	590.20	9.83	2.25	308.97	137.16
	4800.000	1124.00	0.00	0.00	584.80	430.00	591.14	0.00	591.23	10.17	2.62	267.54	134.81
	4800.000	1124.00	0.00	0.00	584.80	430.00	591.23	0.00	591.33	10.21	2.66	227.36	134.57
	4892.000	34.00	0.00	0.00	585.10	410.00	591.16	0.00	591.29	17.10	3.23	215.56	99.14
	4892.000	34.00	0.00	0.00	585.10	410.00	591.25	0.00	591.40	17.15	3.28	187.41	98.99
	4926.000	36.00	594.60	592.00	585.10	410.00	591.19	0.00	591.42	31.11	3.86	106.08	73.51
	4926.000	36 00	594.60	592.00	585.10	410.00	591.30	0.00	591.52	32.42	3.78	108.54	72.01
*	5101.000	175.00	0.00	0.00	585.07	410.00	591.63	0.00	591.68	5.78	2.03	303.91	170.51
*	5101.000	175.00	0.00	0.00	585.07	410.00	591.72	0.00	591.77	5.83	2.07	269.23	169.80

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
6610.000	1509.00	0.00	0.00	585.00	410.00	592.53	0.00	592.60	6.43	2.30	205.64	161.63
6610.000	1509.00	0.00	0.00	585.00	410.00	592.63	0.00	592.71	6.47	2.33	192.03	161.15
7390.000	780.00	0.00	0.00	585.60	300.00	592.85	0.00	592.88	1.88	1.34	247.74	218.75
7390.000	780.00	0.00	0.00	585.60	300.00	592.96	0.00	592.98	1.88	1.35	234.92	218.61
8510.000	1120.00	0.00	0.00	586.20	300.00	593.06	0.00	593.08	1.64	1.20	338.91	234.54
8510.000	1120.00	0.00	0.00	586.20	300.00	593.17	0.00	593.18	1.65	1.21	315.82	233.66
10220.000	1710.00	0.00	0.00	586.60	300.00	593.32	0.00	593.34	1.39	1.27	291.54	254.55
10220.000	1710.00	0.00	0.00	586.60	300.00	593.43	0.00	593.45	1.40	1.29	275.64	253.93

R DRAIN -NATURAL 100 YEA

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	0.000	430.00	584.20	0.00	0.00	0.00	191.82	0.00
	0.000	430.00	584.30	0.10	0.00	0.10	131.03	0.00
*	850.000	430.00	584.61	0.00	0.41	0.00	88.71	850.00
*	850.000	430.00	584.70	0.09	0.40	0.09	58.00	850.00
*	989 000	430.00	585.01	0.00	0.40	0.00	28.00	190.00
*	989 000	430.00	585.12	0.10	0.41	0.10	28.00	190.00
	990.000	430.00	585.01	0.00	0.00	0.00	28.00	1.00
	990 000	430.00	585.12	0.10	0.00	0.10	28.00	1.00
	1010.000	430.00	585.04	0.00	0.03	0.00	28.00	53.00
	1010.000	430.00	585.15	0.10	0.03	0.10	28.00	53.00
*	1011 000	430.00	585.04	0.00	0.00	0.00	28.00	1.00
*	1011 000	430 00	585.15	0.10	0.00	0.10	28.00	1.00
*	2270.000	430 00	587.52	0.00	2.47	0.00	112.09	1340.00
*	2270.000	430.00	587.56	0.04	2.42	0.04	82.16	1340.00
*	3200.000	430.00	589.55	0.00	2.03	0.00	172.37	950.00
*	3200.000	430.00	589.66	0.11	2.10	0.11	126.19	950.00
	3662.000	430.00	590.02	0.00	0.47	0.00	185.78	462.00
	3662.000	430.00	590.12	0.10	0.46	0.10	135.07	462.00
	3663 000	430.00	590.04	0.00	0.02	0.00	186.07	1.00
	3663.000	430.00	590.14	0.10	0.02	0.10	131.75	1.00
	3675.000	430 00	590.06	0.00	0.02	0.00	186.87	12.00
	3675.000	430.00	590.16	0.10	0.02	0.10	133.31	12.00
	3676 000	430.00	590.05	0.00	0.00	0.00	187.09	1.00
	3676.000	430.00	590.16	0.10	0.00	0.10	137.85	1.00
	4800.000	430.00	591.14	0.00	1.08	0.00	162.19	1124.00
	4800.000	430.00	591.23	0.10	1.08	0.10	90.61	1124.00
	4892.000	410.00	591.16	0.00	0.02	0.00	149.49	34.00
	4892.000	410.00	591.25	0.10	0.02	0.10	86.98	34.00
	4926.000	410.00	591.19	0.00	0.03	0.00	150.86	36.00
	4926.000	410.00	591.30	0.11	0.04	0.11	21.67	36.00
*	5101.000	410.00	591.63	0.00	0.44	0.00	172.42	175.00
*	5101.000	410.00	591.72	0.09	0.42	0.09	107.18	175.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
6610.000	410.00	592.53	0.00	0.90	0.00	65.05	1509.00
6610.000	410.00	592.63	0.10	0.91	0.10	41.05	1509.00
7390.000	300.00	592.85	0.00	0.33	0.00	63.78	780.00
7390.000	300.00	592.96	0.10	0.33	0.10	40.48	780.00
8510.000	300.00	593.06	0.00	0.21	0.00	116.98	1120.00
8510 000	300.00	593.17	0.10	0.21	0.10	81.17	1120.00
10220.000	300.00	593.32	0.00	0.26	0.00	85.64	1710.00
10220 000	300 00	593.43	0.11	0.26	0.11	62.09	1710.00

SUMMARY OF ERRORS AND SPECIAL NOTES

WARNING SECNO=	850.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	850.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	989.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	989.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	1011.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	1011.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	2270.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	2270.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	3200.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	3200.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	5101.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	5101.000	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

FLOODWAY DATA, R DRAIN -NATURAL 100 YEA
PROFILE NO. 2

STATION	------- FLOODWAY ------- WIDTH	SECTION AREA	MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
0.000	131.	465.	0.9	584.3	584.2	0.1
850.000	58.	135.	3.2	584.7	584.6	0.1
989.000	28.	155.	2.8	585.1	585.0	0.1
990.000	28.	155.	2.8	585.1	585.0	0.1
1010.000	28.	156.	2.8	585 1	585.0	0.1
1011.000	28.	156.	2.8	585.1	585.0	0.1
2270.000	82.	128.	3.4	587.5	587.5	0.0
3200.000	126.	307.	1.4	589.7	589.6	0.1
3662.000	135	299.	1.4	590.1	590.0	0.1
3663.000	132.	283.	1.5	590.1	590.0	0.1
3675.000	133.	289	1.5	590.2	590.1	0.1
3676.000	138.	309.	1.4	590.2	590.1	0.1
4800.000	91.	227.	1.9	591.2	591.1	0.1
4892.000	87.	187.	2.2	591.3	591.2	0.1
4926.000	22.	109	3.8	591.3	591.2	0.1
5101.000	107.	269.	1.5	591.7	591.6	0.1
6610.000	41.	192.	2.1	592.6	592.5	0.1
7390.000	40.	235.	1.3	593.0	592.9	0.1
8510.000	31.	316.	0.9	593.2	593.1	0.1
10220.000	62.	276.	1.1	593.4	593.3	0.1

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Clinton Twp

3) WATERCOURSE: Middle Br Clinton Riv.
N. Branch Clinton River
Miller drain

4) DOCUMENT TYPE: Analysis FIS

00BREAK00

Federal Emergency Management Agency
Washington, D.C. 20472

JUL 22 1997

(100)

RECEIVED
JUL 28 1997
ENVIRONMENTAL QUALITY
LAND & WATER MANAGEMENT

Mr. James Sinnamon
Clinton Township Supervisor
Macomb County
40700 Romeo Plank Road
Clinton Township, Michigan 48038

Dear Mr. Sinnamon:

Please find enclosed two preliminary copies of the revised areas of the Flood Insurance Study (FIS) and Flood Insurance Rate Map (FIRM) for the Township of Clinton, Macomb County, Michigan. We have completed our technical evaluation of the available data and have incorporated the appropriate changes into the enclosed copies. A description of the changes with the corresponding affected portions of the FIS and FIRM is attached for your information and review.

Users of this FIRM should be aware that these maps have been computer generated. Once the FIS and FIRM are published in final format, the digital files containing the flood hazard data can be provided to your community for use in a computer mapping system. These files can be used in conjunction with other thematic data for floodplain management purposes, insurance determinations, and many other planning applications. In addition, your community may be eligible for additional credits under the Community Rating System if you implement your activities using digital mapping files.

The digital files containing the roads, road names, and corporate limits for Township of Clinton were obtained from STS Consultants, Ltd.

If you have any comments that might justify modifying our results, please use one copy of the enclosed map(s) to identify the area of concern and return it to us within 30 calendar days from the date of this letter. If you are in agreement with our findings, please respond with a letter stating that you have reviewed the accompanying material. If we do not receive any comments within 30 days, we will continue processing.

Following the 30-day review period, we will publish a notice of proposed Base (1% annual chance) Flood Elevation (BFE) determinations in your local newspaper. This notice will initiate a 90-day period during which your community may submit appeals or comments on the proposed BFEs reflected in the revised FIS and FIRM for your community. Following the 90-day appeal period and the resolution of any appeals, we will finalize the proposed BFEs and establish an effective date for the revised study.

If you have any questions, please contact the Director, Mitigation Division of the Federal Emergency Management Agency in Chicago, Illinois at (312) 408-5548.

Sincerely,

Frederick H. Sharrocks Jr., Chief
Hazard Identification Branch
Mitigation Directorate

Enclosures

cc: FEMA, Mitigation Division, Region V
State Coordinating Agency
Mr. Steve Cassin, Township of Clinton Director of Planning and Community Development
Mr. Bernard B. Sheff, STS Consultants, Ltd.

TOWNSHIP OF CLINTON, MACOMB COUNTY, MICHIGAN

The Flood Insurance Study (FIS) and Flood Insurance Rate Map (FIRM) for the Township of Clinton have been revised to incorporate updated hydrologic and hydraulic analyses of the Clinton River North Branch, the Clinton River Middle Branch, and the Miller Drain. These analyses were prepared for the Federal Emergency Management Agency (FEMA) by STS Consultants, Ltd.

In addition, a previously issued Letter of Map Revision dated March 20, 1995 and previously issued Letters of Map Revision Based on Fill dated April 20, 1993 and December 17, 1993 have been added to the FIS Report and FIRM in this revision.

The following is a summary of changes to the FIRM and FIS Report:

FIRM number 260121, panels 0005 and 0010

The 1% (100-year) annual chance floodplain and floodway and the 0.2% (500-year) annual chance floodplain have been revised to reflect the updated hydrologic and hydraulic analyses along the Clinton River North Branch, the Clinton River Middle Branch, and the Miller Drain for their entire lengths within the community. The Base (1% annual chance) Flood Elevations have increased along Clinton River Middle Branch to reflect these updated hydrologic and hydraulic analyses.

FIS Report

The FIS Report, including Table 2 (Floodway Data) and Flood Profiles 07P through 13P, has been revised to reflect the aforementioned updated analyses.

PRELIMINARY
SUMMARY OF MAP ACTIONS

Community:	Township of Clinton, Michigan
Community No.:	260121
Revised Map Panels:	0005
Date Issued:	July 22, 1997
Page No.:	1 of 2

To assist your community in maintaining the Flood Insurance Rate Map (FIRM), we have summarized below the previous Letter of Map Change (LOMC) actions (i.e., Letters of Map Revision (LOMRs) and Letters of Map Amendment (LOMAs)) that will be affected by the preparation of the enclosed revised FIRM panels.

1. LOMRs and LOMAs Incorporated

The LOMRs and LOMAs listed below have been incorporated into and are reflected on the preliminary FIRM. However, until the revised FIRM becomes effective, the LOMRs and LOMAs will remain in effect.

LOMC	Case No.	Date Issued	Project Identifier	New Panel	New Zone
LOMR-F	93-05-664A	April 20, 1993	Knollwood Pointe Condos	0005	
LOMR	95-05-252P	March 20, 1995	Diamond Pointe Condos	0005	
LOMR-F	93-05-108A	December 17, 1993	Part of the NE 1/2 of Section 8, Town 2 North, Range 13 East - Hidden Brook Farm	0005	

2. LOMRs and LOMAs Not Incorporated

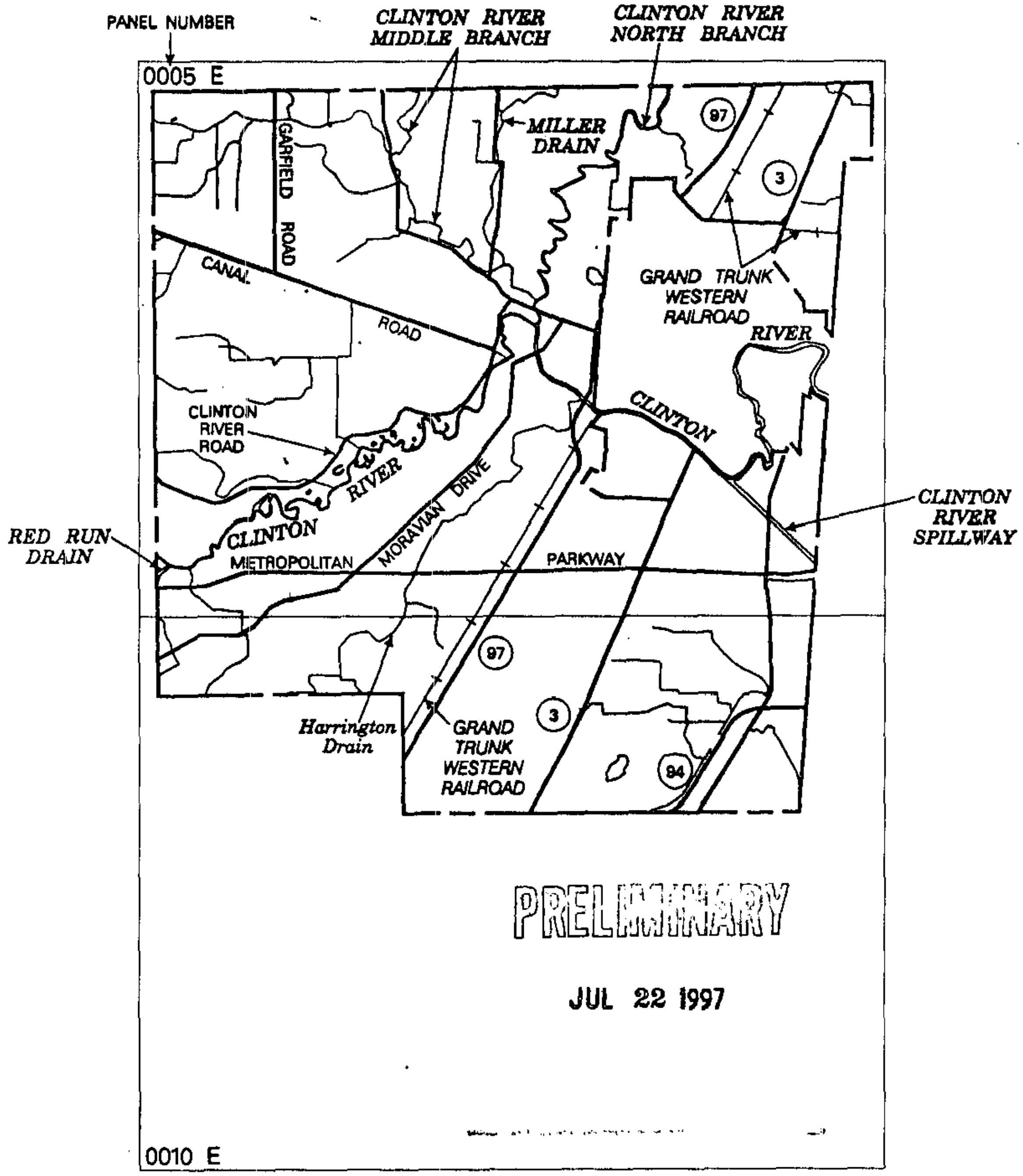
The LOMRs and LOMAs listed below have not been reflected on the preliminary FIRM. This is either due to scale limitations of the FIRM, or because the LOMR or LOMA issued determined that the lots or structures involved are out of the Special Flood Hazard Area, as shown on the FIRM. These LOMRs and LOMAs will be revalidated free of charge the day after the revised map panels become effective.

LOMC	Case No.	Date Issued	Project Identifier	New Panel	New Zone
LOMR-F	97-05-1936A	May 15, 1997	Pebble Point Condominiums Parcel SW 1/4, Section 19	0005	
LOMA	97-05-2120A	March 14, 1997	Steeplechase Condos No. 2 - Lot 80 - 15911 Arabian Court	0005	
BADL	93-05-077P	January 9, 1993	Groth Drain - Knollwood Pointe Condos	0005	
LOMA	94-05-0142W	April 28, 1994	Lot 16, Shangri-La subdivision - 35600 Shangri-La	0010	

3. LOMRs and LOMAs Superseded

The LOMRs and LOMAs listed below have not been reflected on the preliminary FIRM because they have been superseded by new detailed flooding data. When the revised FIRM becomes effective, these LOMRs and LOMAs will no longer be in force.

LOMC	Case No.	Date Issued	Project Identifier	New Panel	New Zone
LOMR-F	96-05-2730A	August 23, 1996	Lot 397 - North Branch Valley subdivision No. 6 - 42916 Biland Drive	0005	
LOMA	97-05-088A	November 12, 1996	Lot 559 - North Branch Valley subdivision No. 8 - 20864 Moyer Drive	0005	
LOMA	96-05-3438A	December 5, 1996	Rivergate Farms subdivision	0005	
LOMA	96-05-1984A	April 15, 1996	20140 Cass Avenue	0005	
LOMA	96-05-3004A	October 3, 1996	43269 Brooks Drive	0005	
LOMA	97-05-2410A	June 12, 1997	Lot 143 - Rivergate subdivision 44373 Thunder Bay	0005	
LOMA	96-05-3440A	November 8, 1996	Lots 28-32, portions of Lots 1-21 Rivergate Woods subdivision	0005	
LOMA	93-05-0194W	August 25, 1993	42733 Heydenreich Road	0005	



NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

TOWNSHIP OF
CLINTON,
MICHIGAN
MACOMB COUNTY

MAP INDEX

PANELS PRINTED: 5, 10

COMMUNITY - PANEL NUMBERS
260121 0005 - 0010

MAP REVISED:

Federal Emergency Management Agency

FLOOD INSURANCE STUDY

TOWNSHIP OF CLINTON, MICHIGAN
MACOMB COUNTY

PRELIMINARY

JUL 22 1997

REVISED:

Federal Emergency Management Agency

COMMUNITY NUMBER - 260121

NOTICE TO
FLOOD INSURANCE STUDY USERS

Communities participating in the National Flood Insurance Program have established repositories of flood hazard data for floodplain management and flood insurance purposes. This Flood Insurance Study (FIS) may not contain all data available within the repository. It is advisable to contact the community repository for any additional data.

Part or all of this FIS may be revised and republished at any time. In addition, part of this FIS may be revised by the Letter of Map Revision process, which does not involve republication or redistribution of the FIS. It is, therefore, the responsibility of the user to consult with community officials and to check the community repository to obtain the most current FIS components.

FIS Effective Date:

Revised FIS Dates:

This preliminary FIS report does not include unrevised Floodway Data Tables or unrevised Flood Profiles. These Floodway Data Tables and Flood Profiles will appear in the final FIS report.

TABLE OF CONTENTS

TABLE OF CONTENTS - continued

FLOOD INSURANCE STUDY
TOWNSHIP OF CLINTON, MACOMB COUNTY, MICHIGAN

1.0 INTRODUCTION

1.1 Purpose of Study

This Flood Insurance Study (FIS) revises and updates a previous FIS/Flood Insurance Rate Map (FIRM) for the Township of Clinton, Macomb County, Michigan. This information will be used by the Township of Clinton to update existing floodplain regulations as part of the Regular Phase of the National Flood Insurance Program (NFIP). The information will also be used by local and regional planners to further promote sound land use and floodplain development.

In some States or communities, floodplain management criteria or regulations may exist that are more restrictive or comprehensive than the minimum Federal requirements. In such cases, the more restrictive criteria take precedence and the State (or other jurisdictional agency) will be able to explain them.

1.2 Authority and Acknowledgments

The sources of authority for this FIS are the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973.

For the original, February 1979 FIS, and the August 1, 1979, FIRM (hereinafter referred to as the 1979 FIS), the hydrologic and hydraulic analyses were prepared by Johnson and Anderson, Inc., for the Federal Insurance Administration (FIA), under Contract No. H-3969. This work was completed in November 1977.

For the January 2, 1992, FIS, the hydrologic and hydraulic analyses were prepared by the U.S. Army Corps of Engineers (USACE), Detroit District, for the Federal Emergency Management Agency (FEMA), under Inter-Agency Agreement No. EMW-89-E-2994, Project Order No. 4.

For this revision, the hydrologic and hydraulic analyses for the township were prepared by STS Consultants, Ltd., for FEMA, under Contract No. EMW-91-C-3361. This work was completed in July 1994.

The digital base map files were provided by the State of Michigan, Department of Natural Resources, P.O. Box 30028, Lansing, Michigan 48909. These files were compiled by the Department of Natural Resources at a scale of 1:24,000 from U.S. Geological Survey (USGS) 7.5 Minute Topographic Maps on a stable base and updated using aerial photographs. Additional information was added in and around the floodplains from the previously compiled FIS for the Township of Clinton. The digital FIRM was produced in Universal Transverse Mercator coordinates referenced to the North American Datum of 1927 and the Clarke 1866 spheroid.

1.3 Coordination

The purpose of an initial Consultation Coordination Officer's (CCO) meeting is to discuss the scope of the FIS. A final CCO meeting is held to review the results of the study.

For the 1979 FIS, an initial CCO meeting was held in March 1976, and a final CCO meeting was held on September 20, 1978. Both of these meetings were attended by representatives of the township, the Michigan Department of Natural Resources, Johnson and Anderson, Inc., and the FIA.

For this revision, the Township of Clinton was notified by FEMA in a letter dated January 9, 1997, that its FIS would be revised using the analyses prepared by STS Consultants, Ltd.

2.0 AREA STUDIED

2.1 Scope of Study

This FIS covers the incorporated area of the Township of Clinton, Macomb County, Michigan. The area of study is shown on the Vicinity Map (Figure 1).

For the 1979 FIS, the following streams were studied by detailed methods: the Clinton River, the Clinton River Spillway, Clinton River North Branch, Clinton River Middle Branch, Miller Drain, Harrington Drain, and Red Run Drain.

For the January 2, 1992, FIS, the Clinton River and Red Run Drain were restudied in detail.

For this revision, the following streams were restudied by detailed methods: Miller Drain, Clinton River Middle Branch, and Clinton River North Branch for their entire lengths within the community.

All or portions of the following flooding sources were studied by approximate methods: Crooked Brook Drain, Daus Drain, Groth Drain, Kenner Drain, Teak Drain, Utica Drain, and several unnamed tributaries. Approximate analyses were used to study those areas having a low development potential or minimal flood hazards. The scope and methods of study were proposed to, and agreed upon by, FEMA and the Township of Clinton.

This revision incorporates the determination of a Letter of Map Revision (LOMR) issued by FEMA, dated March 20, 1995, to reflect the existance of an 84-inch culvert and placement of fill along Crooked Brook Drain in the vicinity of Diamond Pointe Cluster Homes.

This revision also incorporates the determinations of LOMRs based on fill issued by FEMA, dated April 20, 1993, to reflect the increased elevation by placement of fill of property along Groth Drain on Pointe Drive, Pointe Circle, and Pointe Court, known as Knollwood Condominiums; and dated December 17, 1993, to reflect the elevation by placement of fill of property along an unnamed tributary to the Clinton River Middle Branch, described as "Part of the NE ½ of Section 8, Town 2 North, Range 13 East."

2. 2 Community Description

The Township of Clinton is located in southern Macomb County, which is in the southeastern portion of Michigan's lower peninsula. The communities of Fraser, Roseville, and St. Clair Shores bound Clinton on the south. On the west, north, and east, Clinton is bounded by the City of Sterling Heights, the Township of Macomb, and the Township of Harrison, respectively. Clinton is also bordered on the east by the City of Mount Clemens. Portions of Clinton are within six miles northeast of the City of Detroit. The population of Clinton was 26,688 in 1960, increasing to 48,865 in 1970. The 1994 population was estimated at 63,000.

The development of Clinton consists primarily of medium density housing in the form of large subdivisions and apartment complexes. Commercial development is typically restricted to strip areas along major highways and regional shopping centers.

The climate of the township is affected by the proximity of the Great Lakes, which act to modify temperature extremes throughout the year. The maximum monthly average of 72 degrees Fahrenheit (°F) occurs in July, and the minimum monthly average of 24°F occurs in January. The average annual precipitation of 28 inches includes approximately 30 inches of snow.

Clinton is located in an area of fairly level topography, consisting primarily of post-glacial lake beds and glacial moraines. The soils of the Clinton River basin are generally clays, mixed with varying amounts of sand and gravel.

Except for the limited areas on the southeast and extreme northeast side of Clinton, all streams within the township are part of the Clinton River basin. The Clinton River flows from the western township boundary in a northeasterly direction to a place known as the Forks Area (the point where the Clinton River, Middle Branch, and North Branch come together within a short distance), located less than a mile west of the Mount Clemens city limits. It then flows in a southeasterly direction through portions of both Clinton and Mount Clemens. Near the boundary between south-central Mount Clemens and Clinton, the Clinton River turns north for about a mile then east, flowing through another part of the City of Mount Clemens, then again through Clinton to its point of exit from the township. The Clinton River Spillway flows in a southeasterly direction from the point where the Clinton River turns north to its point of exit from Clinton. In a west to east order, Clinton River Middle Branch, Miller Drain, and Clinton River North Branch enter Clinton from the north flowing to the Forks Areas in a southeasterly, southerly, and south-southeasterly direction, respectively. Harrington Drain flows from the City of Fraser on the southwest side of Clinton in a northeasterly direction to its confluence with the Clinton River, near the city limits of Mount Clemens. The Red Run Drain flows for only a limited distance in the Township of Clinton from the corporate boundary on the west to its confluence with the Clinton River.

With the exception of the Clinton River Spillway, floodplain development has occurred to a minor extent along all of the streams studied in detail. Some flooding from a 100-year event is projected for scattered residential areas throughout the township. In a number of areas, the flooding will be confined to the yards of residential areas. The three most developed areas expected to flood include areas adjacent to the south and east sides of the Forks Area, downstream of Garfield Road for approximately 2,000 feet along the north bank of the Clinton River and downstream of Hayes Road for approximately 4,000 feet along the north bank of the Clinton River.

The increased runoff and, therefore, peak flows, for the Clinton River Middle Branch, specifically in Shelby and Washington Townships, is probably a result of a population increase of 71-percent for the watershed.

2.3 Principal Flood Problems

Some local flooding has occurred in areas within the Clinton River basin due to inadequate storm drainage. This type of flooding is usually experienced during the late winter and early spring, primarily due to snowmelt or rainfall on frozen or saturated ground. On the other hand, some floods have been a result of localized, intense rainfall during the summer.

Large magnitude floods have occurred within the Clinton River basin several times since the beginning of this century. Although the greatest observed flood occurred in 1902, the greatest flood of record occurred in April 1947. Other significant floods of less magnitude occurred in June 1905, August 1914, February 1922, February 1938, May 1943, May 1948, April 1956, and June 1968. The major floods of record are tabulated below and compared with the 10- and 100-year floods in this report. Photographs of the July 1967 flood and the June 1968 flood are shown in Figures 2 and 3.

Year	Flow at Mount Clemens Gage Located at Moravian Drive cubic feet per second (cfs)	Observed Gage Height feet
1947	21,200	23.55
1943	17,700	21.89
1968	14,600	18.30
1938	13,900	20.70
1948	13,500	19.89
1956	13,400	17.74
100-Year	21,300	21.71
10-Year	12,600	17.23

2.4 Flood Protection Measures

The principal flood protection measure has been the construction of the Clinton River Spillway. During flood flow, it is estimated that better than 65 percent of the Clinton River discharge passes down the Clinton River Spillway instead of following the original channel. The spillway, 2.1 miles long, bypasses the last 8.7 miles of the river during high river stages and empties directly into Lake St. Clair.

On Red Run Drain, a number of changes have been made outside the study limits which would affect flood flows. A discussion of these changes can be found in the Flood Insurance Study for the City of Warren (Reference 1). The most substantial change near and in Clinton is the improvement of the channel hydraulic characteristics of Red Run Drain. Near Clinton, the improvements completed in 1954 included a trapezoidal channel with one vertical and two horizontal side slopes and a bottom width of 100 to 125 feet.

For Harrington Drain, outside of the study limits, several measures have been taken to reduce flood hazards. These include a reduction in drainage area, the addition of a lift station at a reservoir in the City of Fraser, and a new pressure main to the Sweeney Drain.

3.0 ENGINEERING METHODS

For the flooding sources studied in detail in the community, standard hydrologic and hydraulic study methods were used to determine the flood hazard data required for this study. Flood events of a magnitude which are expected to be equaled or exceeded once on the average during any 10-, 50-, 100-, or 500-year period (recurrence interval) have been selected as having special significance for floodplain management and for flood insurance rates. These events, commonly termed the 10-, 50-, 100-, and 500-year floods, have a 10, 2, 1, and 0.2 percent chance, respectively, of being equaled or exceeded during any year. Although the recurrence interval represents the long term average period between floods of a specific magnitude, rare floods could occur at short intervals or even within the same year. The risk of experiencing a rare flood increases when periods greater than 1 year are considered. For example, the risk of having a flood which equals or exceeds the 100-year flood (1 percent chance of annual exceedence) in any 50-year period is approximately 40 percent (4 in 10), and, for any 90-year period, the risk increases to approximately 60 percent (6 in 10). The analyses reported herein reflect flooding potentials based on conditions existing in the community at the time of completion of this study. Maps and flood elevations will be amended periodically to reflect future changes.

3.1 Hydrologic Analyses

Hydrologic analyses were carried out to establish the peak discharge-frequency relationships for floods of the selected recurrence intervals for each stream studied in detail in the community.

For the 1979 FIS, the frequency discharge data were computed using the Unit Hydrograph Infiltrating Capacity Method developed by Dr. Ernest F. Brater (Reference 2). This method utilizes relationships of streamflow, drainage area, and population density. Urbanization and channel conditions were considered for 1976 conditions. As urbanization affects imperviousness and channel conditions, flows can be expected to increase. Two other methods, a log-Pearson Type III gage analysis and the Soil Conservation Service (SCS) flood routing techniques, were used in conjunction with the Brater method (References 3 and 4).

The following gages were used for the log-Pearson Type III analysis: The Fraser Gage on the Clinton River 800 feet downstream of Garfield Road, from 1947 to present; the Mount Clemens Gage on the Clinton River 20 feet downstream of Moravian Drive, from 1934 to present; the gage near Mount Clemens on the Clinton River North Branch 30 feet upstream from Michigan Highway 59 (M-59), from 1947 to present; and the gage at Macomb on the Clinton River Middle Branch just downstream of Romeo Plank Road, 1959 to present.

For the January 2, 1992, revision, gage analyses of the Clinton River were performed using the USACE HEC-WRC computer program (Reference 5). Peak discharges along Red Run Drain were obtained from the FIS for the City of Sterling Heights, Michigan (Reference 6).

For this revision of Miller Drain and the Middle and North Branches of the Clinton River, the 10-, 50-, 100-, and 500-year flood events were simulated using the HEC-2 computer model. The existing North Branch gage No. 04164500 (approximately 30 feet upstream of the upstream study limit) data was extended using flows at the downstream gage No. 04165500 in the City of Mt. Clemens.

A summary of the drainage area-peak discharge relationships for the streams studied by detailed methods is shown in Table 1, "Summary of Discharges."

TABLE 1 - SUMMARY OF DISCHARGES

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs) 10-YEAR	50-YEAR	100-YEAR	500-YEAR
CLINTON RIVER					
Just downstream of Clinton River Spillway	N/A	3,600	5,900	6,800	10,000
Moravian Drive	743	12,600	19,000	21,300	28,900
Just upstream of Clinton River North Branch	465	8,580*	13,300*	15,000*	19,800*
At Kukuk Drain	461	8,730*	13,500*	15,200*	20,000*
At Cranberry Marsh Drain	459	8,700*	13,400*	15,200*	19,900*
At Fraser Gage	458	8,830	13,600	15,400	20,200
Just upstream of Red Run Drain	318	4,720	7,280	8,220	11,300
RED RUN DRAIN					
At mouth	140.2	11,200	17,200	19,100	25,700
CLINTON RIVER SPILLWAY					
Just downstream of Clinton River	**	9,000	13,100	14,500	18,900
CLINTON RIVER NORTH BRANCH					
Downstream of confluence of Clinton River Middle Branch	278	6,710	10,200	11,600	15,500
Upstream of confluence of Clinton River Middle Branch	201	5,250	8,260	9,590	13,000
Downstream of State Route 59	199	5,440	8,410	9,720	13,100
Upstream of State Route 59	**	5,440	8,970	10,700	15,300

* Decrease in discharge is due to storage effect of floodplain
**Data not available

TABLE 1 - SUMMARY OF DISCHARGES - continued

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs) 10-YEAR	50-YEAR	100-YEAR	500-YEAR
CLINTON RIVER MIDDLE BRANCH					
At mouth	71.21	2,190	3,540	4,240	5,900
Upstream of confluence with Clinton River North Branch	39.11	2,000	3,250	3,900	5,430
MILLER DRAIN					
At mouth	4.94	260	380	430	590
HARRINGTON DRAIN					
At mouth	5.95	930	1,320	1,520	2,140
Approximately 9,300 feet upstream of mouth	5.18	830	1,180	1,360	1,910
Just upstream of Vermander Drive	4.35	720	1,120	1,180	1,660
Just upstream of Teske Drive	3.18	560	800	920	1,300
Just upstream of Sweeney Drain	1.40	380	540	620	870

3.2 Hydraulic Analyses

Analyses of the hydraulic characteristics of flooding from the sources studied were carried out to provide estimates of the elevations of floods of the selected recurrence intervals.

Two detailed cross sections of Miller Drain, Middle and North Branches of the Clinton River utilized topographic aerial maps at a scale of 1"=400', with a contour interval of 2 feet (Reference 7). All other cross sections for the flooding sources studied by detailed methods were obtained from field surveys. All bridges, dams, and culverts were field surveyed to obtain elevation data and structural geometry.

Locations of selected cross sections used in the hydraulic analyses are shown on the Flood Profiles (Exhibit 1). For stream segments for which a floodway was computed (Section 4.2), selected cross-section locations are also shown on the FIRM (Exhibit 2).

Water-surface elevations of floods of the selected recurrence intervals were computed using the USACE HEC-2 step-backwater computer program (Reference 8). Starting water-surface elevations were calculated using the backwater curves started at Lake St. Clair and carried on up to the mouth of each stream. From the profiles, stage discharge curves were established at the mouth of each stream. Flood profiles were drawn showing computed water-surface elevations for floods of the selected recurrence intervals.

Roughness factors (Manning's "n") used in the hydraulic computations were based on conditions in the watersheds typical of those for the projected flood season and were chosen by engineering judgment. The following tabulation shows the channel and overbank "n" values for the streams studied by detailed methods:

Stream	Channel "n"	Overbank "n"
Clinton River	0.025-0.055	0.020-0.120
Red Run Drain	0.025-0.055	0.020-0.120
Clinton River Spillway	0.025-0.055	0.020-0.120
Clinton River North Branch	0.030-0.080	0.040-0.100
Clinton River Middle Branch	0.020-0.070	0.040-0.090
Miller Drain	0.045-0.068	0.040-0.100
Harrington Drain	0.025-0.055	0.020-0.120

The hydraulic analyses for this study were based on unobstructed flow. The flood elevations shown on the profiles are thus considered valid only if hydraulic structures remain unobstructed, operate properly, and do not fail.

In areas studied by approximate methods, the 100-year flood was determined by either extending the flow-stream depth relationship determined in the detailed study area; relating flow, area, and depth to a similar one studied by detailed methods; or by using a Map of Flood Prone Areas (Reference 9).

All elevations are referenced to the National Geodetic Vertical Datum of 1929 (NGVD). Elevation reference marks used in this study, and their descriptions, are shown on the FIRMs.

4.0 FLOODPLAIN MANAGEMENT APPLICATIONS

The NFIP encourages State and local governments to adopt sound floodplain management programs. Therefore, each FIS generally provides 100-year flood elevations and delineations of the 100- and 500-year floodplain boundaries and 100-year floodway to assist in developing floodplain management measures.

4.1 Floodplain Boundaries

To provide a national standard without regional discrimination, the 1-percent annual chance (100-year) flood has been adopted by FEMA as the base flood for floodplain management purposes. The 0.2-percent annual chance (500-year) flood is employed to indicate additional areas of flood risk in the community. For the streams studied in detail, the 100- and 500-year floodplains have been delineated using the flood elevations determined at each cross section.

In the 1979 FIS, and for the January 2, 1992, revision, the boundaries were interpolated between cross sections using photogrammetric methods and topographic maps at scales of 1:9,600 and 1:24,000 with contour intervals of 2 feet and 5 feet, respectively (References 7 and 9).

For this revision, the boundaries were interpolated between cross sections, using topographic maps at a scale of 1:9,600 with a contour interval of 2 feet (Reference 7).

For the streams studied by approximate methods, the 100-year floodplain boundaries were taken from the previously printed FIS/FIRM for the Township of Clinton (Reference 10).

The 100- and 500-year floodplain boundaries are shown on the FIRM (Exhibit 2). On this map, the 100-year floodplain boundary corresponds to the boundary of the areas of special flood hazards (Zones A and AE), and the 500-year floodplain boundary corresponds to the boundary of areas of moderate flood hazards. In cases where the 100- and 500-year floodplain boundaries are close together, only the 100-year floodplain boundary has been shown. Small areas within the floodplain boundaries may lie above the flood elevations but cannot be shown due to limitations of the map scale and/or lack of detailed topographic data.

For the streams studied by approximate methods, only the 100-year floodplain boundary is shown on the FIRM (Exhibit 2).

4.2 Floodways

Encroachment on floodplains, such as structures and fill, reduces flood-carrying capacity, increases flood heights and velocities, and increases flood hazards in areas beyond the encroachment itself. One aspect of floodplain management involves balancing the economic gain from floodplain development against the resulting increase in flood hazard. For purposes of the NFIP, a floodway is used as a tool to assist local communities in this aspect of floodplain management. Under this concept, the area of the 100-year floodplain is divided into a floodway and a floodway fringe. The floodway is the channel of a stream, plus any adjacent floodplain areas, that must be kept free of encroachment so that the 100-year flood can be carried without substantial increases in flood heights. Minimum Federal standards limit such increases to 1.0 foot, provided that hazardous velocities are not produced. The floodways in this study are presented to local agencies as a minimum standard that can be adopted directly or that can be used as a basis for additional floodway studies.

The floodways presented in this study were computed for certain stream segments on the basis of equal conveyance reduction from each side of the floodplain. Floodway widths were computed at cross sections. Between cross sections, the floodway boundaries were interpolated. The results of the floodway computations are tabulated for selected cross sections (Table 2). The computed floodway is shown on the FIRM (Exhibit 2). In cases where the floodway and 100-year floodplain boundaries are either close together or collinear, only the floodway boundary is shown. Portions of the floodway for the Clinton River, the Clinton River Spillway, and Red Run Drain extend beyond the corporate limits.

Encroachment into areas subject to inundation by floodwaters having hazardous velocities aggravates the risk of flood damage, and heightens potential flood hazards by

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION (FEET NGVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Clinton River North Branch								
A	300[1]	520	5,244	2.2	593.3	593.3	593.4	0.1
B	944[1]	276	3,377	3.4	593.8	593.8	593.9	0.1
C	1,650[1]	1,206	7,692	1.2	594.2	594.2	594.3	0.1
D	4,670[1]	1,083	7,143	1.3	594.7	594.7	594.8	0.1
E	7,680[1]	969	10,063	1.0	595.0	595.0	595.1	0.1
F	10,100[1]	845	7,764	1.2	595.2	595.2	595.3	0.1
G	11,580[1]	609	3,962	2.4	595.4	595.4	595.5	0.1
H	14,670[1]	633	6,703	1.4	596.4	596.4	596.5	0.1
I	17,820[1]	1,106	10,020	1.0	596.7	596.7	596.8	0.1
J	19,270[1]	252	2,995	4.0	596.8	596.8	596.9	0.1
K	19,401[1]	227	2,351	4.1	596.9	596.9	597.0	0.1
Clinton River Middle Branch								
A	1,420[2]	1,087	11,134	0.4	594.0	593.1[3]	593.2	0.1
B	3,220[2]	850	5,724	0.7	594.0	593.2[3]	593.3	0.1
C	5,050[2]	327	4,140	0.9	594.0	593.2[3]	593.3	0.1
D	6,134[2]	647	5,556	0.7	594.0	593.3[3]	593.4	0.1
E	8,150[2]	541	4,383	0.9	594.0	593.3[3]	593.4	0.1
F	10,180[2]	450	3,160	1.2	594.0	593.5[3]	593.6	0.1
G	10,895[2]	435	3,318	1.2	594.0	593.7[3]	593.8	0.1
H	11,390[2]	652	4,590	0.9	594.0	593.8[3]	593.9	0.1
I	11,800[2]	563	4,512	0.9	594.0	593.8[3]	593.9	0.1
J	14,640[2]	403	2,440	1.1	594.0	594.1	594.2	0.1
K	16,790[2]	141	924	3.0	594.6	594.6	594.7	0.1

[1]Feet above confluence with Clinton River
[2]Feet above confluence with Clinton River North Branch
[3]Elevation computed without consideration of backwater effects from Clinton River North Branch

TABLE 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWNSHIP OF CLINTON, MI
(MACOMB CO.)

FLOODWAY DATA

CLINTON RIVER NORTH BRANCH - CLINTON RIVER MIDDLE BRANCH

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION (FEET NGVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Harrington Drain (continued)								
AA	23,177[1]	71	426	1.5	606.0	606.0	606.0	0.0
AB	23,385[1]	189	590	1.1	606.7	606.7	606.7	0.0
AC	23,735[1]	165	598	1.0	606.8	606.8	606.8	0.0
AD	24,050[1]	232	873	0.7	606.9	606.9	606.9	0.0
Miller Drain								
A	850[2]	58	135	3.2	594.0	584.6[3]	584.7	0.1
B	1,095[2]	28	156	2.8	594.0	585.0[3]	585.1	0.1
C	2,435[2]	82	128	3.4	594.0	587.5[3]	587.5	0.0
D	3,385[2]	126	307	1.4	594.0	589.6[3]	589.7	0.1
E	4,985[2]	91	227	1.9	594.0	591.1[3]	591.2	0.1
F	6,739[2]	41	192	2.1	594.0	592.5[3]	592.6	0.1
G	8,639[2]	81	316	0.9	594.0	593.1[3]	593.2	0.1
H	10,349[2]	62	276	1.1	594.0	593.3[3]	593.4	0.1

[1]Feet above confluence with Clinton River
[2]Feet above confluence with Clinton River Middle Branch
[3]Elevation computed without consideration of backwater effects from Clinton River North Branch

TABLE 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWNSHIP OF CLINTON, MI
(MACOMB CO.)

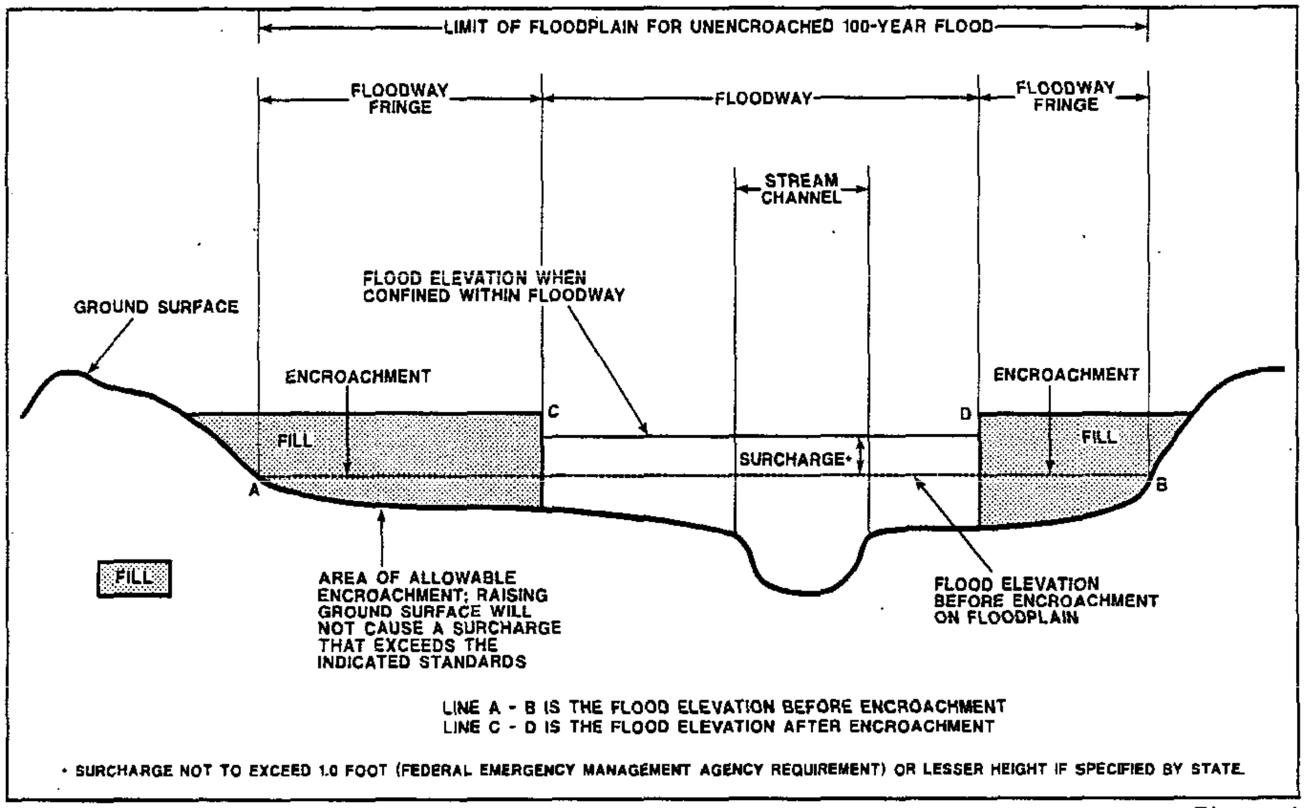
FLOODWAY DATA

HARRINGTON DRAIN - MILLER DRAIN

further increasing velocities. A listing of stream velocities at selected cross sections is provided in Table 2, "Floodway Data." To reduce the risk of property damage in areas where the stream velocities are high, the community may wish to restrict development in areas outside the floodway.

Near the mouths of streams studied in detail, floodway computations are made without regard to flood elevations on the receiving water body. Therefore, "Without Floodway" elevations presented in Table 2 for certain downstream cross sections of the Clinton River Middle Branch, Harrington Drain, and Miller Drain are lower than the regulatory flood elevations in that area, which must take into account the 100-year flooding due to backwater from other sources.

The area between the floodway and 100-year floodplain boundaries is termed the floodway fringe. The floodway fringe encompasses the portion of the floodplain that could be completely obstructed without increasing the water-surface elevation of the 100-year flood by more than 1.0 foot at any point. Typical relationships between the floodway and the floodway fringe and their significance to floodplain development are shown in Figure 4.



FLOODWAY SCHEMATIC Figure 4

5.0 INSURANCE APPLICATIONS

For flood insurance rating purposes, flood insurance zone designations are assigned to a community based on the results of the engineering analyses. The zones are as follows:

Zone A

Zone A is the flood insurance rate zone that corresponds to the 100-year floodplains that are determined in the FIS by approximate methods. Because detailed hydraulic analyses are not performed for such areas, no base flood elevations or depths are shown within this zone.

Zone AE

Zone AE is the flood insurance rate zone that corresponds to the 100-year floodplains that are determined in the FIS by detailed methods. In most instances, whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone AH

Zone AH is the flood insurance rate zone that corresponds to the areas of 100-year shallow flooding (usually areas of ponding) where average depths are between 1 and 3 feet. Whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone AO

Zone AO is the flood insurance rate zone that corresponds to the areas of 100-year shallow flooding (usually sheet flow on sloping terrain) where average depths are between 1 and 3 feet. Average whole-depths derived from the detailed hydraulic analyses are shown within this zone.

Zone A99

Zone A99 is the flood insurance rate zone that corresponds to areas of the 100-year floodplain that will be protected by a Federal flood protection system where construction has reached specified statutory milestones. No base flood elevations or depths are shown within this zone.

Zone V

Zone V is the flood insurance rate zone that corresponds to the 100-year coastal floodplains that have additional hazards associated with storm waves. Because approximate hydraulic analyses are performed for such areas, no base flood elevations are shown within this zone.

Zone VE

Zone VE is the flood insurance rate zone that corresponds to the 100-year coastal floodplains that have additional hazards associated with storm waves. Whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone X

Zone X is the flood insurance rate zone that corresponds to areas outside the 500-year floodplain, areas within the 500-year floodplain, and to areas of 100-year flooding where average depths are less than 1 foot, areas of 100-year flooding where the contributing drainage area is less than 1 square mile, and areas protected from the 100-year flood by levees. No base flood elevations or depths are shown within this zone.

Zone D

Zone D is the flood insurance rate zone that corresponds to unstudied areas where flood hazards are undetermined, but possible.

6.0 FLOOD INSURANCE RATE MAP

The FIRM is designed for flood insurance and floodplain management applications.

For flood insurance applications, the map designates flood insurance rate zones as described in Section 5.0 and, in the 100-year floodplains that were studied by detailed methods, shows selected whole-foot base flood elevations or average depths. Insurance agents use the zones and base flood elevations in conjunction with information on structures and their contents to assign premium rates for flood insurance policies.

For floodplain management applications, the map shows by tints, screens, and symbols, the 100- and 500-year floodplains. Floodways and the locations of selected cross sections used in the hydraulic analyses and floodway computations are shown where applicable.

7.0 OTHER STUDIES

FISs have been prepared for the Cities of Fraser, Mt. Clemens, Roseville, St. Clair Shores, Sterling Heights, Warren, and the Townships of Harrison and Macomb (References 11, 12, 13, 14, 6, 1, 15, and 16).

Because it is based on more up-to-date analyses, this FIS supersedes the previously printed FIS for the Township of Clinton (Reference 10).

8.0 LOCATION OF DATA

Information concerning the pertinent data used in the preparation of this study can be obtained by contacting FEMA, Mitigation Division, 175 West Jackson Boulevard, Fourth Floor, Chicago, Illinois 60604.

9.0 BIBLIOGRAPHY AND REFERENCES

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2. National Environmental Research Center, *Rainfall-Runoff Relations on Urban and Rural Areas*, E.F. Brater and J.D. Sherrill, Columbus, Ohio.

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4. U. S. Department of Agriculture, Soil Conservation Service, Technical Release No. 20, *Computer Program, Project Formulation, Hydrology*, Washington, D. C., 1965.

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6. Federal Emergency Management Agency, *Flood Insurance Study, City of Sterling Heights, Macomb County,* Michigan, Washington, D. C., May 15, 1986.

7. Abrams Aerial Survey Corporation, Lansing, Michigan, *Flood Insurance Map*, Scale 1:9,600, Contour Interval 2 feet: Clinton, Michigan, Photography: April 1976; Mapping October 1977.

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9. U..S. Geological Survey, *Map of Flood Prone Areas*, Scale 1:24,000: Mount Clemens West Quadrangle, Michigan, 1974.

10. Federal Emergency Management Agency, *Flood Insurance Study, Township of Clinton, Macomb County, Michigan*, Washington, D. C., January 2, 1992.

11. Federal Emergency Management Agency, Federal Insurance Administration, *Flood Insurance Study, City of Fraser, Macomb County, Michigan*, Washington, D. C., April 2, 1979.

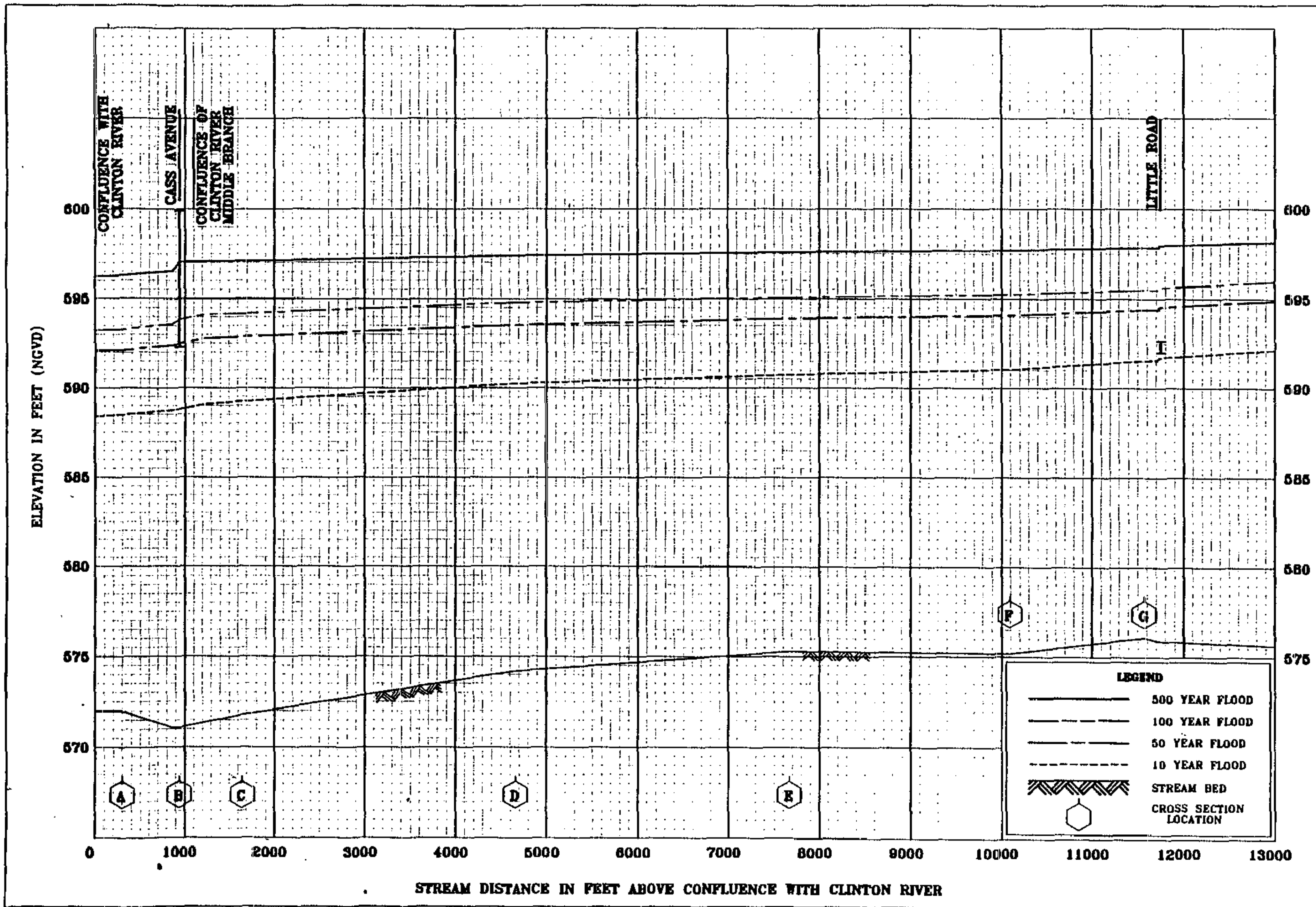
12. Federal Emergency Management Agency, Federal Insurance Administration, *Flood Insurance Study, City of Mount Clemens, Macomb County, Michigan*, Washington, D. C., July 16, 1980.

13. Federal Emergency Management Agency, *Flood Insurance Study, City of Roseville, Macomb County, Michigan*, Washington, D.C., December 16, 1994.

14. Federal Emergency Management Agency, Federal Insurance Administration, *Flood Insurance Study, City of St. Clair Shores, Macomb County, Michigan*, Washington, D. C., August 1, 1979.

15. Federal Emergency Management Agency, Federal Insurance Administration, *Flood Insurance Study, Township of Harrison, Macomb County, Michigan*, Washington, D. C., May 5, 1981.

16. Federal Emergency Management Agency, Federal Insurance Administration, *Flood Insurance Study, Township of Macomb, Macomb County, Michigan*, Washington, D.C., February 4, 1981.



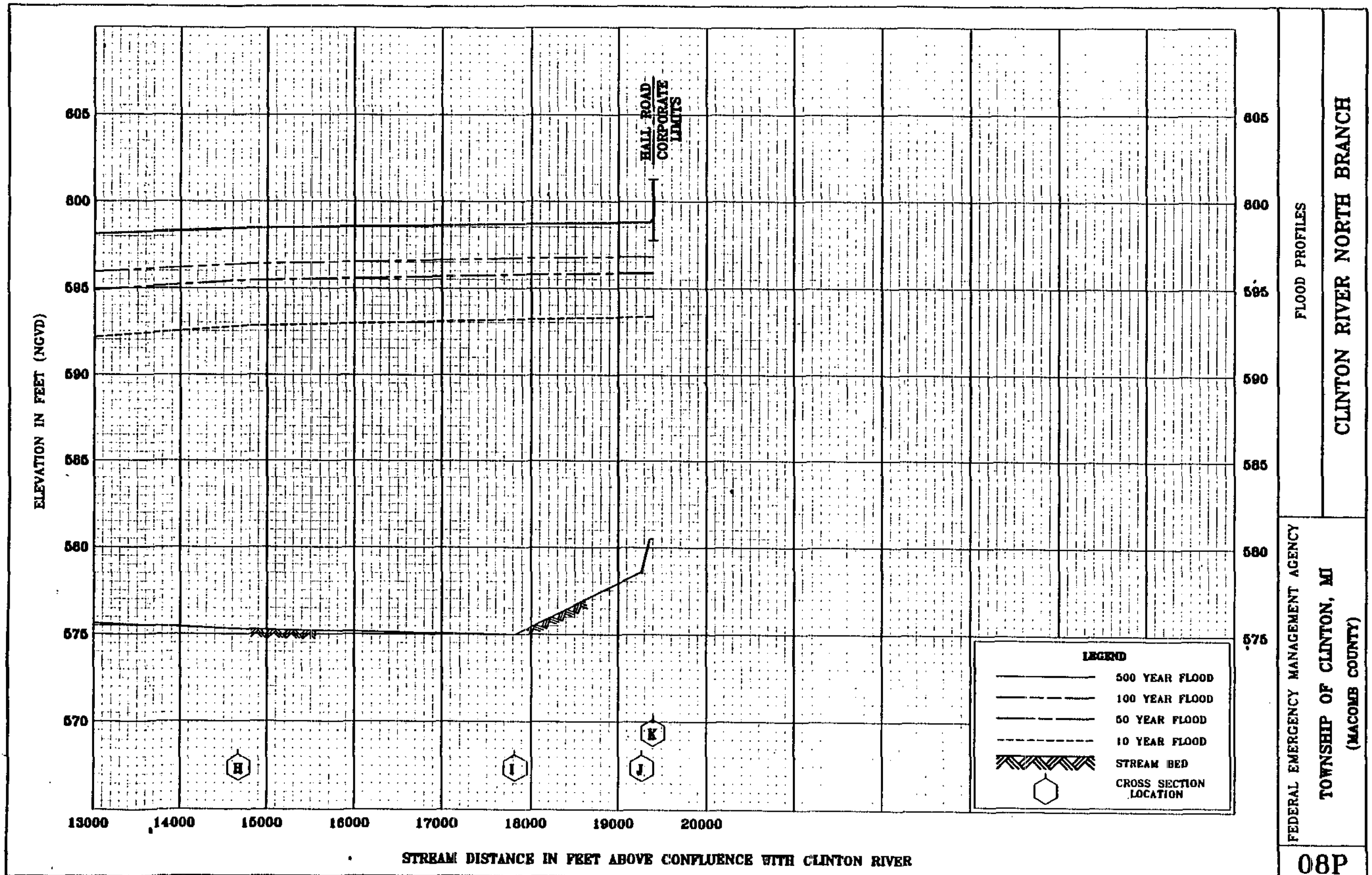
FLOOD PROFILES

CLINTON RIVER NORTH BRANCH

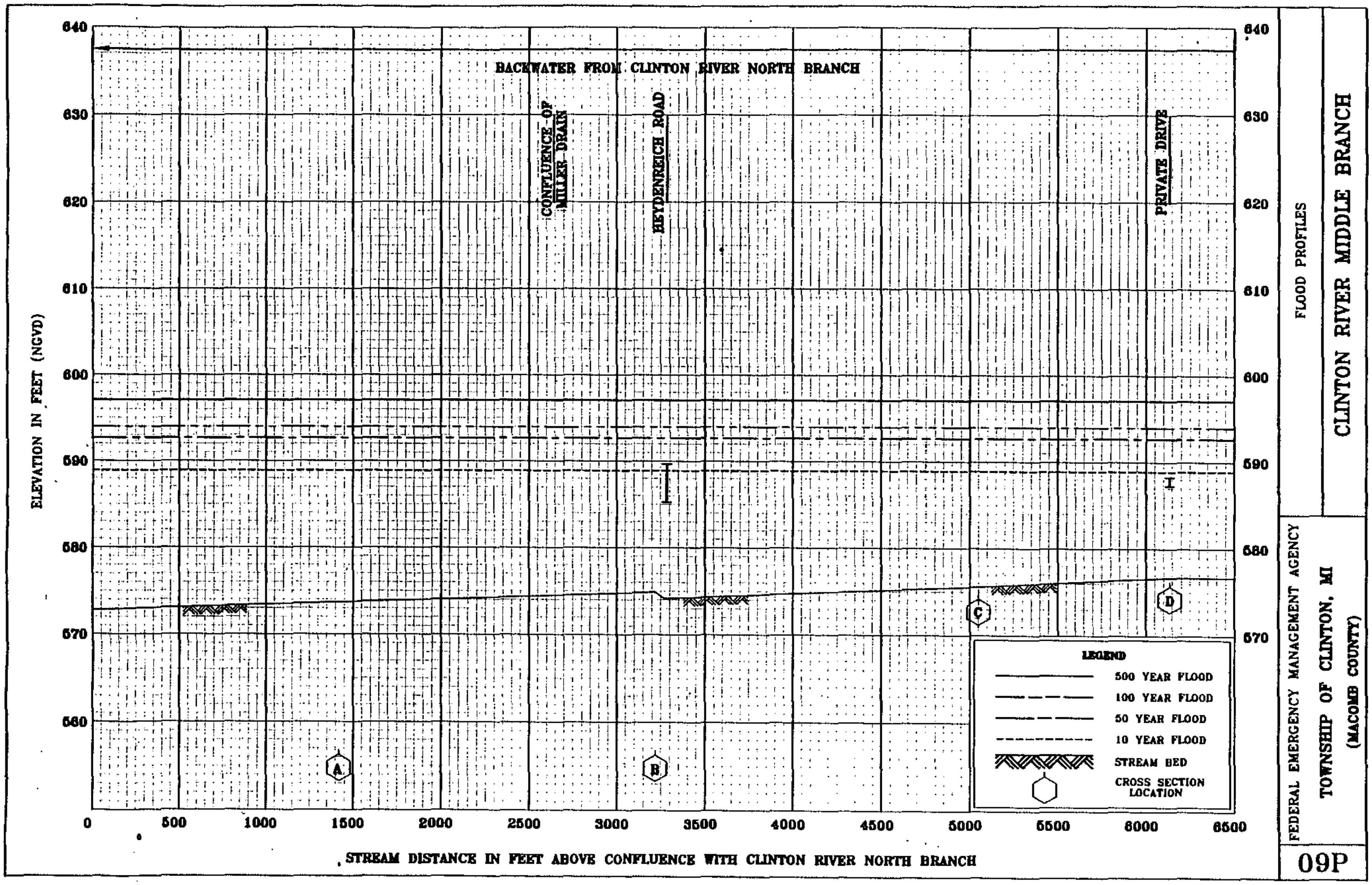
FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWNSHIP OF CLINTON, MI
(MACOMB COUNTY)

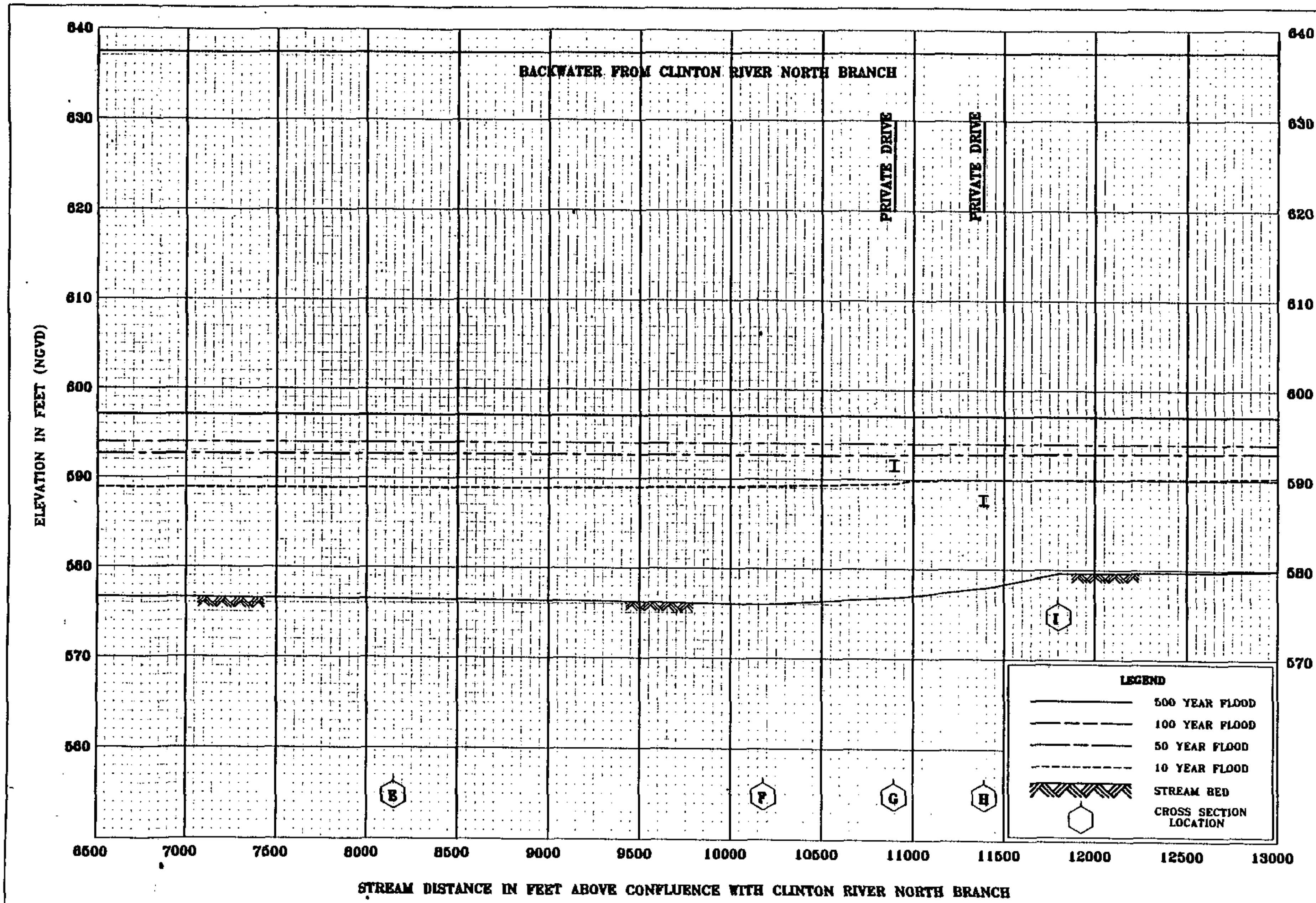
07P



ELEVATION IN FEET (NGVD)
605
600
595
590
585
580
575
570
HALL ROAD
CORPORATE LIMITS
H
I
J
K
13000
14000
15000
16000
17000
18000
19000
20000
STREAM DISTANCE IN FEET ABOVE CONFLUENCE WITH CLINTON RIVER
LEGEND
500 YEAR FLOOD
100 YEAR FLOOD
50 YEAR FLOOD
10 YEAR FLOOD
STREAM BED
CROSS SECTION LOCATION
FLOOD PROFILES
CLINTON RIVER NORTH BRANCH
FEDERAL EMERGENCY MANAGEMENT AGENCY
TOWNSHIP OF CLINTON, MI
(MACOMB COUNTY)
08P



BACKWATER FROM CLINTON RIVER NORTH BRANCH
CONFLUENCE OF MILLER DRAIN
HEYDENREICH ROAD
PRIVATE DRIVE
ELEVATION IN FEET (NGVD)
640
630
620
610
600
590
580
570
560
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
6500
STREAM DISTANCE IN FEET ABOVE CONFLUENCE WITH CLINTON RIVER NORTH BRANCH
A
B
C
D
LEGEND
500 YEAR FLOOD
100 YEAR FLOOD
50 YEAR FLOOD
10 YEAR FLOOD
STREAM BED
CROSS SECTION LOCATION
FLOOD PROFILES
CLINTON RIVER MIDDLE BRANCH
FEDERAL EMERGENCY MANAGEMENT AGENCY
TOWNSHIP OF CLINTON, MI
(MACOMB COUNTY)
09P



FLOOD PROFILES

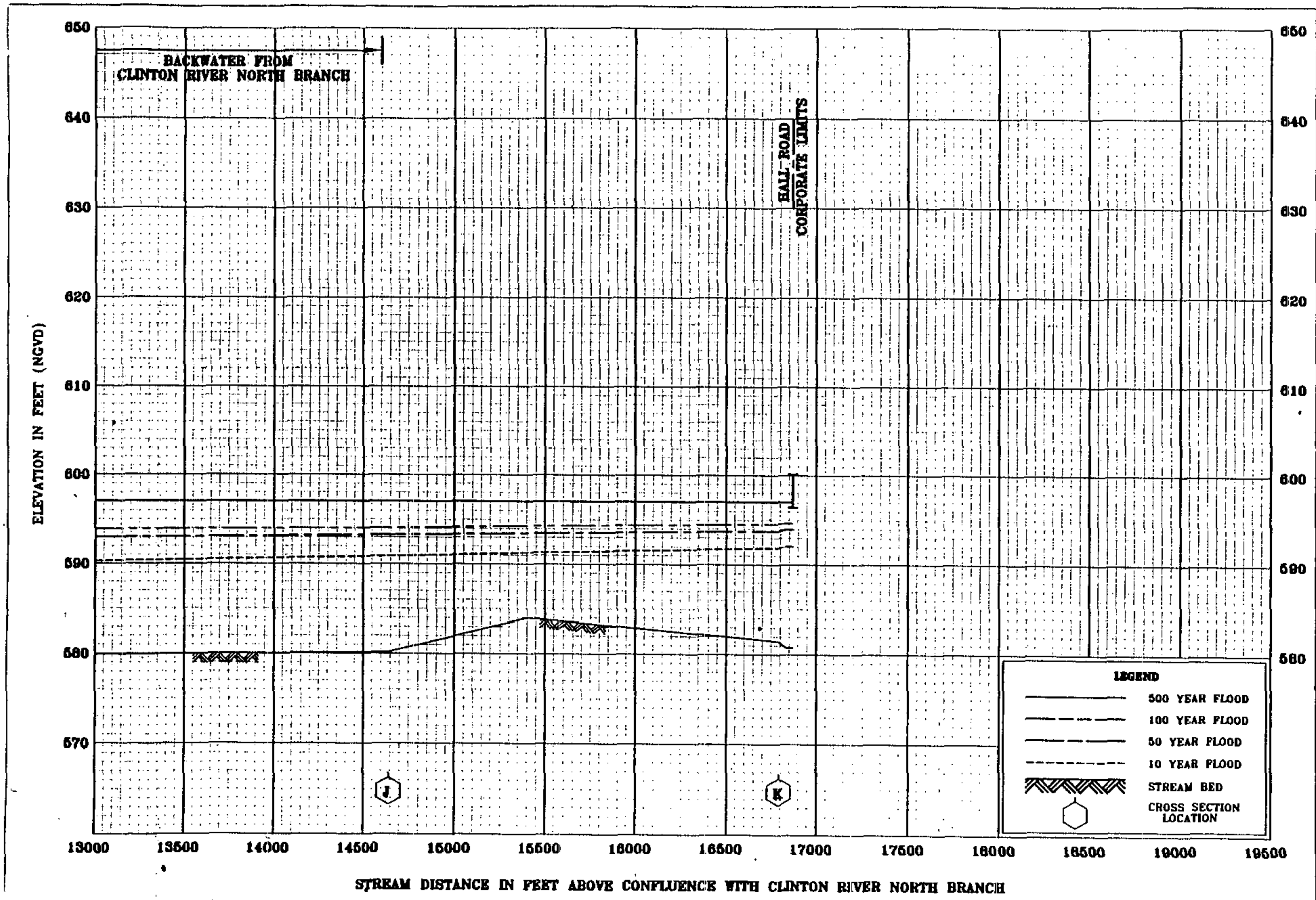
CLINTON RIVER MIDDLE BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWNSHIP OF CLINTON, MI

(MACOMB COUNTY)

10P



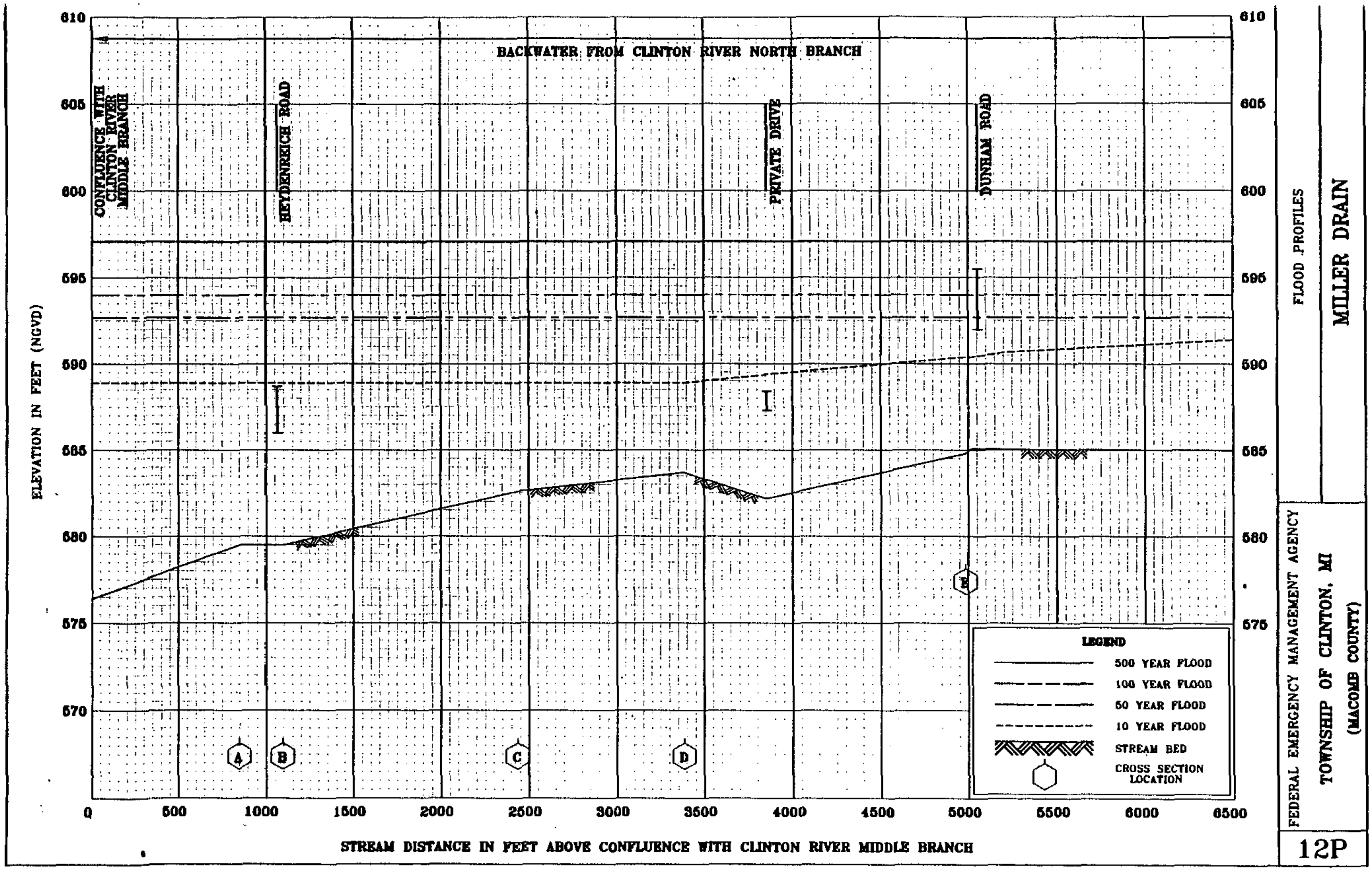
FLOOD PROFILES

CLINTON RIVER MIDDLE BRANCH

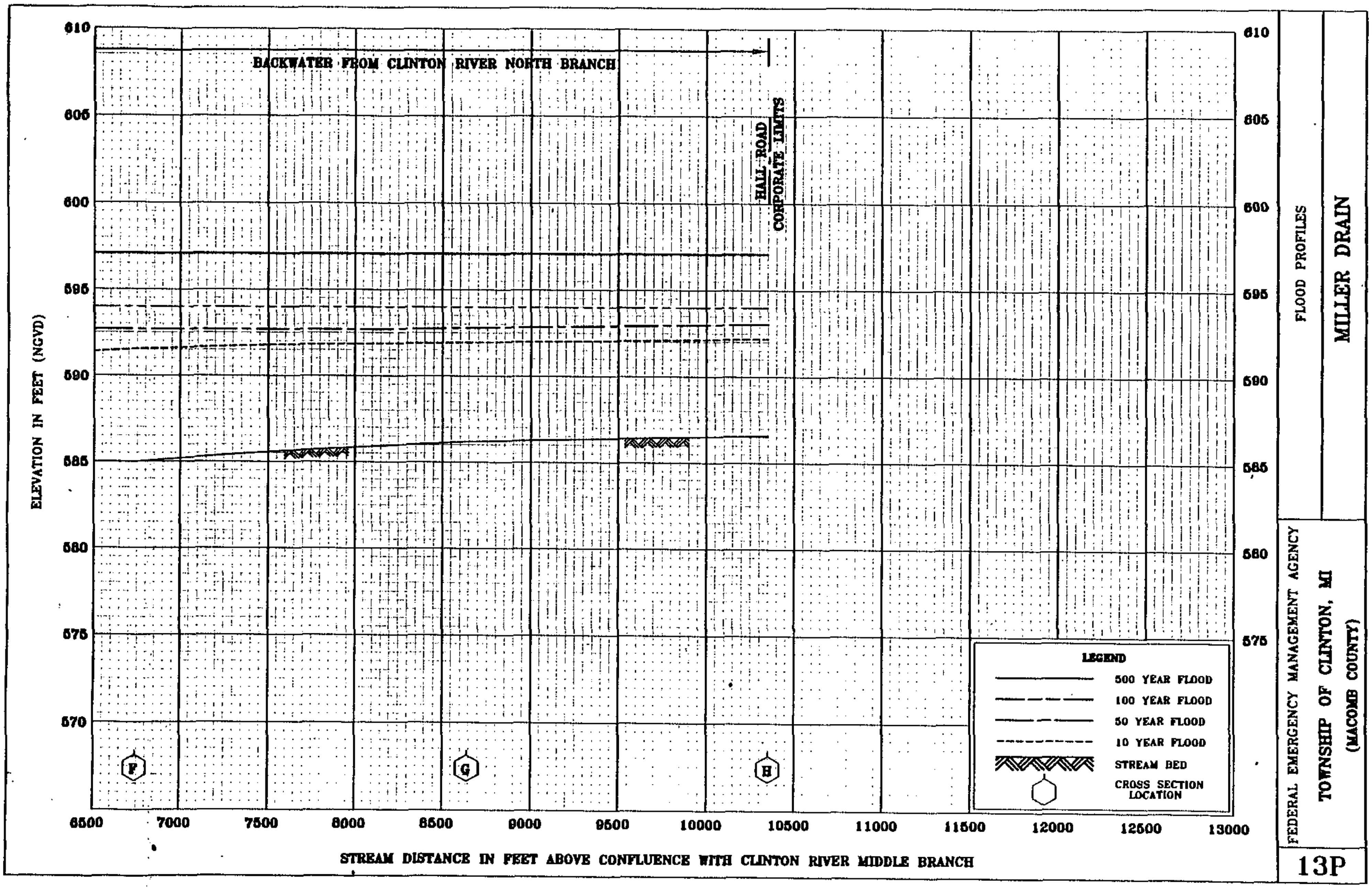
FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWNSHIP OF CLINTON, MI
(MACOMB COUNTY)

11P



BACKWATER FROM CLINTON RIVER NORTH BRANCH
CONFLUENCE WITH CLINTON RIVER MIDDLE BRANCH
HEYDENREICH ROAD
PRIVATE DRIVE
DUNHAM ROAD
ELEVATION IN FEET (NGVD)
610
605
600
595
590
585
580
575
570
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
6500
A
B
C
D
E
STREAM DISTANCE IN FEET ABOVE CONFLUENCE WITH CLINTON RIVER MIDDLE BRANCH
LEGEND
500 YEAR FLOOD
100 YEAR FLOOD
50 YEAR FLOOD
10 YEAR FLOOD
STREAM BED
CROSS SECTION LOCATION
FLOOD PROFILES
MILLER DRAIN
FEDERAL EMERGENCY MANAGEMENT AGENCY
TOWNSHIP OF CLINTON, MI
(MACOMB COUNTY)


BACKWATER FROM CLINTON RIVER NORTH BRANCH
HALL ROAD
CORPORATE LIMITS
ELEVATION IN FEET (NGVD)
610
605
600
595
590
585
580
575
570
F
G
H
6500
7000
7500
8000
8500
9000
9500
10000
10500
11000
11500
12000
12500
13000
STREAM DISTANCE IN FEET ABOVE CONFLUENCE WITH CLINTON RIVER MIDDLE BRANCH
LEGEND
500 YEAR FLOOD
100 YEAR FLOOD
50 YEAR FLOOD
10 YEAR FLOOD
STREAM BED
CROSS SECTION LOCATION
FLOOD PROFILES
MILLER DRAIN
FEDERAL EMERGENCY MANAGEMENT AGENCY
TOWNSHIP OF CLINTON, MI
(MACOMB COUNTY)
13P

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Clinton Twp

3) WATERCOURSE: Miller Drain

4) DOCUMENT TYPE: Multiple Run Profile

00BREAK00

```
           $$$$$$   $$         $$$$$$$$  $$$$$$$$   $$$$$ $     $$     $$$$$$$$
          $$     $$ $$           $$         $$     $$     $    $$$$    $$
          $$        $$           $$         $$     $$   $$$  $$  $$    $$
          $$        $$           $$         $$     $$  $ $$  $$    $$  $$$$$$$
          $$        $$           $$         $$     $$ $$ $$  $$    $$        $$
          $$        $$           $$         $$     $$ $  $$  $$$$$$$$        $$
          $$        $$           $$         $$     $$$   $$  $$    $$        $$
          $$     $$ $$           $$      $$ $$      $    $$  $$    $$  $$    $$
           $$$$$$   $$$$$$$$$  $$$$$$$$   $$$      $ $$$$$   $$    $$   $$$$$$
CLIJOA5  JANDA               08/08/77  08.59.41  7600    JO
```

CLINTON TOWNSHIP

MILLER DRAIN

MULTIPLE PROFILE RUN

current profile

STA. I.D. # from 2270 → in Error
Correct sta. shown in "RED"

Note:
Apr 78
DKM
use preceding computer run
with attached profile

```
*******************************************
HEC2 VERSION UPDATED JAN 1976
ERROR CORRECTIONS 01,02,03,04,05,06,07,08,09
MODIFICATIONS 52,53,54,55,56,57,58
*******************************************

C
1        CLINTON TOWNSHIP - JOB NO. 5670-02   PROJECT MANAGER  WILLIAM C. ROSSOW
T2         10 YEAR FLOOD = 260
T3         MILLER DRAIN

 J1   ICHECK      INQ       NINV       IDIR       STRT      METRIC     HVINS       Q          WSEL       FQ

          -1.        2.        0.         0.   0.000000      0.00        0.0        0.    581.100     0.000

 J2   NPROF     IPLOT      PRFVS      XSECV      XSECH        FN       ALLDC       IBW      CHNIM     ITRACE

         1.000     0.000     -1.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000

 J3      1.000    10.000     11.000     12.000     14.000      8.000      4.000      0.000      0.000      0.000
-->QT    4.000   260.000    380.000    430.000    590.000      0.000      0.000      0.000      0.000      0.000
 NC      0.000     0.000      0.000       .100       .300      0.000      0.000      0.000      0.000      0.000
 NH      5.000      .050    250.000       .090    259.000       .050    269.000       .090    280.000       .050
 NH    520.000     0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000

 X1      0.000    16.000    250.000    280.000      0.000      0.000      0.000      0.000     -3.100      0.000
 GR    593.100     0.000    591.600     50.000    589.400    150.000    586.800    200.000    585.000    250.000
 GR    579.500   259.000    580.100    264.000    579.600    269.000    584.100    280.000    583.200    300.000
 GR    585.000   350.000    590.500    427.000    590.400    450.000    590.800    461.000    590.900    488.000
 GR    594.100   520.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
 NH      5.000      .050    250.000       .090    259.000       .050    269.000       .090    280.000       .050
 NH    520.000     0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000

 X1    850.000     0.000      0.000      0.000    850.000    850.000    850.000      0.000      3.100      0.000
 NC      0.000     0.000      0.000       .500      1.000      0.000      0.000      0.000      0.000      0.000
 NH      3.000      .050    886.000       .045    909.000       .050   2632.000      0.000      0.000      0.000

 X1    989.000    55.000    942.500    967.000    200.000      0.000    139.000       .940      0.000      0.000
 X3      0.000     0.000      0.000      0.000      0.000   1200.000      0.000      0.000      0.000      0.000
 GR    596.000     0.000    595.500    100.000    595.100    200.000    594.900    300.000    594.800    400.000
 GR    594.200   500.000    593.700    600.000    591.300    700.000    588.300    800.000    587.700    900.000
 GR    587.800   942.500    586.100    942.500    583.600    944.000    582.600    945.000    581.000    950.000
 GR    580.500   952.000    580.000    955.000    580.500    958.000    580.800    960.000    581.700    965.000
 GR    586.100   967.000    587.700    967.000    588.100   1000.000    589.200   1100.000    591.000   1200.000
 GR    590.900  1300.000    589.300   1400.000    587.600   1600.000    584.900   1800.000    585.500   1900.000
 GR    587.000  1950.000    589.800   2000.000    587.000   2000.000    581.600   2002.000    580.700   2005.000
 GR    580.000  2010.000    579.000   2015.000    576.500   2017.000    574.800   2020.000    574.400   2025.000
 GR    575.000  2030.000    575.600   2035.000    575.900   2040.000    576.500   2045.000    579.800   2050.000
 GR    582.400  2055.000    583.400   2058.000    589.900   2058.000    591.000   2100.000    593.300   2200.000
 GR    596.200  2277.000    595.400   2300.000    596.700   2400.000    595.900   2600.000    595.200   2800.000
 NC       .050      .050       .030      0.000      0.000      0.000      0.000      0.000      0.000      0.000

 X1    990.000    55.000    942.500    967.000      1.000      1.000      1.000       .940      0.000      0.000
 X2      0.000     0.000      0.000      0.000      0.000      0.000      0.000      0.000       .940      0.000
 X3      0.000     0.000      0.000      0.000      0.000   1200.000      0.000      0.000      0.000      0.000
 BT     15.000   900.000    587.700      0.000    942.500    587.800    586.100    967.000    587.700    586.100
 BT   1000.000   588.100    588.100   1100.000    589.200    589.200   1200.000    591.000    591.000   1300.000
 BT    590.900   590.900   1400.000    589.300    589.300   1600.000    587.600    587.600   1800.000    584.900
 BT    584.900  1900.000    585.500    585.500   1950.000    587.000    587.000   2000.000    589.800    586.900
 BT   2058.[illegible]   589.900   586.[illegible]   21[illegible]   591.[illegible]   [illegible]   [illegible]   [illegible]   [illegible]   [illegible]
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GR	596.000	0.000	595.500	100.000	595.100	200.000	594.900	300.000	594.800	400.000
GR	594.200	500.000	593.700	600.000	591.300	700.000	588.300	800.000	587.700	900.000
GR	587.800	942.500	586.100	942.500	583.600	944.000	582.600	945.000	581.000	950.000
GR	580.500	952.000	580.000	955.000	580.500	958.000	580.800	960.000	581.700	965.000
GR	586.100	967.000	587.700	967.000	588.100	1000.000	589.200	1100.000	591.000	1200.000
GR	590.900	1300.000	589.300	1400.000	587.600	1600.000	584.900	1800.000	585.500	1900.000
GR	587.000	1950.000	589.800	2000.000	587.000	2000.000	581.600	2002.000	580.700	2005.000
GR	580.000	2010.000	579.000	2015.000	576.500	2017.000	574.800	2020.000	574.400	2025.000
GR	575.000	2030.000	575.600	2035.000	575.900	2040.000	576.500	2045.000	579.800	2050.000
GR	582.400	2055.000	583.400	2058.000	589.900	2058.000	591.000	2100.000	593.300	2200.000
GR	596.200	2277.000	595.400	2300.000	596.700	2400.000	595.900	2600.000	595.200	2800.000
X1	1010.000	55.000	942.500	967.000	20.000	20.000	20.000	.940	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.940	0.000
X3	0.000	0.000	0.000	0.000	0.000	1200.000	0.000	0.000	0.000	0.000
BT	15.000	900.000	587.700	0.000	942.500	587.800	586.100	967.000	587.700	586.100
BT	1000.000	588.100	588.100	1100.000	589.200	589.200	1200.000	591.000	591.000	1300.000
BT	590.900	590.900	1400.000	589.300	589.300	1600.000	587.600	587.600	1800.000	584.900
BT	584.900	1900.000	585.500	585.500	1950.000	587.000	587.000	2000.000	589.800	586.900
BT	2058.000	589.900	586.900	2100.000	591.000	0.000	0.000	0.000	0.000	0.000
GR	596.000	0.000	595.500	100.000	595.100	200.000	594.900	300.000	594.800	400.000
GR	594.200	500.000	593.700	600.000	591.300	700.000	588.300	800.000	587.700	900.000
GR	587.800	942.500	586.100	942.500	583.600	944.000	582.600	945.000	581.000	950.000
GR	580.500	952.000	580.000	955.000	580.500	958.000	580.800	960.000	581.700	965.000
GR	586.100	967.000	587.700	967.000	588.100	1000.000	589.200	1100.000	591.000	1200.000
GR	590.900	1300.000	589.300	1400.000	587.600	1600.000	584.900	1800.000	585.500	1900.000
GR	587.000	1950.000	589.800	2000.000	587.000	2000.000	581.600	2002.000	580.700	2005.000
GR	580.000	2010.000	579.000	2015.000	576.500	2017.000	574.800	2020.000	574.400	2025.000
GR	575.000	2030.000	575.600	2035.000	575.900	2040.000	576.500	2045.000	579.800	2050.000
GR	582.400	2055.000	583.400	2058.000	589.900	2058.000	591.000	2100.000	593.300	2200.000
GR	596.200	2277.000	595.400	2300.000	596.700	2400.000	595.900	2600.000	595.200	2800.000
NH	3.000	.050	886.000	.045	909.000	.050	2632.000	0.000	0.000	0.000
X1	1011.000	55.000	942.500	967.000	1.000	1.000	1.000	.940	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	1200.000	0.000	0.000	0.000	0.000
GR	596.000	0.000	595.500	100.000	595.100	200.000	594.900	300.000	594.800	400.000
GR	594.200	500.000	593.700	600.000	591.300	700.000	588.300	800.000	587.700	900.000
GR	587.800	942.500	586.100	942.500	583.600	944.000	582.600	945.000	581.000	950.000
GR	580.500	952.000	580.000	955.000	580.500	958.000	580.800	960.000	581.700	965.000
GR	586.100	967.000	587.700	967.000	588.100	1000.000	589.200	1100.000	591.000	1200.000
GR	590.900	1300.000	589.300	1400.000	587.600	1600.000	584.900	1800.000	585.500	1900.000
GR	587.000	1950.000	589.800	2000.000	587.000	2000.000	581.600	2002.000	580.700	2005.000
GR	580.000	2010.000	579.000	2015.000	576.500	2017.000	574.800	2020.000	574.400	2025.000
GR	575.000	2030.000	575.600	2035.000	575.900	2040.000	576.500	2045.000	579.800	2050.000
GR	582.400	2055.000	583.400	2058.000	589.900	2058.000	591.000	2100.000	593.300	2200.000
GR	596.200	2277.000	595.400	2300.000	596.700	2400.000	595.900	2600.000	595.200	2800.000
NH	5.000	.055	900.000	.090	908.000	.050	920.000	.090	927.000	.055
NH	1600.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	2111 ~~2270~~.000	23.000	900.000	927.000	1400.000	1259.000	1100.000	0.000	0.000	0.000
GR	597.200	0.000	597.300	100.000	597.100	200.000	596.400	300.000	596.500	405.000
GR	596.500	500.000	595.200	600.000	595.000	700.000	593.100	800.000	588.700	875.000
GR	587.400	900.000	583.100	908.000	582.600	915.000	583.100	920.000	586.800	927.000
GR	586.900	1000.000	589.400	1040.000	588.000	1100.000	592.000	1200.000	595.400	1300.000
GR	595.600	1400.000	595.700	1500.000	595.300	1600.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
NH	7.000	.035	400.000	.055	900.000	.090	910.000	.050	923.000	.095
NH	939.000	.050	1900.000	.095	2300.000	0.000	0.000	0.000	0.000	0.000
X1	3041 ~~3200~~.000	33.000	900.000	939.000	800.000	930.000	930.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	1100.000	0.000	0.000	0.000	0.000
GR	597.900	0.000	597.900	100.000	597.600	200.000	597.100	300.000	596.600	400.000
GR	596.200	500.000	596.500	583.000	595.700	603.000	594.300	700.000	590.000	800.000
GR	588.300	850.000	588.600	900.000	584.500	910.000	583.700	915.000	584.700	918.000
GR	584.400	923.000	587.200	939.000	587.500	974.000	592.100	1000.000	595.400	1028.000
G[illegible]	596.000	11[illegible]	595.80[illegible]	12[illegible]	5[illegible]	13[illegible]	593.900	[illegible]	595.[illegible]	[illegible]

GR	596.000	1600.000	595.700	1700.000	595.700	1800.000	596.000	1900.000	597.300	2000.000
GR	596.200	2100.000	596.500	2200.000	596.800	2300.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.400	.800	0.000	0.000	0.000	0.000	0.000
NH	5.000	.050	900.000	.090	930.000	.050	941.000	.090	974.000	.050
NH	1028.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	3503 ~~3662~~.000	20.000	930.000	941.000	462.000	462.000	462.000	0.000	0.000	0.000
GR	597.900	0.000	597.900	100.000	597.600	200.000	597.100	300.000	596.600	400.000
GR	596.200	500.000	596.500	583.000	595.700	603.000	594.300	700.000	590.000	800.000
GR	588.300	850.000	588.400	900.000	588.400	930.000	582.400	930.000	582.200	935.000
GR	582.400	941.000	588.400	941.000	588.400	974.000	592.100	1000.000	595.400	1028.000
NC	.060	.085	.051	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	3504 ~~3663~~.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	9.000	700.000	594.300	0.000	800.000	590.000	0.000	850.000	588.300	0.000
BT	900.000	588.400	0.000	930.000	588.400	587.300	941.000	588.400	587.300	974.000
BT	588.400	0.000	1000.000	592.100	0.000	1028.000	595.400	0.000	0.000	0.000
X1	3516 ~~3675~~.000	0.000	0.000	0.000	12.000	12.000	12.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NH	5.000	.050	900.000	.090	930.000	.050	941.000	.090	974.000	.050
NH	1028.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	3517 ~~3676~~.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
NH	3.000	.095	200.000	.050	228.000	.095	700.000	0.000	0.000	0.000
ET	0.000	6.100	6.100	6.100	8.100	190.000	233.000	1.000	560.000	0.000
X1	4641 ~~4800~~.000	15.000	200.000	228.000	1074.000	1074.000	1124.000	0.000	0.000	0.000
GR	596.200	0.000	595.100	72.000	594.300	86.000	594.300	105.000	593.500	115.000
GR	588.900	200.000	586.300	203.000	584.800	211.000	585.500	221.000	589.800	228.000
GR	590.400	300.000	593.900	400.000	596.300	500.000	597.500	600.000	597.800	700.000
→ QT	4.000	245.000	360.000	410.000	560.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	6.100	6.100	6.100	8.100	900.000	922.000	1.000	1900.000	0.000
NC	.095	.095	.050	.500	1.000	0.000	0.000	0.000	0.000	0.000
X1	4675 ~~4892~~.000	31.000	900.000	922.000	34.000	34.000	34.000	.985	0.000	0.000
GR	597.700	0.000	597.600	100.000	597.300	200.000	597.100	300.000	596.500	400.000
GR	596.700	500.000	597.000	600.000	595.500	700.000	595.100	772.000	594.300	786.000
GR	594.300	805.000	593.500	815.000	590.000	897.500	588.900	900.000	586.200	905.000
GR	585.700	910.000	585.100	914.000	585.500	918.000	588.600	922.000	589.800	922.000
GR	589.800	922.500	590.400	1000.000	593.900	1100.000	596.300	1200.000	597.500	1300.000
GR	597.800	1400.000	598.400	1500.000	598.000	1600.000	597.700	1700.000	597.300	1800.000
GR	596.900	1900.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	2.000	2.950	0.000	22.000	0.000	123.600	0.000	585.100	585.100
ET	0.000	6.100	6.100	6.100	8.100	900.000	922.000	1.000	1900.000	0.000
NC	.055	.055	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	4701 ~~4926~~.000	31.000	900.000	922.000	36.000	36.000	36.000	.985	0.000	0.000
X2	0.000	0.000	1.000	592.000	594.600	0.000	0.000	0.000	.985	0.000
BT	29.000	0.000	597.700	0.000	100.000	597.600	0.000	200.000	597.300	0.000
BT	300.000	597.100	0.000	400.000	596.500	0.000	500.000	596.700	0.000	600.000
BT	597.000	0.000	700.000	595.500	0.000	772.000	595.100	0.000	805.000	594.900
BT	0.000	897.500	594.600	0.000	897.500	595.500	0.000	900.000	595.500	588.900
BT	900.000	595.500	592.000	922.000	595.500	592.000	922.000	595.500	589.800	922.500
BT	595.500	0.000	922.500	594.600	0.000	1000.000	594.700	0.000	1100.000	595.500
BT	0.000	1123.000	595.400	0.000	1200.000	597.100	0.000	1300.000	598.000	0.000
BT	1400.000	598.200	0.000	1500.000	598.400	0.000	1600.000	598.000	0.000	1700.000
BT	597.700	0.000	1800.000	597.300	0.000	1900.000	596.900	0.000	0.000	0.000
GR	597.700	0.000	597.600	100.000	597.300	200.000	597.100	300.000	596.500	400.000
GR	596.700	500.000	597.000	600.000	595.500	700.000	595.100	772.000	594.300	786.000
GR	594.300	805.000	593.500	815.000	590.000	897.500	588.900	900.000	586.200	905.000
GR	585.700	910.000	585.100	914.000	585.500	918.000	588.600	922.000	589.800	922.000
GR	589.800	922.500	590.400	1000.000	593.900	1100.000	596.300	1200.000	597.500	1300.000
GR	597.800	1400.000	598.400	1500.000	598.000	1600.000	597.700	1700.000	597.300	1800.000
GR	596.900	1900.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	3.000	.055	[illegible]	.050	228.000	[illegible]	700.000	0.000	0.000	[illegible]

X1	4800 ~~5101~~.000	15.000	200.000	228.000	175.000	175.000	175.000	0.000	.270	0.000
GR	596.200	0.000	595.100	72.000	594.300	86.000	594.300	105.000	593.500	115.000
GR	588.900	200.000	586.300	203.000	584.800	211.000	585.500	221.000	589.800	228.000
GR	590.400	300.000	593.900	400.000	596.300	500.000	597.500	600.000	597.800	700.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
NH	3.000	.055	1000.000	.050	1049.000	.055	2000.000	0.000	0.000	0.000
X1	6395 ~~6610~~.000	30.000	1000.000	1049.000	1407.000	1407.000	1509.000	0.000	0.000	0.000
GR	598.100	0.000	597.400	100.000	596.900	200.000	596.900	300.000	596.500	400.000
GR	596.000	500.000	596.100	600.000	597.200	700.000	597.000	800.000	597.100	852.000
GR	594.800	900.000	592.300	1000.000	586.200	1020.000	585.600	1022.000	585.000	1026.000
GR	584.800	1029.000	585.800	1033.000	592.000	1049.000	593.400	1100.000	595.500	1200.000
GR	596.000	1234.000	597.000	1259.000	597.000	1300.000	596.400	1400.000	595.900	1500.000
GR	596.700	1600.000	596.600	1700.000	597.600	1800.000	597.300	1900.000	598.100	2000.000
→ QT	4.000	180.000	265.000	300.000	415.000	0.000	0.000	0.000	0.000	0.000
NH	3.000	.055	700.000	.050	753.000	.055	1400.000	0.000	0.000	0.000
X1	8295 ~~8510~~.000	20.000	700.000	753.000	1500.000	1800.000	1900.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	660.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	598.300	0.000	598.700	100.000	597.700	200.000	597.200	300.000	597.000	400.000
GR	596.200	500.000	595.900	600.000	596.700	660.000	594.200	700.000	587.100	720.000
GR	586.200	727.000	586.900	734.000	593.900	753.000	595.600	800.000	595.000	900.000
GR	595.300	1000.000	596.100	1100.000	596.800	1200.000	597.400	1300.000	599.500	1400.000
NH	3.000	.040	1000.000	.045	1060.000	.050	1687.000	0.000	0.000	0.000
X1	10005 ~~10220~~.000	24.000	1000.000	1060.000	1500.000	1200.000	1710.000	0.000	0.000	0.000
GR	599.500	0.000	599.600	100.000	598.900	200.000	598.800	300.000	598.100	400.000
GR	598.200	500.000	599.200	600.000	598.500	700.000	597.500	800.000	596.000	900.000
GR	596.000	960.000	594.800	1000.000	588.100	1020.000	587.600	1023.000	586.600	1029.000
GR	587.600	1040.000	595.400	1060.000	597.000	1100.000	596.700	1200.000	595.800	1300.000
GR	596.500	1400.000	596.400	1500.000	597.800	1600.000	599.700	1687.000	0.000	0.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

SUMMARY PRINTOUT FOR MULTIPLE PROFILES

MILLER DRAIN

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	HV	HL	OLOSS	QCH	DEPTH	TOPWID
0.00	0.00	0.00	0.00	576.40	260.00	581.10	.10	0.00	0.00	235.73	4.70	76.47
0.00	0.00	0.00	0.00	576.40	380.00	583.10	.02	0.00	0.00	202.70	6.70	150.13
0.00	0.00	0.00	0.00	576.40	430.00	584.20	.01	0.00	0.00	175.89	7.80	191.82
0.00	0.00	0.00	0.00	576.40	590.00	587.00	.00	0.00	0.00	146.13	10.60	303.22
850.00	850.00	0.00	0.00	579.50	260.00	583.81	.16	2.75	.02	252.11	4.31	57.50
850.00	850.00	0.00	0.00	579.50	380.00	583.85	.33	.97	.09	365.72	4.35	60.68
850.00	850.00	0.00	0.00	579.50	430.00	584.49	.20	.42	.06	364.21	4.99	84.95
850.00	850.00	0.00	0.00	579.50	590.00	587.06	.03	.07	.01	255.34	7.56	183.75
989.00	139.00	0.00	0.00	580.00	260.00	584.30	.25	.49	.08	260.00	4.30	21.24
989.00	139.00	0.00	0.00	580.00	380.00	584.68	.42	.83	.09	380.00	4.68	21.62
989.00	139.00	0.00	0.00	580.00	430.00	585.06	.43	.58	.23	430.00	5.06	22.00
989.00	139.00	0.00	0.00	580.00	590.00	587.14	.32	.08	.30	590.00	7.14	23.03
990.00	1.00	584.90	591.00	580.00	260.00	584.30	.25	.00	.00	260.00	4.30	21.25
990.00	1.00	584.90	591.00	580.00	380.00	584.69	.42	.00	.00	380.00	4.69	21.63
990.00	1.00	584.90	591.00	580.00	430.00	585.07	.43	.00	.00	430.00	5.07	22.01
990.00	1.00	584.90	591.00	580.00	590.00	587.14	.49	.00	.17	590.00	7.14	23.03
1010.00	20.00	584.90	591.00	580.00	260.00	584.35	.24	.03	.00	260.00	4.35	21.30
1010.00	20.00	584.90	591.00	580.00	380.00	584.76	.40	.05	.01	380.00	4.76	21.70
1010.00	20.00	584.90	591.00	580.00	430.00	585.14	.41	.05	.01	430.00	5.14	22.07
1010.00	20.00	584.90	591.00	580.00	590.00	587.24	.49	.10	.00	590.00	7.24	23.03
1011.00	1.00	0.00	0.00	580.00	260.00	584.35	.24	.00	.00	260.00	4.35	21.30
1011.00	1.00	0.00	0.00	580.00	380.00	584.77	.40	.00	.00	380.00	4.77	21.70
1011.00	1.00	0.00	0.00	580.00	430.00	585.14	.41	.00	.00	430.00	5.14	22.07
1011.00	1.00	0.00	0.00	580.00	590.00	587.56	.28	.00	.10	590.00	7.56	23.03
2270.00	1100.00	0.00	0.00	582.60	260.00	587.30	.11	2.75	.07	235.85	4.70	106.14
2270.00	1100.00	0.00	0.00	582.60	380.00	588.00	.08	2.76	.16	271.45	5.40	129.57
2270.00	1100.00	0.00	0.00	582.60	430.00	588.23	.07	2.57	.17	284.40	5.63	153.17
2270.00	1100.00	0.00	0.00	582.60	590.00	589.16	.04	1.25	.12	282.79	6.56	248.29
3200.00	930.00	0.00	0.00	583.70	260.00	588.67	.04	1.29	.01	202.11	4.97	141.36
3200.00	930.00	0.00	0.00	583.70	380.00	589.18	.04	1.13	.00	252.34	5.48	159.71
3200.00	930.00	0.00	0.00	583.70	430.00	589.36	.04	1.10	.00	270.91	5.66	165.89
3200.00	930.00	0.00	0.00	583.70	590.00	589.93	.04	.77	.00	317.45	6.23	185.76
3662.00	462.00	0.00	0.00	582.20	260.00	589.19	.07	.53	.03	184.30	6.99	155.74
3662.00	462.00	0.00	0.00	582.20	380.00	589.70	.06	.52	.02	203.80	7.50	174.28
3662.00	462.00	0.00	0.00	582.20	430.00	589.88	.06	.52	.01	210.43	7.68	180.71
3662.00	462.00	0.00	0.00	582.20	590.00	590.40	.05	.47	.01	222.57	8.20	197.31
3663.00	1.00	588.30	587.30	582.20	260.00	589.22	.05	.00	.01	136.18	7.02	156.91
3663.00	1.00	588.30	587.30	582.20	380.00	589.73	.04	.00	.01	135.10	7.53	175.41
3663.00	1.00	588.30	587.30	582.20	430.00	589.90	.04	.00	.01	136.39	7.70	181.76
3663.00	1.00	588.30	587.30	582.20	590.00	590.42	.04	.00	.01	139.10	8.22	197.61

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	HV	HL	OLOSS	QCH	DEPTH	TOPWID
3675.00	12.00	588.30	587.30	582.20	260.00	589.27	.04	.04	.00	132.20	7.07	158.19
3675.00	12.00	588.30	587.30	582.20	380.00	589.76	.04	.03	.00	133.03	7.56	176.24
3675.00	12.00	588.30	587.30	582.20	430.00	589.93	.04	.03	.00	134.56	7.73	182.54
3675.00	12.00	588.30	587.30	582.20	590.00	590.44	.04	.02	.00	137.26	8.24	198.38
3676.00	1.00	0.00	0.00	582.20	260.00	589.26	.06	.00	.01	177.20	7.06	158.31
3676.00	1.00	0.00	0.00	582.20	380.00	589.76	.05	.00	.01	197.86	7.56	176.33
3676.00	1.00	0.00	0.00	582.20	430.00	589.93	.05	.00	.01	204.89	7.73	182.63
3676.00	1.00	0.00	0.00	582.20	590.00	590.44	.05	.00	.01	218.77	8.24	198.43
4800.00	1124.00	0.00	0.00	584.80	260.00	590.33	.07	1.07	.01	253.76	5.53	43.00
4800.00	1124.00	0.00	0.00	584.80	380.00	590.97	.11	1.22	.04	363.66	6.17	43.00
4800.00	1124.00	0.00	0.00	584.80	430.00	591.19	.12	1.28	.06	408.90	6.39	43.00
4800.00	1124.00	0.00	0.00	584.80	590.00	591.63	.11	1.21	.05	463.07	6.83	185.59
4892.00	34.00	0.00	0.00	585.10	245.00	590.36	.12	.04	.05	245.00	5.26	21.67
4892.00	34.00	0.00	0.00	585.10	360.00	591.02	.19	.05	.08	360.00	5.92	21.67
4892.00	34.00	0.00	0.00	585.10	410.00	591.25	.23	.05	.10	410.00	6.15	21.67
4892.00	34.00	0.00	0.00	585.10	560.00	591.68	.15	.05	.04	414.54	6.58	175.66
4926.00	36.00	594.60	592.00	585.10	245.00	590.43	.13	.06	.01	245.00	5.33	21.67
4926.00	36.00	594.60	592.00	585.10	360.00	591.11	.21	.09	.01	360.00	6.01	21.67
4926.00	36.00	594.60	592.00	585.10	410.00	591.35	.24	.10	.02	410.00	6.25	21.67
4926.00	36.00	594.60	592.00	585.10	560.00	591.77	.39	.09	.24	559.20	6.67	180.68
5101.00	175.00	0.00	0.00	585.07	245.00	590.70	.05	.16	.04	225.96	5.63	129.25
5101.00	175.00	0.00	0.00	585.07	360.00	591.51	.04	.16	.08	270.78	6.44	167.56
5101.00	175.00	0.00	0.00	585.07	410.00	591.81	.04	.16	.10	284.54	6.74	181.64
5101.00	175.00	0.00	0.00	585.07	560.00	592.46	.04	.16	.18	329.16	7.39	211.82
6610.00	1509.00	0.00	0.00	584.80	245.00	591.41	.03	.69	.00	245.00	6.61	44.58
6610.00	1509.00	0.00	0.00	584.80	360.00	592.21	.05	.71	.00	359.89	7.41	56.43
6610.00	1509.00	0.00	0.00	584.80	410.00	592.49	.06	.70	.00	408.85	7.69	74.66
6610.00	1509.00	0.00	0.00	584.80	560.00	593.15	.07	.71	.01	543.85	8.35	124.74
8510.00	1900.00	0.00	0.00	586.20	180.00	592.06	.02	.63	.00	180.00	5.86	41.96
8510.00	1900.00	0.00	0.00	586.20	265.00	592.98	.03	.75	.00	265.00	6.78	47.08
8510.00	1900.00	0.00	0.00	586.20	300.00	593.31	.03	.79	.00	300.00	7.11	48.86
8510.00	1900.00	0.00	0.00	586.20	415.00	594.10	.04	.92	.00	414.94	7.90	58.11
10220.00	1710.00	0.00	0.00	586.60	180.00	592.44	.02	.38	.00	180.00	5.84	45.35
10220.00	1710.00	0.00	0.00	586.60	265.00	593.40	.02	.42	.00	265.00	6.80	50.71
10220.00	1710.00	0.00	0.00	586.60	300.00	593.74	.03	.43	.00	300.00	7.14	52.59
10220.00	1710.00	0.00	0.00	586.60	415.00	594.60	.04	.50	.00	415.00	8.00	57.37

SECTION NUMBER	DISCHARGE CFS	CWSEL	CWSEL DIFF EACH Q	CWSEL DIFF EACH SECTION	CWSEL-WSELK	TOPWID	T.W. DIFF	LENGTH
0.000	260.000	581.100	0.000	0.000	0.000	76.469	0.000	0.000
0.000	380.000	583.100	2.000	0.000	0.000	150.133	-73.665	0.000
0.000	430.000	584.200	1.100	0.000	0.000	191.815	-115.347	0.000
0.000	590.000	587.000	2.800	0.000	0.000	303.218	-226.749	0.000
850.000	260.000	583.806	0.000	2.706	0.000	57.499	0.000	850.000
850.000	380.000	583.853	.047	.753	0.000	60.685	-3.186	850.000
850.000	430.000	584.487	.634	.287	0.000	84.950	-27.451	850.000
850.000	590.000	587.057	2.571	.057	0.000	183.754	-126.255	850.000
989.000	260.000	584.298	0.000	.492	0.000	21.244	0.000	139.000
989.000	380.000	584.683	.384	.830	0.000	21.621	-.378	139.000
989.000	430.000	585.064	.381	.577	0.000	22.001	-.757	139.000
989.0?0	590.000	587.140	2.077	.083	.000	23.030	-1.786	139.000

990.000	260.000	584.301	0.000	.003	0.000	21.247	0.000	1.000
990.000	380.000	584.688	.387	.006	0.000	21.628	-.381	1.000
990.000	430.000	585.068	.380	.005	0.000	22.005	-.758	1.000
990.000	590.000	587.143	2.075	.003	0.000	23.030	-1.783	1.000
1010.000	260.000	584.347	0.000	.045	0.000	21.295	0.000	20.000
1010.000	380.000	584.765	.418	.077	0.000	21.700	-.404	20.000
1010.000	430.000	585.139	.374	.070	0.000	22.072	-.776	20.000
1010.000	590.000	587.243	2.104	.100	0.000	23.030	-1.735	20.000
1011.000	260.000	584.349	0.000	.003	0.000	21.297	0.000	1.000
1011.000	380.000	584.769	.420	.004	0.000	21.702	-.405	1.000
1011.000	430.000	585.143	.374	.004	0.000	22.074	-.777	1.000
1011.000	590.000	587.559	2.417	.316	0.000	23.030	-1.733	1.000
2270.000	260.000	587.296	0.000	2.946	0.000	106.141	0.000	1100.000
2270.000	380.000	588.004	.709	3.235	0.000	129.571	-23.430	1100.000
2270.000	430.000	588.227	.223	3.084	0.000	153.166	-47.025	1100.000
2270.000	590.000	589.165	.938	1.605	0.000	248.290	-142.149	1100.000
3200.000	260.000	588.666	0.000	1.370	0.000	141.363	0.000	930.000
3200.000	380.000	589.183	.517	1.178	0.000	159.714	-18.351	930.000
3200.000	430.000	589.361	.179	1.134	0.000	165.887	-24.524	930.000
3200.000	590.000	589.934	.572	.769	0.000	185.758	-44.395	930.000
3662.000	260.000	589.191	0.000	.525	0.000	155.736	0.000	462.000
3662.000	380.000	589.699	.508	.516	0.000	174.278	-18.542	462.000
3662.000	430.000	589.876	.176	.514	0.000	180.707	-24.971	462.000
3662.000	590.000	590.399	.523	.465	0.000	197.311	-41.575	462.000
3663.000	260.000	589.222	0.000	.031	0.000	156.906	0.000	1.000
3663.000	380.000	589.730	.508	.031	0.000	175.410	-18.504	1.000
3663.000	430.000	589.904	.174	.029	0.000	181.756	-24.850	1.000
3663.000	590.000	590.418	.513	.019	0.000	197.610	-40.704	1.000
3675.000	260.000	589.265	0.000	.043	0.000	158.193	0.000	12.000
3675.000	380.000	589.761	.496	.031	0.000	176.239	-18.046	12.000
3675.000	430.000	589.933	.172	.029	0.000	182.544	-24.351	12.000
3675.000	590.000	590.441	.508	.023	0.000	198.379	-40.186	12.000
3676.000	260.000	589.264	0.000	-.001	0.000	158.310	0.000	1.000
3676.000	380.000	589.759	.495	-.002	0.000	176.327	-18.017	1.000
3676.000	430.000	589.931	.172	-.002	0.000	182.626	-24.317	1.000
3676.000	590.000	590.440	.509	-.001	0.000	198.434	-40.125	1.000
4800.000	260.000	590.327	0.000	1.063	0.000	42.999	0.000	1124.000
4800.000	380.000	590.970	.644	1.211	0.000	42.999	-.000	1124.000
4800.000	430.000	591.195	.224	1.264	0.000	42.999	-.000	1124.000
4800.000	590.000	591.633	.438	1.193	0.000	185.587	-142.588	1124.000
4892.000	245.000	590.364	0.000	.037	0.000	21.669	0.000	34.000
4892.000	360.000	591.019	.656	.049	0.000	21.669	-.000	34.000
4892.000	410.000	591.249	.230	.054	0.000	21.669	-.000	34.000
4892.000	560.000	591.680	.431	.047	0.000	175.664	-153.995	34.000
4926.000	245.000	590.426	0.000	.062	0.000	21.669	0.000	36.000
4926.000	360.000	591.105	.679	.086	0.000	21.669	-.000	36.000
4926.000	410.000	591.345	.240	.097	0.000	21.669	-.000	36.000
4926.000	560.000	591.771	.426	.091	0.000	180.685	-159.016	36.000
5101.000	245.000	590.703	0.000	.277	0.000	129.248	0.000	175.000
5101.000	360.000	591.509	.807	.404	0.000	167.555	-38.307	175.000
5101.000	410.000	591.807	.298	.462	0.000	181.639	-52.391	175.000
5101.000	560.000	592.458	.650	.686	0.000	211.816	-82.567	175.000

6610.000	24_.000	591.413	0.000	.711	0.000	44.580	0.000	1509.000
6610.000	360.000	592.212	.798	.702	0.000	56.426	-11.846	1509.000
6610.000	410.000	592.493	.281	.685	0.000	74.656	-30.076	1509.000
6610.000	560.000	593.148	.655	.690	0.000	124.741	-80.161	1509.000
8510.000	180.000	592.058	0.000	.645	0.000	41.964	0.000	1900.000
8510.000	265.000	592.983	.925	.771	0.000	47.081	-5.117	1900.000
8510.000	300.000	593.306	.323	.814	0.000	48.861	-6.896	1900.000
8510.000	415.000	594.096	.789	.948	0.000	58.110	-16.145	1900.000
10220.000	180.000	592.438	0.000	.380	0.000	45.352	0.000	1710.000
10220.000	265.000	593.404	.966	.421	0.000	50.714	-5.362	1710.000
10220.000	300.000	593.743	.339	.437	0.000	52.593	-7.241	1710.000
10220.000	415.000	594.604	.861	.508	0.000	57.371	-12.019	1710.000

DATA FOR LAST CROSS SECTION

PROFILE	TYPE ENC	TARGET	TOP WIDTH AREA-ACRES	TOP WIDTH AREA-DIFF
1	1.000	0.000	16.671	0.000
2	1.000	0.000	20.072	3.401
3	1.000	0.000	22.533	5.862
4	1.000	0.000	32.761	16.091

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*****************************************
HEC2 VERSION UPDATED JAN 1976
ERROR CORRECTIONS 01,02,03,04,05,06,07,08,09
MODIFICATIONS 52,53,54,55,56,57,58
*****************************************

T1      CLINTON TOWNSHIP - JOB NO. 5670-02   PROJECT MANAGER  WILLIAM C. ROSSOW
T2      100 YEAR FLOOD = 430
T3      MILLER DRAIN

J1  ICHECK    INQ      NINV     IDIR      STRT      METRIC    HVINS     Q        WSEL      FQ

         -1.       4.       0.       0.  0.000000      0.00      0.0       0.   584.200     0.000
J2  NPROF     IPLOT    PRFVS    XSECV     XSECH     FN        ALLDC     IBW      CHNIM     ITRACE

         3.000     0.000   -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
```

```
 CCHV=     .100 CEHV=     .300
 1490 NH CARD USED
      SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      BANK ELEV
      Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA     LEFT/RIGHT
      TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN        SSTA
      SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID       ENDST

         0.00       7.80     584.20       0.00     584.20     584.21        .01       0.00       0.00     581.90
         430.        35.       176.       219.        72.       180.       270.         0.         0.     581.00
         0.00        .48        .98        .81       .050       .065       .050      0.000     576.40     190.38
      .000173         0.         0.         0.          0          0          1       0.00     191.82     382.20

 1490 NH CARD USED

                   VALLEY SECTION A                                                       118

       850.00       4.99     584.49       0.00       0.00     584.68        .20        .42        .06     585.00
         430.         0.       364.        66.         0.        96.        40.         6.         3.     584.10
          .07       0.00       3.79       1.65       .050       .061       .050       .000     579.50     250.84
      .004761       850.       850.       850.          2          0          1       0.00      84.95     335.79

 CCHV=     .500 CEHV=    1.000
 1490 NH CARD USED

 3470 ENCROACHMENT STATIONS=          .0      1128.0  TYPE=      1  TARGET=     1199.999
       989.00       5.06     585.06       0.00       0.00     585.49        .43        .58        .23     587.80
         430.         0.       430.         0.         0.        82.         0.         7.         3.     587.70
          .07       0.00       5.27       0.00       .050       .045       .050       .000     580.00     886.54
      .004249       200.       139.         0.          2          0          1       0.00      22.00     908.54

 NORMAL BRIDGE,NRD=15 MIN ELTRD=  584.90 MAX ELLC=  591.00

 3470 ENCROACHMENT STATIONS=          .0      1128.0  TYPE=      1  TARGET=     1199.999
       990.00       5.07     585.07       0.00       0.00     585.50        .43        .00        .00     587.80
         430.         0.       430.         0.         0.        82.         0.         7.         3.     587.70
          .07       0.00       5.26       0.00       .050       .030       .050       .000     580.00     886.53
      .002454         1.         1.         1.          0          0          1       0.00      22.01     908.54

 NORMAL BRIDGE,NRD=15 MIN ELTRD=  584.90 MAX ELLC=  591.00

 3470 ENCROACHMENT STATIONS=          .0      1128.0  TYPE=      1  TARGET=     1199.999

                   BRIDGE SECTION B  HEYDENREICH ROAD  UPSTREAM FACE                      111

      1010.00       5.14     585.14       0.00       0.00     585.55        .41        .05        .01     587.80
         430.         0.       430.         0.         0.        83.         0.         7.         3.     587.70
          .08       0.00       5.17       0.00       .050       .030       .050       .001     580.00     886.50
      .002329        20.        20.        20.          0          0          1       0.00      22.07     908.57

 1490 NH CARD USED
      SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      BANK ELEV
      Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA     LEFT/RIGHT
```

TIME SLOPE	VLOB XLOBL	VCH XLCH	VROB XLOBR	XNL ITRIAL	XNCH IDC	XNR ICONT	WTN CORAR	ELMIN TOPWID	SSTA ENDST

3470 ENCROACHMENT STATIONS= .0 1128.0 TYPE= 1 TARGET= 1199.999

1011.00	5.14	585.14	0.00	0.00	585.56	.41	.00	.00	587.80
430.	0.	430.	0.	0.	83.	0.	7.	3.	587.70
.08	0.00	5.16	0.00	.050	.045	.050	.001	580.00	886.49
.004000	1.	1.	1.	0	0	1	0.00	22.07	908.57

1490 NH CARD USED

3265 DIVIDED FLOW

VALLEY SECTION C 119

2111 ~~2270.00~~	5.63	588.23	0.00	0.00	588.30	.07	2.57	.17	587.40
430.	4.	284.	142.	7.	111.	117.	11.	5.	586.80
.23	.58	2.55	1.21	.055	.058	.055	.016	582.60	883.98
.001475	1400.	1100.	1259.	3	0	1	0.00	153.17	1105.83

CCHV= .100 CEHV= .300
1490 NH CARD USED

3470 ENCROACHMENT STATIONS= .0 1100.0 TYPE= 1 TARGET= 1099.999

VALLEY SECTION D 120

3041 ~~3200.00~~	5.66	589.36	0.00	0.00	589.40	.04	1.10	.00	588.60
430.	46.	271.	113.	62.	151.	80.	17.	9.	587.20
.39	.73	1.79	1.41	.055	.065	.050	.020	583.70	818.66
.000979	800.	930.	930.	3	0	1	0.00	165.89	984.54

CCHV= .400 CEHV= .800
1490 NH CARD USED

~~3662.00~~	7.68	589.88	0.00	0.00	589.93	.06	.52	.01	588.40
3503 430.	175.	210.	44.	157.	83.	56.	20.	10.	588.40
.46	1.12	2.53	.78	.058	.050	.084	.021	582.20	803.66
.001295	462.	462.	462.	2	0	1	0.00	180.71	984.37

*
NORMAL BRIDGE,NRD= 9 MIN ELTRD= 588.30 MAX ELLC= 587.30

* Footbridge not included / initial submittal

3504 ~~3663.00~~	7.70	589.90	0.00	0.00	589.94	.04	.00	.01	588.40
430.	233.	136.	60.	161.	72.	58.	20.	10.	588.40
.46	1.45	1.91	1.05	.060	.051	.085	.021	582.20	802.81
.002307	1.	1.	1.	2	0	1	-12.10	181.76	984.57

D/H = 1.6/1.68 = .952 ⇒ high submergence

NORMAL BRIDGE,NRD= 9 MIN ELTRD= 588.30 MAX ELLC= 587.30

3516 ~~3675.00~~	7.73	589.93	0.00	0.00	589.97	.04	.03	.00	588.40
430.	235.	135.	61.	163.	72.	59.	20.	10.	588.40
.46	1.44	1.87	1.03	.060	.051	.085	.022	582.20	802.18
.002221	12.	12.	12.	0	0	1	-12.10	182.54	984.72

1490 NH CARD USED

3517 ~~3676.00~~	7.73	589.93		0.0	589.98	.05	.00	.1	588.4

```
      430.      180.      205.       45.      164.       84.       59.       20.       10.    588.40
       .46      1.10      2.44       .77      .058      .050      .084      .022    582.20    802.11
   .001199        1.        1.        1.         0         0         1      0.00    182.63    984.74

 1490 NH CARD USED
    SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS   BANK ELEV
        Q      QLOB       QCH      QROB      ALOB       ACH      AROB       VOL       TWA  LEFT/RIGHT
     TIME      VLOB       VCH      VROB       XNL      XNCH       XNR       WTN     ELMIN       SSTA
    SLOPE     XLOBL      XLCH     XLOBR    ITRIAL       IDC     ICONT     CORAR    TOPWID      ENDST

 3470 ENCROACHMENT STATIONS=      190.0      233.0  TYPE=     1  TARGET=      43.000

                VALLEY SECTION E                                                   121
  4641
  ~~4800.00~~     6.39    591.19      0.00      0.00    591.32       .12      1.28       .06    588.90 * ΔW.S. = (591.19 - 591.04) = .15'
      430.       17.      409.        4.       20.      141.        7.       26.       13.    589.80  with structure included
       .57       .83      2.90       .64      .095      .050      .095      .029    584.80    190.00
   .001107     1074.     1124.     1074.         2         0         1      0.00     43.00    233.00

 CCHV=     .500 CEHV=    1.000
  4675
 3470 ENCROACHMENT STATIONS=      886.5      908.2  TYPE=     1  TARGET=      22.000
  ~~4892.00~~     6.15    591.25      0.00      0.00    591.48       .23       .05       .10    588.90
      410.        0.      410.        0.        0.      107.        0.       26.       13. 100000.00
       .58       .01      3.82      0.00      .095      .050      .095      .029    585.10    886.50
   .002516       34.       34.       34.         2         0         1      0.00     21.67    908.17

 SPECIAL BRIDGE
 SB   XK        XKOR      COFQ      RDLEN       BWC        BWP       BAREA        SS      ELCHU      ELCHD
      0.00      2.00      2.95      0.00      22.00       0.00     123.60      0.00     585.10     585.10

 6070,LOW FLOW BY NORMAL BRIDGE
 EGPRS=     0.000  EGLWC=    591.475  ELLC=    592.000  PCWSE=    591.249  ELTRD=    594.600

 NORMAL BRIDGE,NRD=29 MIN ELTRD=   594.60 MAX ELLC=   592.00
  4711                                                                                    Ap = 117.09
 3470 ENCROACHMENT STATIONS=      886.5      908.2  TYPE=     1  TARGET=      22.000
  ~~4926.00~~     6.25    591.35      0.00      0.00    591.59       .24       .10       .02    588.90
      410.        0.      410.        0.        0.      103.        0.       26.       13. 100000.00
       .58      0.00      3.96      0.00      .055      .050      .055      .029    585.10    886.50
   .002864       36.       36.       36.         2         0         1     -6.02     21.67    908.17
  4886
 1490 NH CARD USED
  ~~5101.00~~     6.74    591.81      0.00      0.00    591.85       .04       .16       .10    589.17
      410.       44.      285.       82.       65.      151.      123.       27.       14.    590.07
       .61       .67      1.88       .67      .055      .050      .055      .030    585.07    151.11
   .000430      175.      175.      175.         0         0         1      0.00    181.64    332.74

 CCHV=     .100 CEHV=     .300
 1490 NH CARD USED
  ~~6610.00~~     7.69    592.49      0.00      0.00    592.55       .06       .70       .00    592.30
  6395 410.        0.      409.        1.        1.      216.        4.       36.       18.    592.00
       .83       .13      1.89       .24      .055      .050      .055      .035    584.80    992.29
   .000[illegible]07     1[illegible]07      150[illegible].     1[illegible]07         3         0         1        [illegible]00      7[illegible]6   1066[illegible]5
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 1490 NH CARD USED

 3470 ENCROACHMENT STATIONS=      660.0     1400.0  TYPE=       1  TARGET=      -660.000
8295 ~~8510.00~~    7.11    593.31     0.00      0.00   593.34      .03      .79      .00     594.20
      300.        0.      300.        0.        0.      204.        0.      46.      21.      593.90
      1.19       0.00     1.47       0.00      .055     .050      .055     .038    586.20    702.52
   .000326      1500.    1900.      1800.        0        0         1      0.00     48.86    751.38

10005
 1490 NH CARD USED
  ~~10220.00~~  7.14    593.74     0.00      0.00   593.77      .03      .43      .00     594.80
      300.        0.      300.        0.        0.      226.        0.      54.      23.      595.40
      1.55       0.00     1.32       0.00      .055     .045      .055     .040    586.60   1003.16
   .000199      1500.    1710.      1200.        2        0         1      0.00     52.59   1055.75
```

100-yr Middle Branch @ 594.12
⇒ controlling floodplain is Middle Branch through this area

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Clinton Twp

3) WATERCOURSE: Miller Drain

4) DOCUMENT TYPE: Multiple Run Profile

00BREAK00

```
  $$$$$$   $$         $$$$$$$$  $$$$$$$$   $$$$$ $     $$     $$$$$$$$
 $$    $$  $$            $$          $$   $$     $    $$$$    $$
 $$        $$            $$          $$   $$   $$$   $$  $$   $$
 $$        $$            $$          $$   $$  $ $$  $$    $$  $$$$$$$
 $$        $$            $$          $$   $$ $$ $$  $$    $$        $$
 $$        $$            $$          $$   $$ $  $$  $$$$$$$$        $$
 $$        $$            $$          $$   $$$   $$  $$    $$        $$
 $$    $$  $$            $$     $$   $$   $     $$  $$    $$  $$    $$
  $$$$$$   $$$$$$$$   $$$$$$$$   $$$      $ $$$$$   $$    $$   $$$$$$
```

CLIJOA5 JANDA 08/08/77 08.59.41 7600 JO

CLINTON TOWNSHIP

MILLER DRAIN

MULTIPLE PROFILE RUN

current profile

STA. I.D. # from 2270 → in Error
Correct sta. shown in "RED"

Note:
Apr 78
DHM
use preceding computer run
with attached profile

```
*********************************************
HEC2 VERSION UPDATED JAN 1976
ERROR CORRECTIONS 01,02,03,04,05,06,07,08,09
MODIFICATIONS 52,53,54,55,56,57,58
*********************************************


C
1        CLINTON TOWNSHIP - JOB NO. 5670-02   PROJECT MANAGER  WILLIAM C. ROSSOW
T2         10 YEAR FLOOD = 260
T3         MILLER DRAIN

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

        -1.        2.         0.         0.   0.000000       0.00       0.0        0.     581.100      0.000

J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

        1.000      0.000     -1.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000

J3      1.000     10.000     11.000     12.000     14.000      8.000      4.000      0.000      0.000      0.000
QT      4.000    260.000    380.000    430.000    590.000      0.000      0.000      0.000      0.000      0.000
NC      0.000      0.000      0.000       .100       .300      0.000      0.000      0.000      0.000      0.000
NH      5.000       .050    250.000       .090    259.000       .050    269.000       .090    280.000       .050
NH    520.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000

X1      0.000     16.000    250.000    280.000      0.000      0.000      0.000      0.000     -3.100      0.000
GR    593.100      0.000    591.600     50.000    589.400    150.000    586.800    200.000    585.000    250.000
GR    579.500    259.000    580.100    264.000    579.600    269.000    584.100    280.000    583.200    300.000
GR    585.000    350.000    590.500    427.000    590.400    450.000    590.800    461.000    590.900    488.000
GR    594.100    520.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
NH      5.000       .050    250.000       .090    259.000       .050    269.000       .090    280.000       .050
NH    520.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000

X1    850.000      0.000      0.000      0.000    850.000    850.000    850.000      0.000      3.100      0.000
NC      0.000      0.000      0.000       .500      1.000      0.000      0.000      0.000      0.000      0.000
NH      3.000       .050    886.000       .045    909.000       .050   2632.000      0.000      0.000      0.000

X1    989.000     55.000    942.500    967.000    200.000      0.000    139.000       .940      0.000      0.000
X3      0.000      0.000      0.000      0.000      0.000   1200.000      0.000      0.000      0.000      0.000
GR    596.000      0.000    595.500    100.000    595.100    200.000    594.900    300.000    594.800    400.000
GR    594.200    500.000    593.700    600.000    591.300    700.000    588.300    800.000    587.700    900.000
GR    587.800    942.500    586.100    942.500    583.600    944.000    582.600    945.000    581.000    950.000
GR    580.500    952.000    580.000    955.000    580.500    958.000    580.800    960.000    581.700    965.000
GR    586.100    967.000    587.700    967.000    588.100   1000.000    589.200   1100.000    591.000   1200.000
GR    590.900   1300.000    589.300   1400.000    587.600   1600.000    584.900   1800.000    585.500   1900.000
GR    587.000   1950.000    589.800   2000.000    587.000   2000.000    581.600   2002.000    580.700   2005.000
GR    580.000   2010.000    579.000   2015.000    576.500   2017.000    574.800   2020.000    574.400   2025.000
GR    575.000   2030.000    575.600   2035.000    575.900   2040.000    576.500   2045.000    579.800   2050.000
GR    582.400   2055.000    583.400   2058.000    589.900   2058.000    591.000   2100.000    593.300   2200.000
GR    596.200   2277.000    595.400   2300.000    596.700   2400.000    595.900   2600.000    595.200   2800.000
NC       .050       .050       .030      0.000      0.000      0.000      0.000      0.000      0.000      0.000

X1    990.000     55.000    942.500    967.000      1.000      1.000      1.000       .940      0.000      0.000
X2      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000       .940      0.000
X3      0.000      0.000      0.000      0.000      0.000   1200.000      0.000      0.000      0.000      0.000
BT     15.000    900.000    587.700      0.000    942.500    587.800    586.100    967.000    587.700    586.100
BT   1000.000    588.100    588.100   1100.000    589.200    589.200   1200.000    591.000    591.000   1300.000
BT    590.900    590.900   1400.000    589.300    589.300   1600.000    587.600    587.600   1800.000    584.900
BT    584.900   1900.000    585.500    585.500   1950.000    587.000    587.000   2000.000    589.800    586.900
BT   2058.000    589.900    586.900   2100.000    591.000      0.000      0.000      0.000      0.000      0.000
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GR	596.000	0.000	595.500	100.000	595.100	200.000	594.900	300.000	594.800	400.000
GR	594.200	500.000	593.700	600.000	591.300	700.000	588.300	800.000	587.700	900.000
GR	587.800	942.500	586.100	942.500	583.600	944.000	582.600	945.000	581.000	950.000
GR	580.500	952.000	580.000	955.000	580.500	958.000	580.800	960.000	581.700	965.000
GR	586.100	967.000	587.700	967.000	588.100	1000.000	589.200	1100.000	591.000	1200.000
GR	590.900	1300.000	589.300	1400.000	587.600	1600.000	584.900	1800.000	585.500	1900.000
GR	587.000	1950.000	589.800	2000.000	587.000	2000.000	581.600	2002.000	580.700	2005.000
GR	580.000	2010.000	579.000	2015.000	576.500	2017.000	574.800	2020.000	574.400	2025.000
GR	575.000	2030.000	575.600	2035.000	575.900	2040.000	576.500	2045.000	579.800	2050.000
GR	582.400	2055.000	583.400	2058.000	589.900	2058.000	591.000	2100.000	593.300	2200.000
GR	596.200	2277.000	595.400	2300.000	596.700	2400.000	595.900	2600.000	595.200	2800.000
X1	1010.000	55.000	942.500	967.000	20.000	20.000	20.000	.940	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.940	0.000
X3	0.000	0.000	0.000	0.000	0.000	1200.000	0.000	0.000	0.000	0.000
BT	15.000	900.000	587.700	0.000	942.500	587.800	586.100	967.000	587.700	586.100
BT	1000.000	588.100	588.100	1100.000	589.200	589.200	1200.000	591.000	591.000	1300.000
BT	590.900	590.900	1400.000	589.300	589.300	1600.000	587.600	587.600	1800.000	584.900
BT	584.900	1900.000	585.500	585.500	1950.000	587.000	587.000	2000.000	589.800	586.900
BT	2058.000	589.900	586.900	2100.000	591.000	0.000	0.000	0.000	0.000	0.000
GR	596.000	0.000	595.500	100.000	595.100	200.000	594.900	300.000	594.800	400.000
GR	594.200	500.000	593.700	600.000	591.300	700.000	588.300	800.000	587.700	900.000
GR	587.800	942.500	586.100	942.500	583.600	944.000	582.600	945.000	581.000	950.000
GR	580.500	952.000	580.000	955.000	580.500	958.000	580.800	960.000	581.700	965.000
GR	586.100	967.000	587.700	967.000	588.100	1000.000	589.200	1100.000	591.000	1200.000
GR	590.900	1300.000	589.300	1400.000	587.600	1600.000	584.900	1800.000	585.500	1900.000
GR	587.000	1950.000	589.800	2000.000	587.000	2000.000	581.600	2002.000	580.700	2005.000
GR	580.000	2010.000	579.000	2015.000	576.500	2017.000	574.800	2020.000	574.400	2025.000
GR	575.000	2030.000	575.600	2035.000	575.900	2040.000	576.500	2045.000	579.800	2050.000
GR	582.400	2055.000	583.400	2058.000	589.900	2058.000	591.000	2100.000	593.300	2200.000
GR	596.200	2277.000	595.400	2300.000	596.700	2400.000	595.900	2600.000	595.200	2800.000
NH	3.000	.050	886.000	.045	909.000	.050	2632.000	0.000	0.000	0.000
X1	1011.000	55.000	942.500	967.000	1.000	1.000	1.000	.940	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	1200.000	0.000	0.000	0.000	0.000
GR	596.000	0.000	595.500	100.000	595.100	200.000	594.900	300.000	594.800	400.000
GR	594.200	500.000	593.700	600.000	591.300	700.000	588.300	800.000	587.700	900.000
GR	587.800	942.500	586.100	942.500	583.600	944.000	582.600	945.000	581.000	950.000
GR	580.500	952.000	580.000	955.000	580.500	958.000	580.800	960.000	581.700	965.000
GR	586.100	967.000	587.700	967.000	588.100	1000.000	589.200	1100.000	591.000	1200.000
GR	590.900	1300.000	589.300	1400.000	587.600	1600.000	584.900	1800.000	585.500	1900.000
GR	587.000	1950.000	589.800	2000.000	587.000	2000.000	581.600	2002.000	580.700	2005.000
GR	580.000	2010.000	579.000	2015.000	576.500	2017.000	574.800	2020.000	574.400	2025.000
GR	575.000	2030.000	575.600	2035.000	575.900	2040.000	576.500	2045.000	579.800	2050.000
GR	582.400	2055.000	583.400	2058.000	589.900	2058.000	591.000	2100.000	593.300	2200.000
GR	596.200	2277.000	595.400	2300.000	596.700	2400.000	595.900	2600.000	595.200	2800.000
NH	5.000	.055	900.000	.090	908.000	.050	920.000	.090	927.000	.055
NH	1600.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	2111 ~~2270~~.000	23.000	900.000	927.000	1400.000	1259.000	1100.000	0.000	0.000	0.000
GR	597.200	0.000	597.300	100.000	597.100	200.000	596.400	300.000	596.500	405.000
GR	596.500	500.000	595.200	600.000	595.000	700.000	593.100	800.000	588.700	875.000
GR	587.400	900.000	583.100	908.000	582.600	915.000	583.100	920.000	586.800	927.000
GR	586.900	1000.000	589.400	1040.000	588.000	1100.000	592.000	1200.000	595.400	1300.000
GR	595.600	1400.000	595.700	1500.000	595.300	1600.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
NH	7.000	.035	400.000	.055	900.000	.090	910.000	.050	923.000	.095
NH	939.000	.050	1900.000	.095	2300.000	0.000	0.000	0.000	0.000	0.000
X1	3041 ~~3200~~.000	33.000	900.000	939.000	800.000	930.000	930.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	1100.000	0.000	0.000	0.000	0.000
GR	597.900	0.000	597.900	100.000	597.600	200.000	597.100	300.000	596.600	400.000
GR	596.200	500.000	596.500	583.000	595.700	603.000	594.300	700.000	590.000	800.000
GR	588.300	850.000	588.600	900.000	584.500	910.000	583.700	915.000	584.700	918.000
GR	584.400	923.000	587.200	939.000	587.500	974.000	592.100	1000.000	595.400	1028.000
GR	596.000	1100.000	595.800	1200.000	593.000	1300.000	593.900	1400.000	595.800	1500.000

GR	596.900	1600.000	595.700	1700.000	595.700	1800.000	596.900	1900.000	597.300	2000.000
GR	596.200	2100.000	596.500	2200.000	596.800	2300.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.400	.800	0.000	0.000	0.000	0.000	0.000
NH	5.000	.050	900.000	.090	930.000	.050	941.000	.090	974.000	.050
NH	1028.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	3503 ~~3662~~.000	20.000	930.000	941.000	462.000	462.000	462.000	0.000	0.000	0.000
GR	597.900	0.000	597.900	100.000	597.600	200.000	597.100	300.000	596.600	400.000
GR	596.200	500.000	596.500	583.000	595.700	603.000	594.300	700.000	590.000	800.000
GR	588.300	850.000	588.400	900.000	588.400	930.000	582.400	930.000	582.200	935.000
GR	582.400	941.000	588.400	941.000	588.400	974.000	592.100	1000.000	595.400	1028.000
NC	.060	.085	.051	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	3504 ~~3663~~.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	9.000	700.000	594.300	0.000	800.000	590.000	0.000	850.000	588.300	0.000
BT	900.000	588.400	0.000	930.000	588.400	587.300	941.000	588.400	587.300	974.000
BT	588.400	0.000	1000.000	592.100	0.000	1028.000	595.400	0.000	0.000	0.000
X1	3516 ~~3675~~.000	0.000	0.000	0.000	12.000	12.000	12.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NH	5.000	.050	900.000	.090	930.000	.050	941.000	.090	974.000	.050
NH	1028.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	3517 ~~3676~~.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
NH	3.000	.095	200.000	.050	228.000	.095	700.000	0.000	0.000	0.000
ET	0.000	6.100	6.100	6.100	8.100	190.000	233.000	1.000	560.000	0.000
X1	4641 ~~4800~~.000	15.000	200.000	228.000	1074.000	1074.000	1124.000	0.000	0.000	0.000
GR	596.200	0.000	595.100	72.000	594.300	86.000	594.300	105.000	593.500	115.000
GR	588.900	200.000	586.300	203.000	584.800	211.000	585.500	221.000	589.800	228.000
GR	590.400	300.000	593.900	400.000	596.300	500.000	597.500	600.000	597.800	700.000
QT	4.000	245.000	360.000	410.000	560.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	6.100	6.100	6.100	8.100	900.000	922.000	1.000	1900.000	0.000
NC	.095	.095	.050	.500	1.000	0.000	0.000	0.000	0.000	0.000
X1	4575 ~~4892~~.000	31.000	900.000	922.000	34.000	34.000	34.000	.985	0.000	0.000
GR	597.700	0.000	597.600	100.000	597.300	200.000	597.100	300.000	596.500	400.000
GR	596.700	500.000	597.000	600.000	595.500	700.000	595.100	772.000	594.300	786.000
GR	594.300	805.000	593.500	815.000	590.000	897.500	588.900	900.000	586.200	905.000
GR	585.700	910.000	585.100	914.000	585.500	918.000	588.600	922.000	589.800	922.000
GR	589.800	922.500	590.400	1000.000	593.900	1100.000	596.300	1200.000	597.500	1300.000
GR	597.800	1400.000	598.400	1500.000	598.000	1600.000	597.700	1700.000	597.300	1800.000
GR	596.900	1900.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	2.000	2.950	0.000	22.000	0.000	123.600	0.000	585.100	585.100
ET	0.000	6.100	6.100	6.100	8.100	900.000	922.000	1.000	1900.000	0.000
NC	.055	.055	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	4701 4926.000	31.000	900.000	922.000	36.000	36.000	36.000	.985	0.000	0.000
X2	0.000	0.000	1.000	592.000	594.600	0.000	0.000	0.000	.985	0.000
BT	29.000	0.000	597.700	0.000	100.000	597.600	0.000	200.000	597.300	0.000
BT	300.000	597.100	0.000	400.000	596.500	0.000	500.000	596.700	0.000	600.000
BT	597.000	0.000	700.000	595.500	0.000	772.000	595.100	0.000	805.000	594.900
BT	0.000	897.500	594.600	0.000	897.500	595.500	0.000	900.000	595.500	588.900
BT	900.000	595.500	592.000	922.000	595.500	592.000	922.000	595.500	589.800	922.500
BT	595.500	0.000	922.500	594.600	0.000	1000.000	594.700	0.000	1100.000	595.500
BT	0.000	1123.000	595.400	0.000	1200.000	597.100	0.000	1300.000	598.000	0.000
BT	1400.000	598.200	0.000	1500.000	598.400	0.000	1600.000	598.000	0.000	1700.000
BT	597.700	0.000	1800.000	597.300	0.000	1900.000	596.900	0.000	0.000	0.000
GR	597.700	0.000	597.600	100.000	597.300	200.000	597.100	300.000	596.500	400.000
GR	596.700	500.000	597.000	600.000	595.500	700.000	595.100	772.000	594.300	786.000
GR	594.300	805.000	593.500	815.000	590.000	897.500	588.900	900.000	586.200	905.000
GR	585.700	910.000	585.100	914.000	585.500	918.000	588.600	922.000	589.800	922.000
GR	589.800	922.500	590.400	1000.000	593.900	1100.000	596.300	1200.000	597.500	1300.000
GR	597.800	1400.000	598.400	1500.000	598.000	1600.000	597.700	1700.000	597.300	1800.000
GR	596.900	1900.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	3.000	.055	200.000	.050	228.000	.055	700.000	0.000	0.000	0.000

X1	4800 ~~5101~~.000	15.000	200.000	228.000	175.000	175.000	175.000	0.000	.270	0.000
GR	596.200	0.000	595.100	72.000	594.300	86.000	594.300	105.000	593.500	115.000
GR	588.900	200.000	586.300	203.000	584.800	211.000	585.500	221.000	589.800	228.000
GR	590.400	300.000	593.900	400.000	596.300	500.000	597.500	600.000	597.800	700.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
NH	3.000	.055	1000.000	.050	1049.000	.055	2000.000	0.000	0.000	0.000
X1	6395 ~~6610~~.000	30.000	1000.000	1049.000	1407.000	1407.000	1509.000	0.000	0.000	0.000
GR	598.100	0.000	597.400	100.000	596.900	200.000	596.900	300.000	596.500	400.000
GR	596.000	500.000	596.100	600.000	597.200	700.000	597.000	800.000	597.100	852.000
GR	594.800	900.000	592.300	1000.000	586.200	1020.000	585.600	1022.000	585.000	1026.000
GR	584.800	1029.000	585.800	1033.000	592.000	1049.000	593.400	1100.000	595.500	1200.000
GR	596.000	1234.000	597.000	1259.000	597.000	1300.000	596.400	1400.000	595.900	1500.000
GR	596.700	1600.000	596.600	1700.000	597.600	1800.000	597.300	1900.000	598.100	2000.000
→ QT	4.000	180.000	265.000	300.000	415.000	0.000	0.000	0.000	0.000	0.000
NH	3.000	.055	700.000	.050	753.000	.055	1400.000	0.000	0.000	0.000
X1	8395 ~~8510~~.000	20.000	700.000	753.000	1500.000	1800.000	1900.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	660.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	598.300	0.000	598.700	100.000	597.700	200.000	597.200	300.000	597.000	400.000
GR	596.200	500.000	595.900	600.000	596.700	660.000	594.200	700.000	587.100	720.000
GR	586.200	727.000	586.900	734.000	593.900	753.000	595.600	800.000	595.000	900.000
GR	595.300	1000.000	596.100	1100.000	596.800	1200.000	597.400	1300.000	599.500	1400.000
NH	3.000	.040	1000.000	.045	1060.000	.050	1687.000	0.000	0.000	0.000
X1	10025 ~~10220~~.000	24.000	1000.000	1060.000	1500.000	1200.000	1710.000	0.000	0.000	0.000
GR	599.500	0.000	599.600	100.000	598.900	200.000	598.800	300.000	598.100	400.000
GR	598.200	500.000	599.200	600.000	598.500	700.000	597.500	800.000	596.000	900.000
GR	596.000	960.000	594.800	1000.000	588.100	1020.000	587.600	1023.000	586.600	1029.000
GR	587.600	1040.000	595.400	1060.000	597.000	1100.000	596.700	1200.000	595.800	1300.000
GR	596.500	1400.000	596.400	1500.000	597.800	1600.000	599.700	1687.000	0.000	0.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

SUMMARY PRINTOUT FOR MULTIPLE PROFILES

MILLER DRAIN

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	HV	HL	OLOSS	QCH	DEPTH	TOPWID
0.00	0.00	0.00	0.00	576.40	260.00	581.10	.10	0.00	0.00	235.73	4.70	76.47
0.00	0.00	0.00	0.00	576.40	380.00	583.10	.02	0.00	0.00	202.70	6.70	150.13
0.00	0.00	0.00	0.00	576.40	430.00	584.20	.01	0.00	0.00	175.89	7.80	191.82
0.00	0.00	0.00	0.00	576.40	590.00	587.00	.00	0.00	0.00	146.13	10.60	303.22
850.00	850.00	0.00	0.00	579.50	260.00	583.81	.16	2.75	.02	252.11	4.31	57.50
850.00	850.00	0.00	0.00	579.50	380.00	583.85	.33	.97	.09	365.72	4.35	60.68
850.00	850.00	0.00	0.00	579.50	430.00	584.49	.20	.42	.06	364.21	4.99	84.95
850.00	850.00	0.00	0.00	579.50	590.00	587.06	.03	.07	.01	255.34	7.56	183.75
989.00	139.00	0.00	0.00	580.00	260.00	584.30	.25	.49	.08	260.00	4.30	21.24
989.00	139.00	0.00	0.00	580.00	380.00	584.68	.42	.83	.09	380.00	4.68	21.62
989.00	139.00	0.00	0.00	580.00	430.00	585.06	.43	.58	.23	430.00	5.06	22.00
989.00	139.00	0.00	0.00	580.00	590.00	587.14	.32	.08	.30	590.00	7.14	23.03
990.00	1.00	584.90	591.00	580.00	260.00	584.30	.25	.00	.00	260.00	4.30	21.25
990.00	1.00	584.90	591.00	580.00	380.00	584.69	.42	.00	.00	380.00	4.69	21.63
990.00	1.00	584.90	591.00	580.00	430.00	585.07	.43	.00	.00	430.00	5.07	22.01
990.00	1.00	584.90	591.00	580.00	590.00	587.14	.49	.00	.17	590.00	7.14	23.03
1010.00	20.00	584.90	591.00	580.00	260.00	584.35	.24	.03	.00	260.00	4.35	21.30
1010.00	20.00	584.90	591.00	580.00	380.00	584.76	.40	.05	.01	380.00	4.76	21.70
1010.00	20.00	584.90	591.00	580.00	430.00	585.14	.41	.05	.01	430.00	5.14	22.07
1010.00	20.00	584.90	591.00	580.00	590.00	587.24	.49	.10	.00	590.00	7.24	23.03
1011.00	1.00	0.00	0.00	580.00	260.00	584.35	.24	.00	.00	260.00	4.35	21.30
1011.00	1.00	0.00	0.00	580.00	380.00	584.77	.40	.00	.00	380.00	4.77	21.70
1011.00	1.00	0.00	0.00	580.00	430.00	585.14	.41	.00	.00	430.00	5.14	22.07
1011.00	1.00	0.00	0.00	580.00	590.00	587.56	.28	.00	.10	590.00	7.56	23.03
2270.00	1100.00	0.00	0.00	582.60	260.00	587.30	.11	2.75	.07	235.85	4.70	106.14
2270.00	1100.00	0.00	0.00	582.60	380.00	588.00	.08	2.76	.16	271.45	5.40	129.57
2270.00	1100.00	0.00	0.00	582.60	430.00	588.23	.07	2.57	.17	284.40	5.63	153.17
2270.00	1100.00	0.00	0.00	582.60	590.00	589.16	.04	1.25	.12	282.79	6.56	248.29
3200.00	930.00	0.00	0.00	583.70	260.00	588.67	.04	1.29	.01	202.11	4.97	141.36
3200.00	930.00	0.00	0.00	583.70	380.00	589.18	.04	1.13	.00	252.34	5.48	159.71
3200.00	930.00	0.00	0.00	583.70	430.00	589.36	.04	1.10	.00	270.91	5.66	165.89
3200.00	930.00	0.00	0.00	583.70	590.00	589.93	.04	.77	.00	317.45	6.23	185.76
3662.00	462.00	0.00	0.00	582.20	260.00	589.19	.07	.53	.03	184.30	6.99	155.74
3662.00	462.00	0.00	0.00	582.20	380.00	589.70	.06	.52	.02	203.80	7.50	174.28
3662.00	462.00	0.00	0.00	582.20	430.00	589.88	.06	.52	.01	210.43	7.68	180.71
3662.00	462.00	0.00	0.00	582.20	590.00	590.40	.05	.47	.01	222.57	8.20	197.31
3663.00	1.00	588.30	587.30	582.20	260.00	589.22	.05	.00	.01	136.18	7.02	156.91
3663.00	1.00	588.30	587.30	582.20	380.00	589.73	.04	.00	.01	135.10	7.53	175.41
3663.00	1.00	588.30	587.30	582.20	430.00	589.90	.04	.00	.01	136.39	7.70	181.76
3663.00	1.00	588.30	587.30	582.20	590.00	590.42	.04	.00	.01	139.10	8.22	197.61

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	HV	HL	OLOSS	QCH	DEPTH	TOPWID
3675.00	12.00	588.30	587.30	582.20	260.00	589.27	.04	.04	.00	132.20	7.07	158.19
3675.00	12.00	588.30	587.30	582.20	380.00	589.76	.04	.03	.00	133.03	7.56	176.24
3675.00	12.00	588.30	587.30	582.20	430.00	589.93	.04	.03	.00	134.56	7.73	182.54
3675.00	12.00	588.30	587.30	582.20	590.00	590.44	.04	.02	.00	137.26	8.24	198.38
3676.00	1.00	0.00	0.00	582.20	260.00	589.26	.06	.00	.01	177.20	7.06	158.31
3676.00	1.00	0.00	0.00	582.20	380.00	589.76	.05	.00	.01	197.86	7.56	176.33
3676.00	1.00	0.00	0.00	582.20	430.00	589.93	.05	.00	.01	204.89	7.73	182.63
3676.00	1.00	0.00	0.00	582.20	590.00	590.44	.05	.00	.01	218.77	8.24	198.43
4800.00	1124.00	0.00	0.00	584.80	260.00	590.33	.07	1.07	.01	253.76	5.53	43.00
4800.00	1124.00	0.00	0.00	584.80	380.00	590.97	.11	1.22	.04	363.66	6.17	43.00
4800.00	1124.00	0.00	0.00	584.80	430.00	591.19	.12	1.28	.06	408.90	6.39	43.00
4800.00	1124.00	0.00	0.00	584.80	590.00	591.63	.11	1.21	.05	463.07	6.83	185.59
4892.00	34.00	0.00	0.00	585.10	245.00	590.36	.12	.04	.05	245.00	5.26	21.67
4892.00	34.00	0.00	0.00	585.10	360.00	591.02	.19	.05	.08	360.00	5.92	21.67
4892.00	34.00	0.00	0.00	585.10	410.00	591.25	.23	.05	.10	410.00	6.15	21.67
4892.00	34.00	0.00	0.00	585.10	560.00	591.68	.15	.05	.04	414.54	6.58	175.66
4926.00	36.00	594.60	592.00	585.10	245.00	590.43	.13	.06	.01	245.00	5.33	21.67
4926.00	36.00	594.60	592.00	585.10	360.00	591.11	.21	.09	.01	360.00	6.01	21.67
4926.00	36.00	594.60	592.00	585.10	410.00	591.35	.24	.10	.02	410.00	6.25	21.67
4926.00	36.00	594.60	592.00	585.10	560.00	591.77	.39	.09	.24	559.20	6.67	180.68
5101.00	175.00	0.00	0.00	585.07	245.00	590.70	.05	.16	.04	225.96	5.63	129.25
5101.00	175.00	0.00	0.00	585.07	360.00	591.51	.04	.16	.08	270.78	6.44	167.56
5101.00	175.00	0.00	0.00	585.07	410.00	591.81	.04	.16	.10	284.54	6.74	181.64
5101.00	175.00	0.00	0.00	585.07	560.00	592.46	.04	.16	.18	329.16	7.39	211.82
6610.00	1509.00	0.00	0.00	584.80	245.00	591.41	.03	.69	.00	245.00	6.61	44.58
6610.00	1509.00	0.00	0.00	584.80	360.00	592.21	.05	.71	.00	359.89	7.41	56.43
6610.00	1509.00	0.00	0.00	584.80	410.00	592.49	.06	.70	.00	408.85	7.69	74.66
6610.00	1509.00	0.00	0.00	584.80	560.00	593.15	.07	.71	.01	543.85	8.35	124.74
8510.00	1900.00	0.00	0.00	586.20	180.00	592.06	.02	.63	.00	180.00	5.86	41.96
8510.00	1900.00	0.00	0.00	586.20	265.00	592.98	.03	.75	.00	265.00	6.78	47.08
8510.00	1900.00	0.00	0.00	586.20	300.00	593.31	.03	.79	.00	300.00	7.11	48.86
8510.00	1900.00	0.00	0.00	586.20	415.00	594.10	.04	.92	.00	414.94	7.90	58.11
10220.00	1710.00	0.00	0.00	586.60	180.00	592.44	.02	.38	.00	180.00	5.84	45.35
10220.00	1710.00	0.00	0.00	586.60	265.00	593.40	.02	.42	.00	265.00	6.80	50.71
10220.00	1710.00	0.00	0.00	586.60	300.00	593.74	.03	.43	.00	300.00	7.14	52.59
10220.00	1710.00	0.00	0.00	586.60	415.00	594.60	.04	.50	.00	415.00	8.00	57.37

SECTION NUMBER	DISCHARGE CFS	CWSEL	CWSEL DIFF EACH Q	CWSEL DIFF EACH SECTION	CWSEL-WSELK	TOPWID	T.W. DIFF	LENGTH
0.000	260.000	581.100	0.000	0.000	0.000	76.469	0.000	0.000
0.000	380.000	583.100	2.000	0.000	0.000	150.133	-73.665	0.000
0.000	430.000	584.200	1.100	0.000	0.000	191.815	-115.347	0.000
0.000	590.000	587.000	2.800	0.000	0.000	303.218	-226.749	0.000
850.000	260.000	583.806	0.000	2.706	0.000	57.499	0.000	850.000
850.000	380.000	583.853	.047	.753	0.000	60.685	-3.186	850.000
850.000	430.000	584.487	.634	.287	0.000	84.950	-27.451	850.000
850.000	590.000	587.057	2.571	.057	0.000	183.754	-126.255	850.000
989.000	260.000	584.298	0.000	.492	0.000	21.244	0.000	139.000
989.000	380.000	584.683	.384	.830	0.000	21.621	-.378	139.000
989.000	430.000	585.064	.381	.577	0.000	22.001	-.757	139.000
989.000	590.000	587.140	2.077	.083	0.000	23.030	-1.786	139.000

990.000	260.000	584.301	0.000	.003	0.000	21.247	0.000	1.000
990.000	380.000	584.688	.387	.006	0.000	21.628	-.381	1.000
990.000	430.000	585.068	.380	.005	0.000	22.005	-.758	1.000
990.000	590.000	587.143	2.075	.003	0.000	23.030	-1.783	1.000
1010.000	260.000	584.347	0.000	.045	0.000	21.295	0.000	20.000
1010.000	380.000	584.765	.418	.077	0.000	21.700	-.404	20.000
1010.000	430.000	585.139	.374	.070	0.000	22.072	-.776	20.000
1010.000	590.000	587.243	2.104	.100	0.000	23.030	-1.735	20.000
1011.000	260.000	584.349	0.000	.003	0.000	21.297	0.000	1.000
1011.000	380.000	584.769	.420	.004	0.000	21.702	-.405	1.000
1011.000	430.000	585.143	.374	.004	0.000	22.074	-.777	1.000
1011.000	590.000	587.559	2.417	.316	0.000	23.030	-1.733	1.000
2270.000	260.000	587.296	0.000	2.946	0.000	106.141	0.000	1100.000
2270.000	380.000	588.004	.709	3.235	0.000	129.571	-23.430	1100.000
2270.000	430.000	588.227	.223	3.084	0.000	153.166	-47.025	1100.000
2270.000	590.000	589.165	.938	1.605	0.000	248.290	-142.149	1100.000
3200.000	260.000	588.666	0.000	1.370	0.000	141.363	0.000	930.000
3200.000	380.000	589.183	.517	1.178	0.000	159.714	-18.351	930.000
3200.000	430.000	589.361	.179	1.134	0.000	165.887	-24.524	930.000
3200.000	590.000	589.934	.572	.769	0.000	185.758	-44.395	930.000
3662.000	260.000	589.191	0.000	.525	0.000	155.736	0.000	462.000
3662.000	380.000	589.699	.508	.516	0.000	174.278	-18.542	462.000
3662.000	430.000	589.876	.176	.514	0.000	180.707	-24.971	462.000
3662.000	590.000	590.399	.523	.465	0.000	197.311	-41.575	462.000
3663.000	260.000	589.222	0.000	.031	0.000	156.906	0.000	1.000
3663.000	380.000	589.730	.508	.031	0.000	175.410	-18.504	1.000
3663.000	430.000	589.904	.174	.029	0.000	181.756	-24.850	1.000
3663.000	590.000	590.418	.513	.019	0.000	197.610	-40.704	1.000
3675.000	260.000	589.265	0.000	.043	0.000	158.193	0.000	12.000
3675.000	380.000	589.761	.496	.031	0.000	176.239	-18.046	12.000
3675.000	430.000	589.933	.172	.029	0.000	182.544	-24.351	12.000
3675.000	590.000	590.441	.508	.023	0.000	198.379	-40.186	12.000
3676.000	260.000	589.264	0.000	-.001	0.000	158.310	0.000	1.000
3676.000	380.000	589.759	.495	-.002	0.000	176.327	-18.017	1.000
3676.000	430.000	589.931	.172	-.002	0.000	182.626	-24.317	1.000
3676.000	590.000	590.440	.509	-.001	0.000	198.434	-40.125	1.000
4800.000	260.000	590.327	0.000	1.063	0.000	42.999	0.000	1124.000
4800.000	380.000	590.970	.644	1.211	0.000	42.999	-.000	1124.000
4800.000	430.000	591.195	.224	1.264	0.000	42.999	-.000	1124.000
4800.000	590.000	591.633	.438	1.193	0.000	185.587	-142.588	1124.000
4892.000	245.000	590.364	0.000	.037	0.000	21.669	0.000	34.000
4892.000	360.000	591.019	.656	.049	0.000	21.669	-.000	34.000
4892.000	410.000	591.249	.230	.054	0.000	21.669	-.000	34.000
4892.000	560.000	591.680	.431	.047	0.000	175.664	-153.995	34.000
4926.000	245.000	590.426	0.000	.062	0.000	21.669	0.000	36.000
4926.000	360.000	591.105	.679	.086	0.000	21.669	-.000	36.000
4926.000	410.000	591.345	.240	.097	0.000	21.669	-.000	36.000
4926.000	560.000	591.771	.426	.091	0.000	180.685	-159.016	36.000
5101.000	245.000	590.703	0.000	.277	0.000	129.248	0.000	175.000
5101.000	360.000	591.509	.807	.404	0.000	167.555	-38.307	175.000
5101.000	410.000	591.807	.298	.462	0.000	181.639	-52.391	175.000
5101.000	560.000	592.458	.650	.686	0.000	211.816	-82.567	175.000

6610.000	245.000	591.413	0.000	.711	0.000	44.580	0.000	1509.000
6610.000	360.000	592.212	.798	.702	0.000	56.426	-11.846	1509.000
6610.000	410.000	592.493	.281	.685	0.000	74.656	-30.076	1509.000
6610.000	560.000	593.148	.655	.690	0.000	124.741	-80.161	1509.000
8510.000	180.000	592.058	0.000	.645	0.000	41.964	0.000	1900.000
8510.000	265.000	592.983	.925	.771	0.000	47.081	-5.117	1900.000
8510.000	300.000	593.306	.323	.814	0.000	48.861	-6.896	1900.000
8510.000	415.000	594.096	.789	.948	0.000	58.110	-16.145	1900.000
10220.000	180.000	592.438	0.000	.380	0.000	45.352	0.000	1710.000
10220.000	265.000	593.404	.966	.421	0.000	50.714	-5.362	1710.000
10220.000	300.000	593.743	.339	.437	0.000	52.593	-7.241	1710.000
10220.000	415.000	594.604	.861	.508	0.000	57.371	-12.019	1710.000

DATA FOR LAST CROSS SECTION

PROFILE	TYPE ENC	TARGET	TOP WIDTH AREA-ACRES	TOP WIDTH AREA-DIFF
1	1.000	0.000	16.671	0.000
2	1.000	0.000	20.072	3.401
3	1.000	0.000	22.533	5.862
4	1.000	0.000	32.761	16.091

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HEC2 VERSION UPDATED JAN 1976
ERROR CORRECTIONS 01,02,03,04,05,06,07,08,09
MODIFICATIONS 52,53,54,55,56,57,58
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T1      CLINTON TOWNSHIP - JOB NO. 5670-02   PROJECT MANAGER  WILLIAM C. ROSSOW
T2      100 YEAR FLOOD = 430
T3      MILLER DRAIN
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J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-1.	4.	0.	0.	0.000000	0.00	0.0	0.	584.200	0.000
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	3.000	0.000	-1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

CCHV= .100 CEHV= .300
1490 NH CARD USED

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

0.00	7.80	584.20	0.00	584.20	584.21	.01	0.00	0.00	581.90
430.	35.	176.	219.	72.	180.	270.	0.	0.	581.00
0.00	.48	.98	.81	.050	.065	.050	0.000	576.40	190.38
.000173	0.	0.	0.	0	0	1	0.00	191.82	382.20

1490 NH CARD USED

VALLEY SECTION A 118

850.00	4.99	584.49	0.00	0.00	584.68	.20	.42	.06	585.00
430.	0.	364.	66.	0.	96.	40.	6.	3.	584.10
.07	0.00	3.79	1.65	.050	.061	.050	.000	579.50	250.84
.004761	850.	850.	850.	2	0	1	0.00	84.95	335.79

CCHV= .500 CEHV= 1.000
1490 NH CARD USED

3470 ENCROACHMENT STATIONS= .0 1128.0 TYPE= 1 TARGET= 1199.999

989.00	5.06	585.06	0.00	0.00	585.49	.43	.58	.23	587.80
430.	0.	430.	0.	0.	82.	0.	7.	3.	587.70
.07	0.00	5.27	0.00	.050	.045	.050	.000	580.00	886.54
.004249	200.	139.	0.	2	0	1	0.00	22.00	908.54

NORMAL BRIDGE,NRD=15 MIN ELTRD= 584.90 MAX ELLC= 591.00

3470 ENCROACHMENT STATIONS= .0 1128.0 TYPE= 1 TARGET= 1199.999

990.00	5.07	585.07	0.00	0.00	585.50	.43	.00	.00	587.80
430.	0.	430.	0.	0.	82.	0.	7.	3.	587.70
.07	0.00	5.26	0.00	.050	.030	.050	.000	580.00	886.53
.002454	1.	1.	1.	0	0	1	0.00	22.01	908.54

NORMAL BRIDGE,NRD=15 MIN ELTRD= 584.90 MAX ELLC= 591.00

3470 ENCROACHMENT STATIONS= .0 1128.0 TYPE= 1 TARGET= 1199.999

BRIDGE SECTION B HEYDENREICH ROAD UPSTREAM FACE 111

1010.00	5.14	585.14	0.00	0.00	585.55	.41	.05	.01	587.80
430.	0.	430.	0.	0.	83.	0.	7.	3.	587.70
.08	0.00	5.17	0.00	.050	.030	.050	.001	580.00	886.50
.002329	20.	20.	20.	0	0	1	0.00	22.07	908.57

1490 NH CARD USED

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT

```
    TIME       VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE      XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 3470 ENCROACHMENT STATIONS=          .0      1128.0  TYPE=      1  TARGET=     1199.999
    1011.00      5.14    585.14      0.00      0.00    585.56       .41       .00       .00    587.80
       430.        0.      430.        0.        0.       83.        0.        7.        3.    587.70
        .08      0.00      5.16      0.00      .050      .045      .050      .001    580.00    886.49
    .004000        1.        1.        1.         0         0         1      0.00     22.07    908.57

 1490 NH CARD USED

 3265 DIVIDED FLOW

                  VALLEY SECTION C                                                   119
   2111
   ~~2270.00~~   5.63    588.23      0.00      0.00    588.30       .07      2.57       .17    587.40
       430.        4.      284.      142.        7.      111.      117.       11.        5.    586.80
        .23       .58      2.55      1.21      .055      .058      .055      .016    582.60    883.98
    .001475     1400.     1100.     1259.         3         0         1      0.00    153.17   1105.83

 CCHV=      .100 CEHV=      .300
 1490 NH CARD USED

 3470 ENCROACHMENT STATIONS=          .0      1100.0  TYPE=      1  TARGET=     1099.999

                  VALLEY SECTION D                                                   120
   3041
   ~~3200.00~~   5.66    589.36      0.00      0.00    589.40       .04      1.10       .00    588.60
       430.       46.      271.      113.       62.      151.       80.       17.        9.    587.20
        .39       .73      1.79      1.41      .055      .065      .050      .020    583.70    818.66
    .000979      800.      930.      930.         3         0         1      0.00    165.89    984.54

 CCHV=      .400 CEHV=      .800
 1490 NH CARD USED
   ~~3662.00~~   7.68    589.88      0.00      0.00    589.93       .06       .52       .01    588.40
 3503  430.      175.      210.       44.      157.       83.       56.       20.       10.    588.40
        .46      1.12      2.53       .78      .058      .050      .084      .021    582.20    803.66
    .001295      462.      462.      462.         2         0         1      0.00    180.71    984.37

 *
 NORMAL BRIDGE,NRD= 9 MIN ELTRD=   588.30 MAX ELLC=   587.30              * Footbridge not
   3504                                                                   included / initial submittal
   ~~3663.00~~   7.70    589.90      0.00      0.00    589.94       .04       .00       .01    588.40
       430.      233.      136.       60.      161.       72.       58.       20.       10.    588.40
        .46      1.45      1.91      1.05      .060      .051      .085      .021    582.20    802.81
    .002307        1.        1.        1.         2         0         1    -12.10    181.76    984.57

 D/H = 1.6/1.68 = 952 => high submergence
 NORMAL BRIDGE,NRD= 9 MIN ELTRD=   588.30 MAX ELLC=   587.30
   3516
   ~~3675.00~~   7.73    589.93      0.00      0.00    589.97       .04       .03       .00    588.40
       430.      235.      135.       61.      163.       72.       59.       20.       10.    588.40
        .46      1.44      1.87      1.03      .060      .051      .085      .022    582.20    802.18
    .002221       12.       12.       12.         0         0         1    -12.10    182.54    984.72

   3517
 1490 NH CARD USED
   ~~3676.00~~   7.73    589.93      0.00      0.00    589.98       .05       .00       .01    588.40
```

```
    430.     180.     205.      45.     164.      84.      59.      20.      10.    588.40
     .46     1.10     2.44      .77     .058     .050     .084     .022   582.20   802.11
 .001199       1.       1.       1.        0        0        1     0.00   182.63   984.74

 1490 NH CARD USED
  SECNO    DEPTH    CWSEL    CRIWS    WSELK       EG       HV       HL    OLOSS  BANK ELEV
      Q     QLOB      QCH     QROB     ALOB      ACH     AROB      VOL      TWA  LEFT/RIGHT
   TIME     VLOB      VCH     VROB      XNL     XNCH      XNR      WTN    ELMIN      SSTA
  SLOPE    XLOBL     XLCH    XLOBR   ITRIAL      IDC    ICONT    CORAR   TOPWID     ENDST

 3470 ENCROACHMENT STATIONS=      190.0      233.0  TYPE=      1  TARGET=        43.000

                VALLEY SECTION E                                              121
  4641
 ~~4800.00~~     6.39   591.19     0.00     0.00   591.32      .12     1.28      .06    588.90  * Δ W.S. = (591.19 - 591.04) = .15'
    430.      17.     409.       4.      20.     141.       7.      26.      13.    589.80  with structure included
     .57      .83     2.90      .64     .095     .050     .095     .029   584.80    190.00
 .001107    1074.    1124.    1074.        2        0        1     0.00    43.00    233.00

 CCHV=     .500 CEHV=    1.000
 4675
 3470 ENCROACHMENT STATIONS=      886.5      908.2  TYPE=      1  TARGET=        22.000
 ~~4892.00~~     6.15   591.25     0.00     0.00   591.48      .23      .05      .10    588.90
    410.       0.     410.       0.       0.     107.       0.      26.      13. 100000.00
     .58      .01     3.82     0.00     .095     .050     .095     .029   585.10    886.50
 .002516      34.      34.      34.        2        0        1     0.00    21.67    908.17

 SPECIAL BRIDGE

 SB  XK        XKOR      COFQ      RDLEN      BWC       BWP      BAREA      SS      ELCHU      ELCHD
     0.00      2.00      2.95      0.00     22.00      0.00    123.60     0.00    585.10     585.10

 6070,LOW FLOW BY NORMAL BRIDGE

 EGPRS=     0.000  EGLWC=    591.475  ELLC=    592.000  PCWSE=    591.249  ELTRD=    594.600

 NORMAL BRIDGE,NRD=29 MIN ELTRD=   594.60 MAX ELLC=   592.00
  4711
 3470 ENCROACHMENT STATIONS=      886.5      908.2  TYPE=      1  TARGET=        22.000
 ~~4926.00~~     6.25   591.35     0.00     0.00   591.59      .24      .10      .02    588.90
    410.       0.     410.       0.       0.     103.       0.      26.      13. 100000.00   Ap = 117.09
     .58     0.00     3.96     0.00     .055     .050     .055     .029   585.10    886.50
 .002864      36.      36.      36.        2        0        1    -6.02    21.67    908.17
 4886
 1490 NH CARD USED
 ~~5101.00~~     6.74   591.81     0.00     0.00   591.85      .04      .16      .10    589.17
    410.      44.     285.      82.      65.     151.     123.      27.      14.    590.07
     .61      .67     1.88      .67     .055     .050     .055     .030   585.07    151.11
 .000430     175.     175.     175.        0        0        1     0.00   181.64    332.74

 CCHV=     .100 CEHV=     .300
 1490 NH CARD USED
 ~~6610.00~~     7.69   592.49     0.00     0.00   592.55      .06      .70      .00    592.30
 6395 410.      0.     409.       1.       1.     216.       4.      36.      18.    592.00
     .83      .13     1.89      .24     .055     .050     .055     .035   584.80    992.29
 .000507    1407.    1509.    1407.        3        0        1     0.00    74.66   1066.95
```

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 660.0 1400.0 TYPE= 1 TARGET= -660.000

8295 8510.00	7.11	593.31	0.00	0.00	593.34	.03	.79	.00	594.20
300.	0.	300.	0.	0.	204.	0.	46.	21.	593.90
1.19	0.00	1.47	0.00	.055	.050	.055	.038	586.20	702.52
.000326	1500.	1900.	1800.	0	0	1	0.00	48.86	751.38

10005

1490 NH CARD USED

~~10220.00~~	7.14	593.74	0.00	0.00	593.77	.03	.43	.00	594.80
300.	0.	300.	0.	0.	226.	0.	54.	23.	595.40
1.55	0.00	1.32	0.00	.055	.045	.055	.040	586.60	1003.16
.000199	1500.	1710.	1200.	2	0	1	0.00	52.59	1055.75

100-yr Middle Branch @ 594.12

⇒ controlling floodplain is Middle Branch through this area

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Clinton Twp.

Muller Drain
N. Br. Clinton River

3) WATERCOURSE: Middle Br. Clinton River

4) DOCUMENT TYPE: Analysis

00BREAK00

5/94

Federal Emergency Management Agency

Clinton Township
Flood Insurance Study
Hydraulic Analyses Report
Contract No. EMW-91-C-3361

Clinton Township, Michigan

RECEIVED

APR 14 1994

Natural Resources
Land & Water Management

March 31, 1994

Mr. Bruce Menerey
Land & Water Management Division
Michigan Department of Natural Resources
P.O. Box 30028
Lansing, Michigan 48909

RE: Clinton Township Flood Insurance Study
Hydraulic Analyses Report

Dear Mr. Menerey:

Enclosed is the Hydraulic Analyses Report for the Clinton Township Flood Insurance Study (FIS). Clinton Township is located in Macomb County, Michigan. This report was generated for the Federal Emergency Management Agency (FEMA) as part of the National Flood Insurance Program (Contract No. EMW-91-C-3361).

The enclosed report summarizes the technical analyses which were performed to assess flooding conditions in Clinton Township. These analyses included the estimation of flood plain elevations and limits, and floodway location for the Miller Drain, and Middle Branch and North Branch of the Clinton River.

Your review of this report is requested Upon receipt of approval of the results presented in this report, STS will proceed with finalizing the FIS for Clinton Township. If you have any questions regarding the enclosed report, please contact us at (517) 321-4964.

Sincerely,

STS CONSULTANTS, LTD.

Bernard B. Sheff, P.E.
Principal Engineer
Vice President

BBS/lch

lch.water
clinton township hydraulic

STS Consultants Ltd.
Consulting Engineers

3340 Ranger Road
Lansing, Michigan 48906
517 321 4964 / Fax 517 321 2132

TABLE OF CONTENTS

Clinton Township Flood Insurance Study
Final Hydraulic Analyses Report

1.0 INTRODUCTION

The Clinton Township Flood Insurance Study (FIS) is being performed for the Federal Emergency Management Agency (FEMA) as part of the National Flood Insurance Program. Clinton Township is located in Macomb County, Michigan and a vicinity map is presented as Figure 1. The location of Clinton Township within Macomb County is presented in Figure 2. The detailed technical studies performed for the FIS were completed in two steps. The Hydrologic Analyses Report was the first step, and is preceded by this Hydraulic Analyses Report. This report provides a re-analysis of a previously completed study.

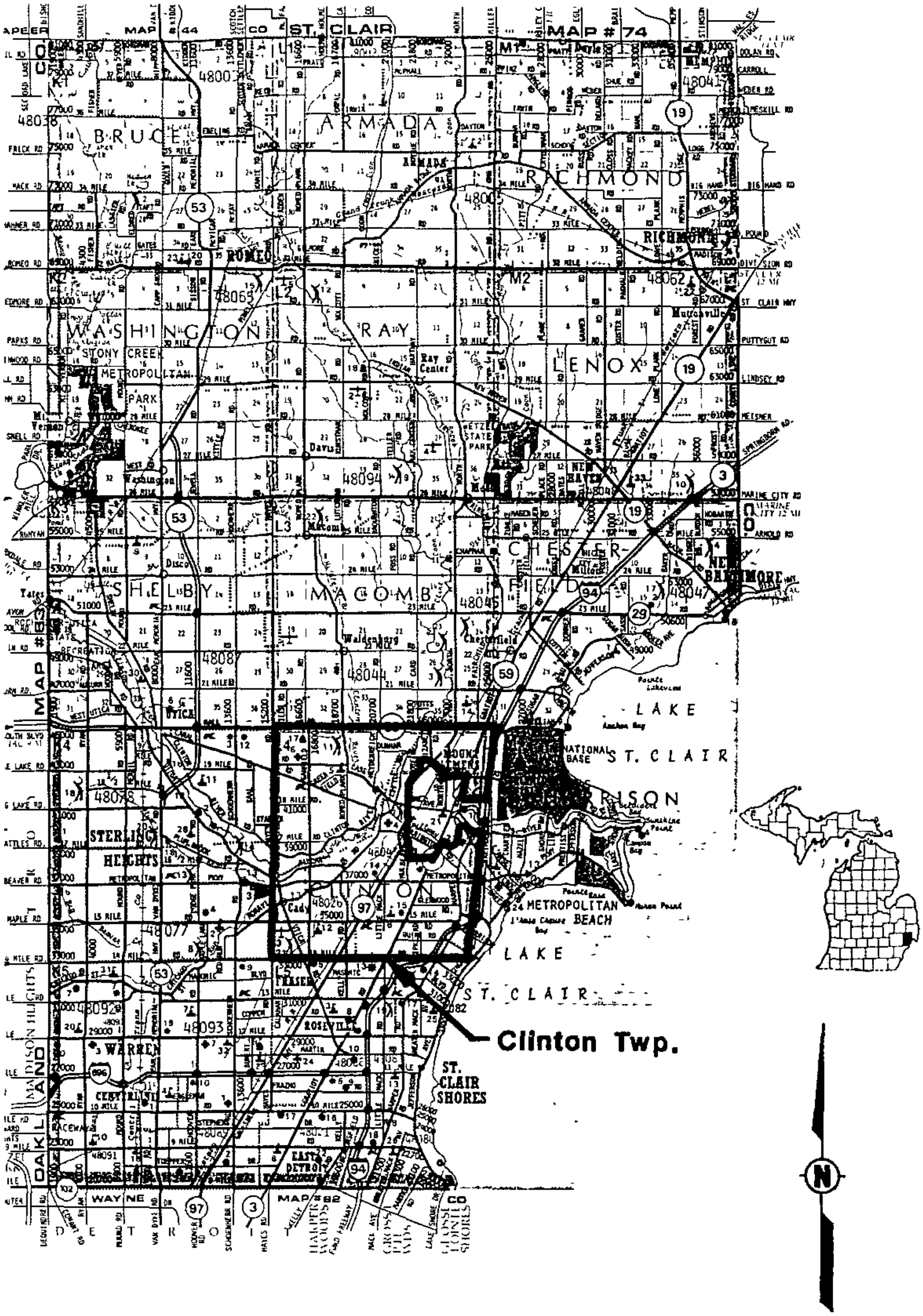
The objective of the hydraulic analysis phase of the project was to develop floodway and flood plain limits and elevations for the stream systems designated for detailed study. The scope of this study includes the performance of hydraulic analyses for the following:

1. Miller Drain — The mouth of the Miller Drain is confluent with the Middle Branch of the Clinton River and will be studied from the confluence upstream approximately 1.9 miles to the corporate limits.

2. Middle Branch — The mouth of the Middle Branch of the Clinton River is confluent with the North Branch of the Clinton River and will be studied from the confluence approximately 3.0 miles upstream to the corporate limits.

3. North Branch — The mouth of North Branch of the Clinton River is confluent with the Clinton River and will be studied from the confluence approximately 3.2 miles upstream to the corporate limits.

The locations of these watercourses within Clinton Township are illustrated in Figure 1. The peak flows developed from the hydrologic analysis were used during the hydraulic analysis of the project. Except for the Middle Branch, this study utilized the same flows as the original study of 1979.



LOCATION OF CLINTON TOWNSHIP WITHIN MACOMB COUNTY
FLOOD INSURANCE STUDY
CLINTON TOWNSHIP, MICHIGAN
FEDERAL EMERGENCY MANAGEMENT AGENCY

DRAWN BY	CJD	DATE	4/94
CHECKED BY	DMR	DATE	4/94
APPROVED BY	BBS	DATE	4/94
CADFILE			

STS Consultants Ltd
Consulting Engineers

STS PROJECT NO
718691
STS PROJECT FILE

SCALE
1"=4.1 Miles

SHEET NO
2

2.0 HYDRAULIC ANALYSIS

2.1 General

Flood insurance studies were initially performed in 1979 for Clinton Township. A new flood insurance study was originally re-evaluated by STS due to the following changes in the hydraulic of the Miller Drain, Middle Branch and North Branch.

1) Reconstructed Heydenreich Road Bridges over the Miller Drain and the Middle Branch.

2) New channel configuration on the upstream portion of the Miller Drain.

After STS initiated the study, it was learned that the Little Road Bridge was removed and this change was then incorporated into the study. The hydrology has also been re-evaluated and approved by the Michigan Department of Natural Resources, Land and Water Management Division by a letter dated December 17, 1993. A summary of the MDNR approved hydrologic analysis discharges are presented in Table 1.

TABLE 1
Clinton Township Final Hydrologic Analysis

	Discharges in cfs			
	Recurrence Intervals			
	10-yr	50-yr	100-yr	500-yr
Miller Drain				
@ mouth	260	380	430	590
North Branch Clinton				
u/s of M-59	5,440	8,970	10,700	15,300
d/s of M-59	5,440	8,410	9,720	13,100
u/s of Middle Branch Clinton	5,250	8,260	9,590	13,000
d/s of Middle Branch Clinton	6,710	10,200	11,600	15,500
Middle Branch Clinton				
u/s of Miller Drain	2,000	3,250	3,900	5,430
@ mouth	2,190	3,540	4,240	5,900

2.2 Methodology

The Army Corps of Engineers' HEC-2 computer model *(Reference 1)* was utilized to simulate the 10-, 50-, 100- and 500-year flood events and to estimate water surface elevations. This program simulates water surface profiles for steady, gradually varied flow in natural or manmade channels based on the solution of the one-dimensional energy equation. Energy losses due to friction are evaluated using Manning's Equation *(Reference 2)*. The program has the capability to assess the impacts of various obstructions to flow, including bridges, culverts and weirs. The computational procedure utilized by the program is generally known as the standard step method. Parameters that were input to the HEC-2 computer model include stream, bridge and culvert cross-section dimensions and elevations; roughness coefficients associated with the stream bed and overbank areas; expansion and contraction loss coefficients; and the distance between cross-sections and structures.

2.2.1 Starting Point

Profile computations for the Miller Drain, Middle Branch and North Branch of the Clinton River were begun at the mouth of each stream. The starting water surface elevations were determined from the 1979 FIS study. These water surface elevations were determined by backwater curves started at Lake St. Clair and carried on up to the mouth of each stream. From the profiles, stage discharge curves were established at the mouth of each stream. The flow used below the confluence were those when the stream in question was at peak discharge. The Clinton River and Clinton River Spillway were begun at the mean annual flood level of Lake St. Clair.

2.3 Miller Drain

In August 1991, a topographic survey was performed by Abrams Aerial Survey Corporation to develop maps with a scale of 1 inch equals 400 feet, with 2 foot contours. On May 1, 1992, a land survey was performed by STS. Two detailed cross-sections of the Miller Drain were obtained. This information was utilized to develop the cross-sections for the HEC-2 model. The following is the hydraulic model changes from the 1979 model, made by STS, for the Miller Drain.

1) Recorded bridge data for Heydenreich Road Bridge.

2) Changed contraction and expansion coefficients between Heydenreich crossing and Section No. 2270.

3) Adjust miscellaneous bank locations

4) Added Section No. 7390 to define downstream limit of channelized portions of drain.

5) Updated ground points data for Section Nos. 8510 to 10220 to reflect channelization.

6) Fixed numerous miscellaneous input errors and warning messages in original model[1].

Table 2 presents a cross-section reference between cross-section designations for the HEC-2 model, the land survey, and mapping in the FIS distances between cross-sections and structures for both the channel and overbank areas were obtained from the work map that was generated from the aerial survey.

Manning's Equation coefficients utilized in the computer model ranged from 0.03 to 0.08 for the stream channel and ranged from 0.04 to 0.1 in the stream overbank areas. Contraction and expansion coefficients *(Reference 3)* were established as 0.1 and 0.3 for smooth transitions, and 0.3 and 0.5 for abrupt transitions.

2.3.1 Results

Table 3 presents the floodplain elevations for the 10, 50, 100, and 500 year floods. Due to the backwater effect of the North Branch, flood elevations would be controlled by the North Branch. Re-evaluated flood elevations compared to the 1979 model did not change significantly. Vertical profiles of the Miller Drain flood elevations are presented in Appendix A.

2.4 North Branch Clinton River

In August 1991, a topographic survey was performed by Abrams Aerial Survey Corporation to develop maps with a scale of 1 inch equals 400 feet, with 2 foot contours On May 1, 1992, a land survey was performed by STS, and two detailed cross-sections of the North Branch were obtained at the former Little Road crossing. This information was utilized to develop the cross-sections for the HEC-2 model. The following is hydraulic model changes from the 1979 model, made by STS, for the North Branch of the Clinton River.

1) Corrected X3.10 data for Cass Avenue Bridge.
2) Fixed numerous miscellaneous input errors and warnings present in original model[2].
3) Adjust miscellaneous bank station locations.
4) Remove bridge data for old Little Road Crossing.

---

[1] Many changes were necessitated due to revisions to the HEC-2 code.

[2] Many errors were due to revised HEC-2 code.

TABLE 2
Miller Drain Cross-Section Locations

HEC-2 Designation	FIS Map Designation	Description
850.0	A	850′ upstream of confluence with Middle Branch Clinton River.
989.0		1′ downstream of Heydenreich Road Bridge.
990.0		Downstream face of Heydenreich Road Bridge.
1,010.0	B	Upstream face of Heydenreich Road Bridge.
1,011.0		1′ upstream of Heydenreich Road Bridge.
2,270.0	C	1,259′ upstream of the Heydenreich Road Bridge.
3,200.0	D	2,189′ upstream of the Heydenreich Road Bridge.
3,662.0		Downstream of Private Bridge.
3,663.0		1′ downstream of Private Bridge.
3,675.0		Upstream of Private Bridge.
3,676.0		1′ upstream of Private Bridge.
4,800.0	E	92′ downstream of Dunham Road Bridge.
4,892.0	F	Downstream face of Dunham Road Bridge.
4,926.0		Upstream face of Dunham Road Bridge.
5,101.0		175′ upstream of the Dunham Road Bridge.
6,610.0	G	1,684′ upstream of the Dunham Road Bridge.
7,390.0		2,464′ upstream of the Dunham Road Bridge.
8,510.0	H	1,710′ downstream of Clinton Township corporate limits.
10,220.0	I	Clinton Township corporate limits.

TABLE 3
Miller Drain Flood Elevation

Cross-Section	10-yr.	50-yr.	100-yr.	500-yr.
850	581.10	583.10	584.20	587.00
989	584.41	584.20	584.61	587.07
990	584.57	584.62	584.92	587.08
1,010	584.58	584.64	584.94	587.13
1,011	584.58	584.64	584.94	587.19
2,270	585.60	586.71	587.08	588.34
3,200	588.88	589.44	589.63	589.96
3,662	589.35	589.88	590.06	590 45
3,663	589.38	589.90	590.08	590.47
3,675	589.40	589.92	590.10	590.49
3,676	589.40	589.91	590.09	590.49
4,800	590.39	591.01	591.22	591.65
4,892	590.40	591.02	591.22	591.67
4,926	590.47	591.12	591.34	591.66
5,101	590.73	591.48	591.75	592.28
6,610	591.55	592.30	592.57	593.17
7,390	591.78	592.60	592.88	593.57
8,510	591.95	592.80	593.09	593.81
10,220	592.20	593.05	593.34	594.08

Table 4 presents a cross-section reference between cross-section designations for the HEC-2 model, the land survey, and mapping in the FIS distances between cross-sections and structures for both the channel and overbank areas were obtained from the work map that was generated from the aerial survey.

Manning's Equation coefficients utilized in the computer model ranged from 0.045 to 0.068 for the stream channel and ranged from 0.04 to 0.1 in the stream overbank areas. Contraction and expansion coefficients *(Reference 3)* were established as 0.1 and 0.3 for smooth transitions, and 0.3 and 0.5 for abrupt transitions.

2.4.1 Results

Table 5 presents the floodplain elevations for the 10, 50, 100, and 500 year floods. Re-evaluated flood elevations compared to the 1979 model did not change significantly. Vertical profiles of the North Branch flood elevations are presented in Appendix A.

2.5 Middle Branch Clinton River

In August 1991, a topographic survey was performed by Abrams Aerial Survey Corporation to develop maps with a scale of 1 inch equals 400 feet, with 2 foot contours. This information was utilized to develop the cross-sections for the HEC-2 model. The following is hydraulic model changes from the 1977 model, made by STS, for the Middle Branch of the Clinton River.

1) Recorded bridge data for Heydenreich Road Bridge replacement, including weir data for road changes.

2) Fixed numerous miscellaneous input errors and warnings present in original model[1].

3) Changed contraction and expansion coefficient between Heydenreich Road and Section Number 6120.

4) Increased flood discharges based on approved changes. Above Miller drain, adjusted QT data based on same flow proportions as original model. Method approved by MDNR.

5) Recorded ground data for sections 5050 and 11700 based on revised topographic mapping.

---

[1] Many errors were due to changes in the HEC-2 code.

TABLE 4
North Branch Cross-Section Locations

HEC-2 Designation	FIS Map Designation	Description
300.0	A	300' upstream of confluence with Clinton River.
858.0		Downstream face of Cass Avenue Bridge.
944.0	B	Upstream face of Cass Avenue Bridge.
1,244.0		Upstream of confluence with Middle Branch
1,650.0	C	1,650' upstream of confluence with Clinton River
4,670.0	D	4,670' upstream of confluence with Clinton River
7,680.0	E	7,680' upstream of confluence with Clinton River
10,100.0	F	10,100' upstream of confluence with Clinton River
11,580.0	G	11,580' upstream of confluence with Clinton River
11,721.0		Downstream face of former Little Road Bridge.
11,738.0	H	1' downstream of former Little Road Bridge.
11,739.0		Upstream face of former Little Road Bridge.
14,670.0	I	14,670' upstream face of former Little Road Bridge.
17,820.0	J	17,820' upstream face of former Little Road Bridge.
19,270.0	K	19,270' upstream face of former Little Road Bridge.
19,360.0		Downstream face of Hall Road Bridge
19,401.0	L	Upstream face of Hall Road Bridge, Clinton Township Corporate Limits

TABLE 5
North Branch Flood Elevation

Cross-Section	10-yr.	50-yr.	100-yr.	500-yr.
300	588.47	592.15	593.31	596.30
858	588.74	592.40	593.56	596.60
944	588.82	592.50	593.84	597.07
1,244	589.13	592.86	594.16	597.12
1,650	589.25	592.95	594.23	597.16
4,670	590.15	593.61	594.84	597.56
7,680	590.65	593.96	595.15	597.78
10,100	590.91	594.11	595.29	597.88
11,580	591.21	594.31	595.46	598 03
11,721	591.36	594.39	595.54	598.07
11,738	591.39	594.40	595.54	598.07
11,739	591.46	594.56	595.69	598.18
14,670	592.67	595.46	596.46	598 69
17,820	593.11	595.86	596 85	599.02
19,270	593.39	596.07	597.04	599.18
19,360	593.48	596.17	597.14	599.29
19,401	593.54	596.22	597.21	599.63

Table 6 presents a cross-section reference between cross-section designations for the HEC-2 model, the land survey, and mapping in the FIS distances between cross-sections and structures for both the channel and overbank areas were obtained from the work map that was generated from the aerial survey.

Manning's Equation coefficients utilized in the computer model ranged from 0.02 to 0.07 for the stream channel and ranged from 0.04 to 0.09 in the stream overbank areas. Contraction and expansion coefficients *(Reference 3)* were established as 0.1 and 0.3 for smooth transitions, and 0.3 and 0.5 for abrupt transitions.

2.5.1 Results

Table 7 presents the floodplain elevations for the 10, 50, 100, and 500 year floods. Due to the backwater effect of the North Branch, flood elevations would be controlled by the North Branch. Re-evaluated flood elevations compared to the 1979 model did not change significantly. Vertical profiles of the Middle Branch flood elevations are presented in Appendix A.

2.6 Floodway Calculation

The floodway for the three branches were calculated with HEC-2 encroachment method 1 and encroachment method 4. The floodways were determined by calculating a maximum increase in the base flood (100-year flood) water surface elevation of 0.1 feet increase. HEC-2 encroachment method 1 involves inputted encroachment stations in the right and left channels until a rise of 0.1 feet occurs in the floodway. HEC-2 encroachment method 4 computes encroachment stations based on the desired change in water surface elevation of 0.1 feet. Table 8 presents the floodway results for the North Branch, Middle Branch, and Miller Drain.

TABLE 6

Middle Branch Cross-Section Locations

HEC-2 Designation	FIS Map Designation	Description
450.0	A	450′ upstream of confluence with North Branch of Clinton River.
1,420.0		1,420′ upstream of confluence with North Branch of Clinton River.
2,350.0		Downstream of Miller Drain confluence.
3,220.0	B	48′ downstream of Heydenreich Road Bridge.
3,268.0		1′ downstream of Heydenreich Road Bridge.
3,296.0		Downstream face of Heydenreich Road Bridge
3,304.0		Upstream face of Heydenreich Road Bridge.
3,305.0	C	1′ upstream of Heydenreich Road Bridge.
5,050.0	D	1,745′ upstream of Heydenreich Road Bridge.
6,120.0		Downstream face of Private Bridge.
6,134.0	E	Upstream face of Private Bridge.
8,150.0	F	2,016′ upstream of Private Bridge.
8,700.0		2,566′ upstream of Private Bridge.
9,350.0		3,216′ upstream of Private Bridge.
10,180.0	G	700′ downstream of confluence with Groth Drain.
10,880.0		Confluence of Groth Drain, downstream face of Private Bridge.
10,895.0	H	Upstream face of Private Bridge.
10,965.0		70′ upstream of Private Bridge.
11,275.0		1′ downstream of Private Bridge.
11,276.0		Downstream face of Private Bridge
11,290.0	I	Upstream face of Private Bridge.
11,291.0		1′ upstream face of Private Bridge.
11,700.0	J	490′ upstream of Private Bridge.
12,750.0		Upstream of confluence with un-named tributary.
14,540.0	K	14,540′ upstream of confluence with North Branch.
15,330.0		15,330′ upstream of confluence with North Branch.
16,690.0	L	40′ downstream of Hall Road Bridge.
16,730.0		Downstream face of Hall Road Bridge, Clinton Township.
16,771.0	M	Upstream face of Hall Road Bridge, Clinton Township, corporate limits.

TABLE 7
Middle Branch Flood Elevation

Cross-Section	10-yr.	50-yr.	100-yr.	500-yr.
450	588.16	591.89	593.11	595.83
1,420	588.19	591.91	593.13	595.84
2,350	588.21	591.92	593.14	595.85
3,220	588.25	591.94	593.15	595.87
3,268	588.23	591.93	593.15	595.87
3,269	588.21	591 94	593.15	595 87
3,304	588.22	591.94	593.16	595.87
3,305	588.28	591.94	593.16	595.87
5,050	588.51	592.03	593 24	595.92
6,120	588.58	592.08	593.28	595.97
6,134	588.59	592.09	593.29	595.97
8,150	588.75	592.16	593.36	596.03
8,700	588.81	592.18	593.37	596.07
9,350	589.04	592.26	593.43	596.07
10,180	589 24	592.35	593.51	596.13
10,880	589.60	592.53	593.66	596 22
10,895	589.61	592.82	593.73	596.22
10,965	590.06	592.88	593.78	596 24
11,275	590.10	592.91	593.82	596.27
11,276	590.10	592.91	593.82	596.27
11,290	590.10	592.91	593.82	596.27
11,291	590.10	592.91	593.82	596.28
11,700	590.16	592.94	593.84	596.29
12,750	590.30	593.01	593.91	596.35
14,540	590.98	593.32	594.19	596.53
15,330	591.38	593.51	594.36	596.63
16,690	591.91	593.80	594.60	596.73
16,730	592.14	593.98	594.77	596.86
16,771	592.15	593.99	594.79	596.99

TABLE 8
FLOODWAY DATA

Flooding Source		Floodway				Base Flood Water Surface Elevation		
X-Sec.	Distance	Width	Section Area (sq ft)	Mean Velocity (ft/sec)	Regul. (NGVD)	W/O Floodway (NGVD)	With Floodway (NGVD)	Increase (feet)
CLINTON R. - NORTH BR.								
A	300	520	5,244	2.2	593.3	593.3	593.4	0.1
B	944	276	3,377	3.4	593.8	593.8	593.9	0.1
C	1,650	1,206	7,692	1.2	594.2	594.2	594.3	0.1
D	4,670	1,083	7,143	1.3	594.7	594.7	594.8	0.1
E	7,680	969	10,063	1.0	595.0	595.0	595.1	0.1
F	10,100	845	7,764	1.2	595.2	595.2	595.3	0.1
G	11,580	609	3,962	2.4	595.4	595.4	595.5	0.1
H	11,738	601	3,776	2.5	595.4	595.4	595.5	0.1
I	14,670	633	6,703	1.4	596.4	596.4	596.5	0.1
J	17,820	1,106	10,020	1.0	596.7	596.7	596.8	0.1
K	19,270	252	2,995	4.0	596.8	596.8	596.9	0.1
L	19,401	227	2,351	4.1	596.9	596.9	597.0	0.1
CLINTON R. - MIDDLE BR.								
A	1,420	1,087	11,134	0.4	594.1	593.1	593.2	0.1
B	3,220	850	5,724	0.7	594.1	593.2	593.3	0.1
C	3,305	922	5,496	0.7	594.1	593.2	593.3	0.1
D	5,050	327	4,140	0.9	594.1	593.2	593.3	0.1
E	6,134	647	5,556	0.7	594.1	593.3	593.4	0.1
F	8,150	541	4,383	0.9	594.1	593.3	593.4	0.1
G	10,180	450	3,160	1.2	594.1	593.5	593.6	0.1
H	10,895	435	3,318	1.2	594.1	593.7	593.8	0.1
I	11,290	642	4,590	0.9	594.1	593.8	593.9	0.1
J	11,700	563	4,512	0.9	594.1	593.8	593.9	0.1
K	14,540	403	2,440	1.1	594.1	594.1	594.2	0.1
L	16,690	141	924	3.0	594.6	594.6	594 7	0.1
M	16,771	130	1,091	2.5	594.7	594.7	594.8	0.1
CLINTON R. - MILLER DRN.								
A	850	58	135	3.2	594.1	584.6	584.7	0.1
B	1,010	28	156	2.8	594.1	585.0	585.1	0.1
C	2,270	82	128	3.4	594.1	587.5	587.5	0.0
D	3,200	126	307	1.4	594.1	589.6	589.7	0.1
E	4,800	91	227	1.9	594.1	591.1	591.2	0.1
F	4,926	22	109	3.8	594.1	591.2	591.3	0.1
G	6,610	41	192	2.1	594.1	592.5	592.6	0.1
H	8,510	81	316	0.9	594.1	593.1	593.2	0.1
I	10,220	62	276	1.1	594.1	593.3	593.4	0.1

Note: Middle Branch and Miller Drain have backwater effect from the Clinton River.

3.0 COMPARISON OF RESULTS

The hydraulic profile of the Miller Drain, determined for the 1979 FIS has been changed. The floodway for Miller Drain, Middle Branch and North Branch have also recalculated from the 1979 study due to the updating of the HEC-2 code. The HEC-2 model has calculated the new floodways and are redrawn on 1979 FIRM map presented in Appendix C.

The floodplain and floodway for the North Branch of the Clinton River did not change significantly from the previous study. The position of the North Branch was better defined from Abrams Aerial Survey. Because of the reposition of the North Branch, the location of the floodway and floodplain did change from the 1979 FIS and are redrawn on the 1979 FIRM map.

The floodplain and floodway of the Miller Drain did change downstream of the corporate limits due to the rechannelization of the river. Further downstream of the Miller Drain, the floodplain and floodway did not change significantly.

The floodplain and floodway of the Middle Branch of the Clinton River did not change significantly from the previous study except at areas where the river location has changed based on the Abrams Aerial Survey.

4.0 CONCLUSIONS

STS has perform this hydraulic analysis report for the Clinton Township Flood Insurance Study. Specifically, the North Branch of the Clinton River, Middle Branch of the Clinton River, and the Miller Drain. This report was generated for the Federal Emergency Management Agency as part of the National Flood Insurance Program (contract no. EMW-91-C-3361).

The flood insurance study for the three branches of the Clinton River were initially performed in 1979. A new insurance study was performed due to the reconstruction of the Heydenreich Road Bridge over the Miller Drain and the Middle Branch, and a new channel configuration on the upstream portion of the Miller Drain.

The hydraulic analysis has shown that there has not been a significant change in the floodway and floodplain of the three branches of the Clinton River since the 1979 report, due to the reconstruction of the Heydenreich Road Bridge over the Miller Drain and the Middle Branch of the Clinton River. The floodway and floodplain location did change, however, due to the new channel configuration on the upstream portion of the Miller Drain.

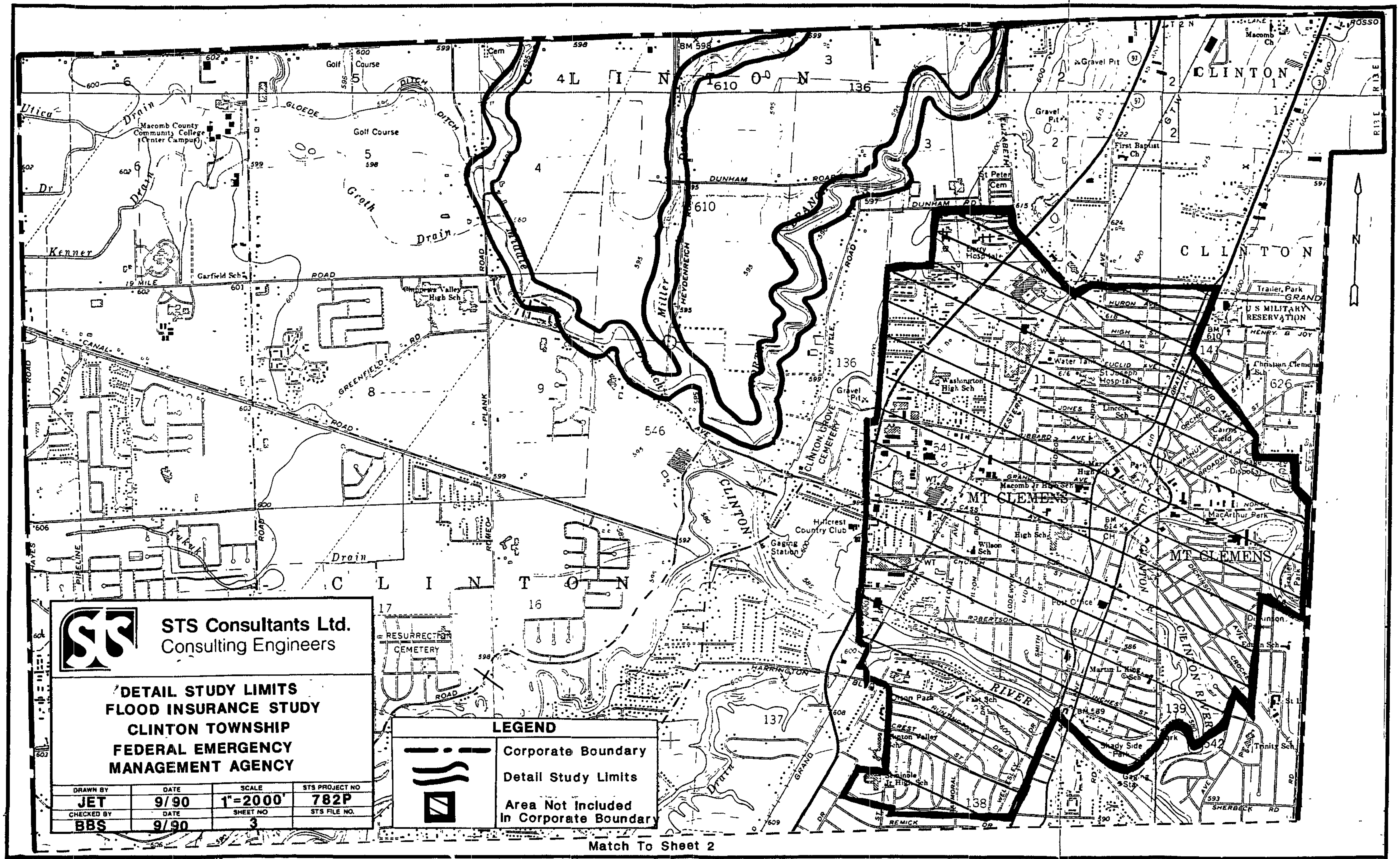
5.0 REFERENCES

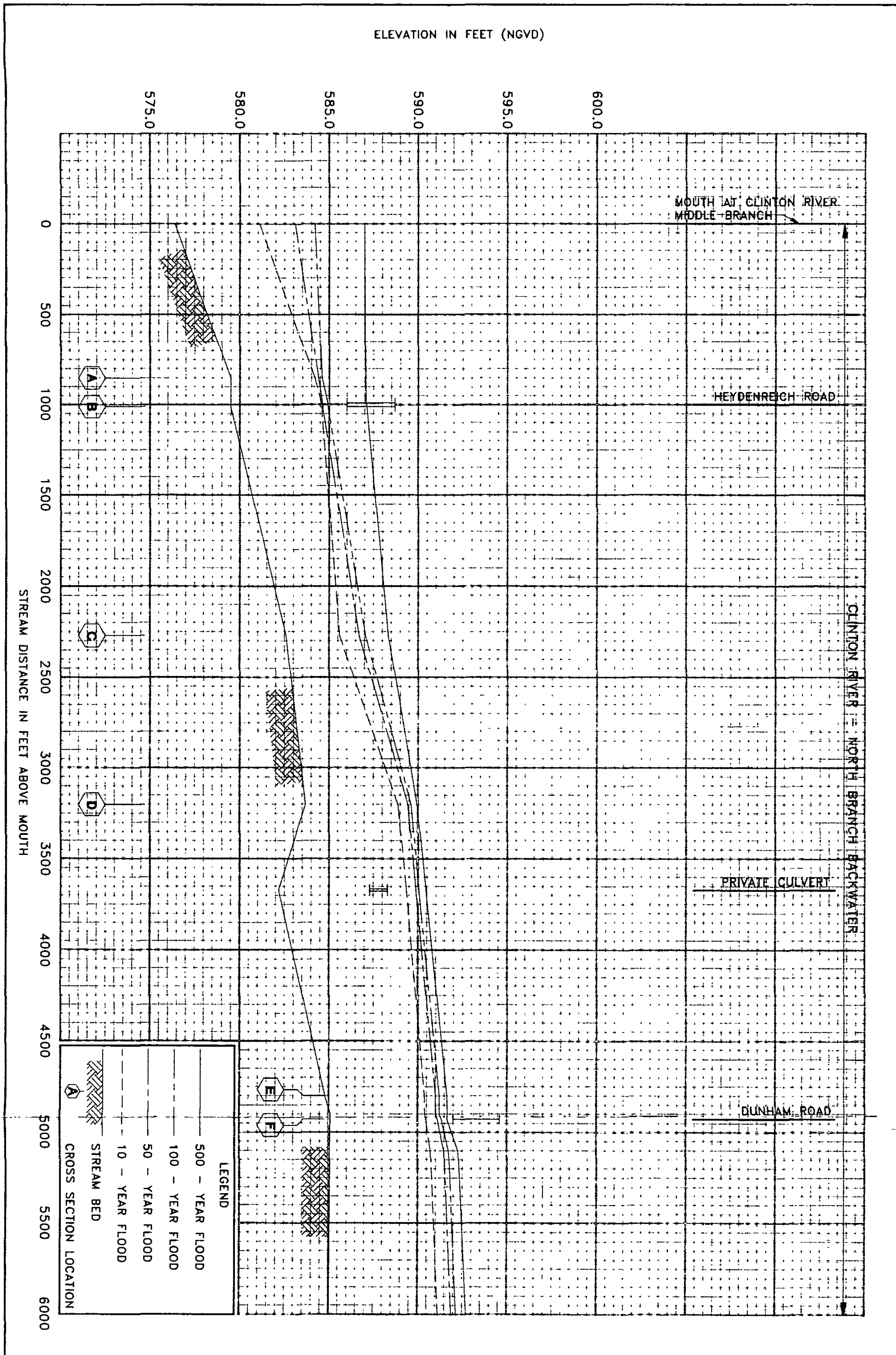
1. U.S. Army Corps of Engineers, Hydrologic Engineering Center, Computer Program HEC-2, Water Surface Profiles; Davis, California, September 1990.

2. Chow, Ven Te, Open Channel Hydraulics, McGraw Hill, New York, 1959.

3. Brater & King, Handbook of Hydraulics, McGraw Hill, New York, 1982.

4. STS Consultants, Ltd., Clinton Township Flood Insurance Study - Final Hydrologic Analyses Report; Lansing, Michigan; April 1993


STS Consultants Ltd.
Consulting Engineers
DETAIL STUDY LIMITS
FLOOD INSURANCE STUDY
CLINTON TOWNSHIP
FEDERAL EMERGENCY
MANAGEMENT AGENCY
DRAWN BY JET
DATE 9/90
SCALE 1"=2000'
STS PROJECT NO 782P
CHECKED BY BBS
DATE 9/90
SHEET NO 3
STS FILE NO.
LEGEND
Corporate Boundary
Detail Study Limits
Area Not Included In Corporate Boundary
Match To Sheet 2
CLINTON
MT CLEMENS
CLINTON RIVER
Macomb County Community College (Center Campus)
Golf Course
Garfield Sch
Chippewa Valley High Sch
Washington High Sch
St Joseph Hospital
Lincoln Sch
Hillcrest Country Club
Gaging Station
RESURRECTION CEMETERY
CLINTON GROVE CEMETERY
U S MILITARY RESERVATION
MacArthur Park
Trailer Park
Post Office
Martin L King Sch
Shady Side Park
Trinity Sch
Seminole Jr High Sch
Macomb Jr High Sch
Wilson Sch
DUNHAM ROAD
19 MILE ROAD
HARRINGTON BLVD
REMICK DR
SHERBECK RD
GROESBECK
GRATIOT
N



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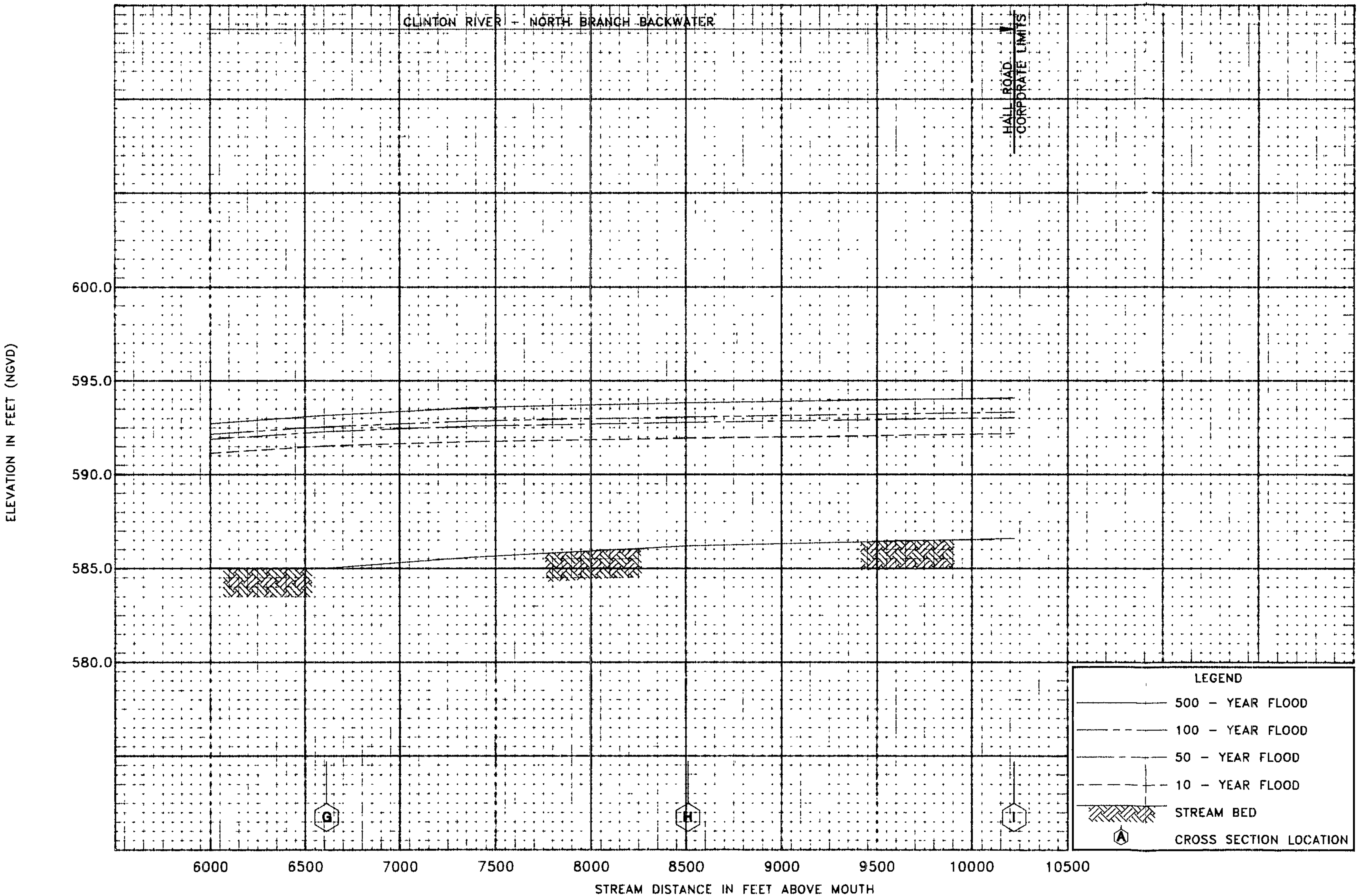
TOWNSHIP OF CLINTON, MI (MACOMB CO.)	CLINTON RIVER - MILLER BRANCH	



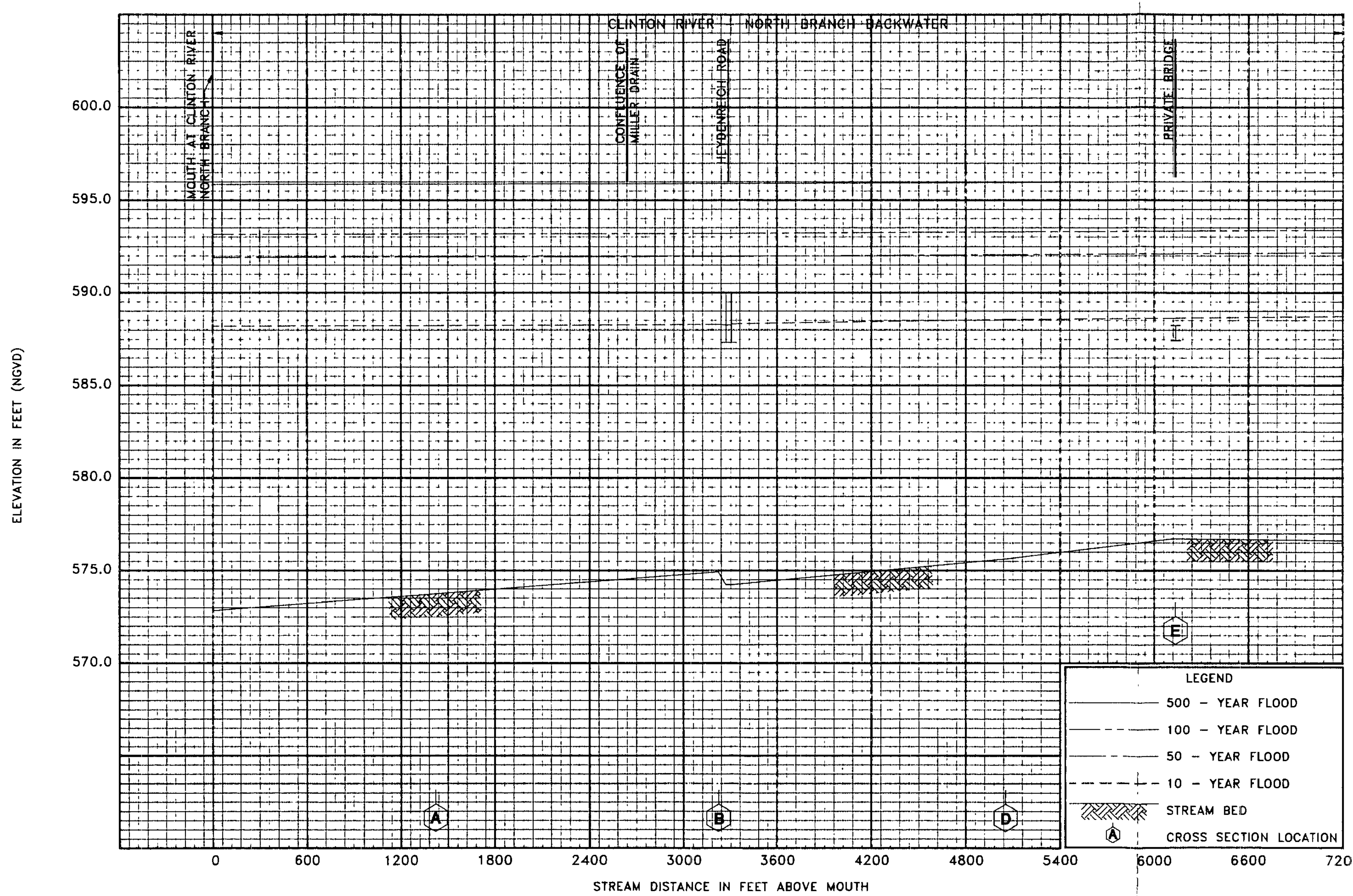
FLOOD PROFILES

CLINTON RIVER - MILLER BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWNSHIP OF CLINTON, MI

(MACOMB CO.)



FLOOD PROFILES

CLINTON RIVER - MIDDLE BRANCH

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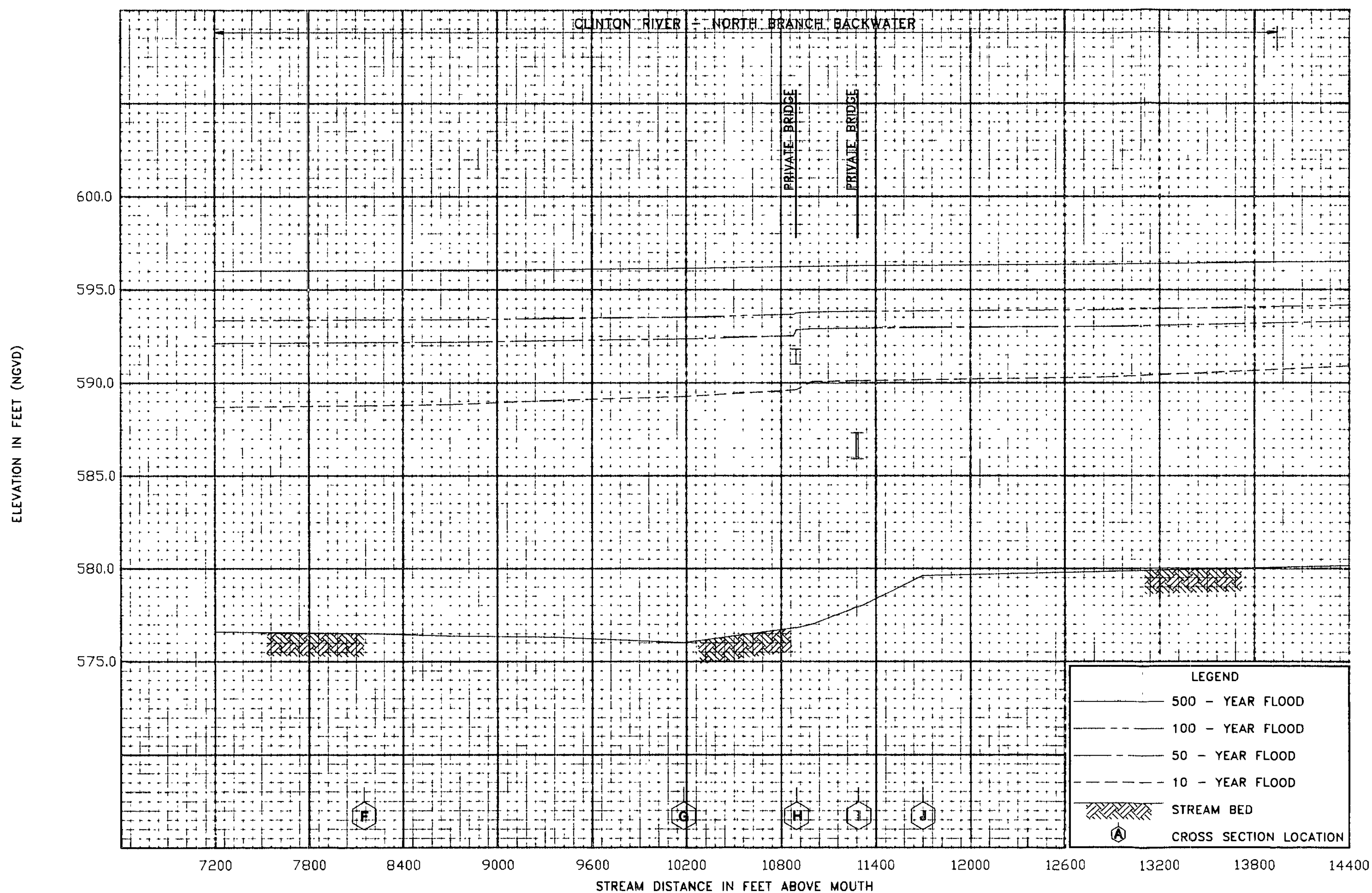
TOWNSHIP OF CLINTON, MI

(MACOMB CO.)



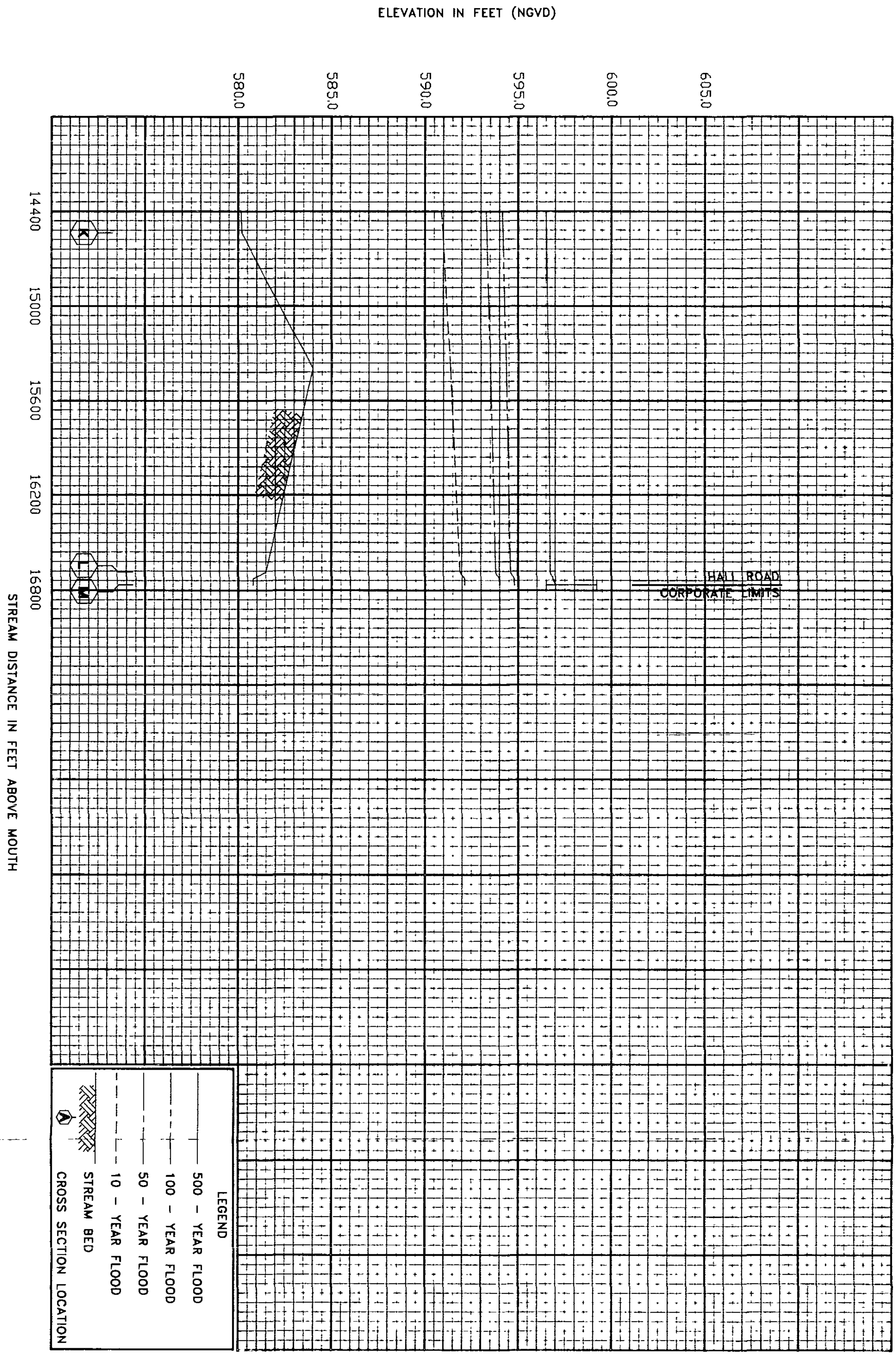
FLOOD PROFILES

CLINTON RIVER - MIDDLE BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWNSHIP OF CLINTON, MI

(MACOMB CO.)



FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWNSHIP OF CLINTON, MI

(MACOMB CO.)

FLOOD PROFILES

CLINTON RIVER - MIDDLE BRANCH

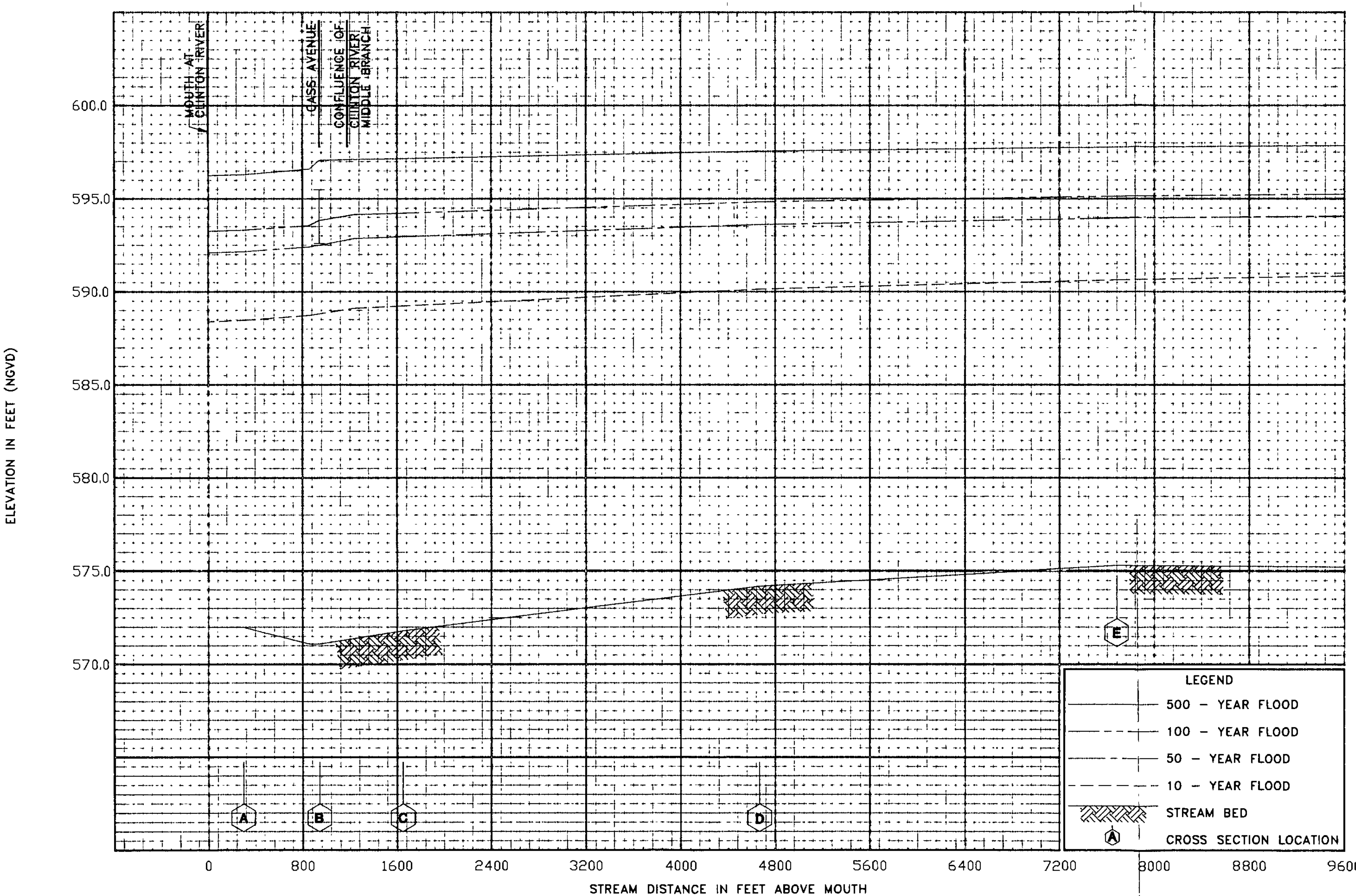
FEDERAL EMERGENCY MANAGEMENT AGENCY

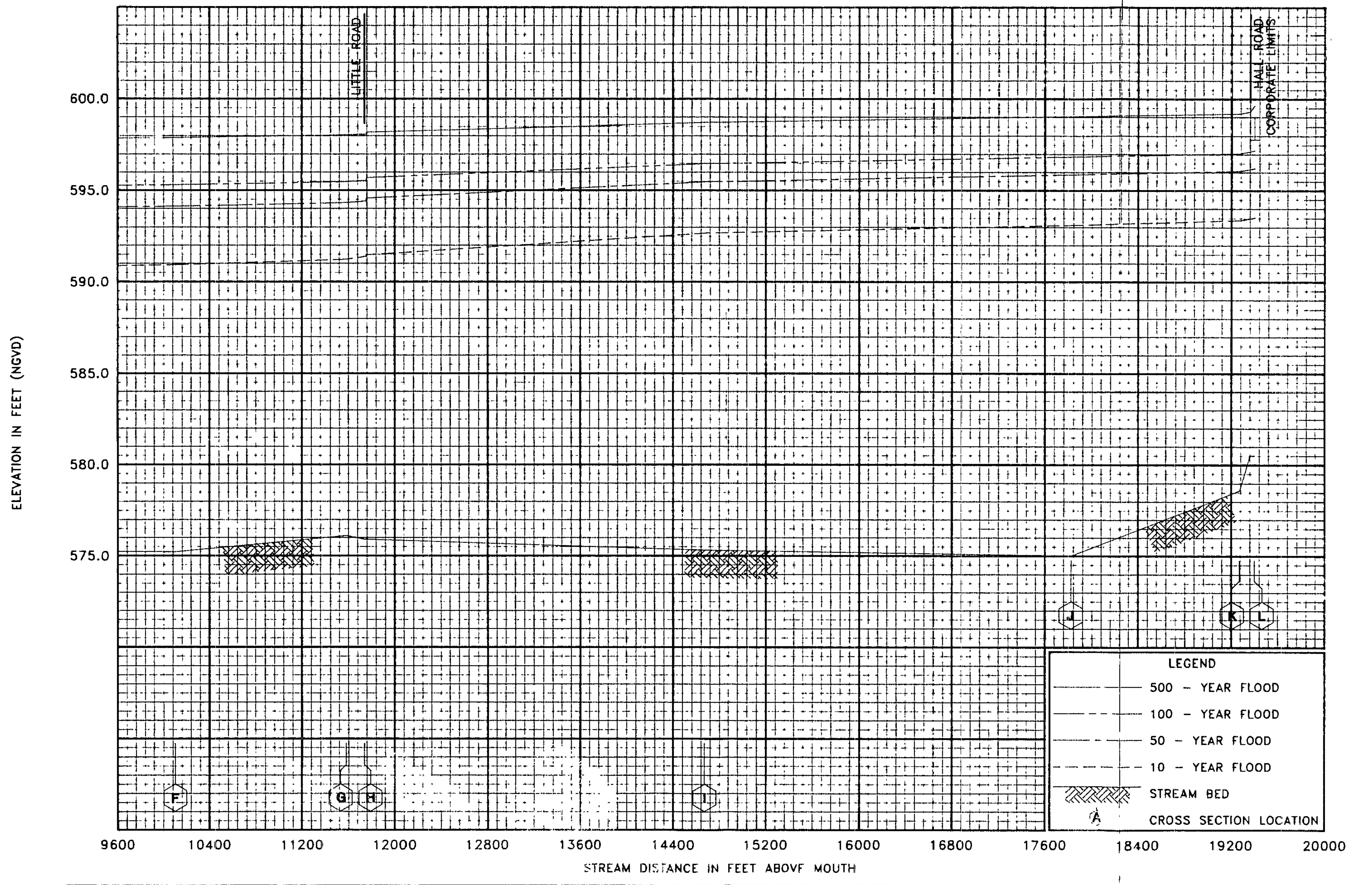
TOWNSHIP OF CLINTON, MI

(MACOMB CO.)

FLOOD PROFILES

CLINTON RIVER - NORTH BRANCH





FLOOD PROFILES

CLINTON RIVER - NORTH BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWNSHIP OF CLINTON, MI

(MACOMB CO.)

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Clinton Twp

3) WATERCOURSE: North Branch Clinton River

4) DOCUMENT TYPE: 10, 50, 100, 500 Yr flood & encroached

00BREAK00

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 *  HEC-2 WATER SURFACE PROFILES             *              *  U.S. ARMY CORPS OF ENGINEERS
 *                                           *              *  HYDROLOGIC ENGINEERING CENTER
 *  Version   4.6.2;  May 1991               *              *  609 SECOND STREET, SUITE D
 *                                           *              *  DAVIS, CALIFORNIA 95616-4687
 *  RUN DATE    11JAN94    TIME   11:33:23   *              *        (916) 756-1104
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   11JAN94      11:33:23                                                                PAGE    1


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 ************************************
  HEC-2 WATER SURFACE PROFILES

  Version   4.6.2;  May 1991
 ************************************


 T1 CLINTON TOWNSHIP FLOOD INSURANCE STUDY
 T2 UPDATED 10-YEAR FLOOD   STS CONSULTANTS LTD.   12/93
 T3 NORTH BRANCH OF THE CLINTON RIVER

 J1   ICHECK     INQ       NINV      IDIR      STRT     METRIC     HVINS      Q        WSEL       FQ

       -1.0      2.0       0.0       0.0       0.0       0.0       0.0       0.0     588.39      0.0

 J2   NPROF      IPLOT     PRFVS     XSECV     XSECH      FN       ALLDC      IBW      CHNIM     ITRACE

       1.0       0.0      -1.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0


 J3   VARIABLE CODES FOR SUMMARY PRINTOUT

    150.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0

 QT       4.0     6710.0    10200.0    11600.0    15500.0        0.0        0.0        0.0        0.0        0.0
 NC       .07        .07        .04        .10       0.30        0.0        0.0        0.0        0.0        0.0
 NH       5.0        .04      500.0        .07      540.0       .045      607.0        .07      615.0        .10
 NH    1388.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
 X1       0.0       39.0      540.0      607.0        0.0        0.0        0.0        0.0        0.0        0.0
 X3      10.0        0.0        0.0      265.0        0.0      935.0        0.0        0.0        0.0        0.0
 GR     599.2        0.0      595.5      100.0      592.6      200.0      592.5      300.0      593.1      346.0
 GR     593.0      400.0      593.5      500.0      588.2      519.0      585.2      527.0      582.9      533.0
 GR     578.3      540.0      574.7      540.0      573.8      545.0      573.1      550.0      572.5      555.0
 GR     572.1      560.0      572.1      565.0      572.1      570.0      572.0      575.0      572.0      580.0
 GR     572.2      590.0      573.1      595.0      574.2      600.0      575.1      607.0      577.0      611.0
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GR	580.1	615.0	579.7	650.0	578.5	653.0	580.8	700.0	577.3	725.0
GR	579.3	800.0	582.4	900.0	581.9	940.0	580.8	1000.0	580.9	1000.0
GR	582.4	1100.0	583.0	1200.0	590.2	1300.0	591.0	1388.0	0.0	0.0

NH	5.0	.04	500.0	.07	540.0	.045	607.0	.07	615.0	.10
NH	1388.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
X1	300.0	0.0	0.0	0.0	300.0	300.0	300.0	0.0	0.0	0.0
X3	0.0	0.0	0.0	340.0	0.0	860.0	0.0	0.0	0.0	0.0

NC	0.0	0.0	0.0	.50	1.0	0.0	0.0	0.0	0.0	0.0
NH	5.0	.04	428.5	.05	548.3	.045	580.189	.05	665.032	.09
NH	1446.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
X1	858.0	51.0	500.0	776.0	558.0	538.0	558.0	.857	0.0	0.0
X3	10.0	0.0	0.0	0.0	0.0	0.0	0.0	595.3	595.3	0.0
GR	599.2	0.0	595.5	100.0	592.6	200.0	592.5	300.0	593.1	346.0
GR	593.0	400.0	593.0	468.0	591.8	468.5	591.8	500.0	580.5	500.0
GR	579.9	520.0	580.1	540.0	580.3	566.3	592.1	566.3	592.1	569.7
GR	580.4	569.7	580.3	580.0	580.7	600.0	578.9	606.0	574.2	609.0
GR	573.6	620.0	572.9	630.0	572.7	636.3	592.3	636.3	592.3	639.7

GR	571.1	639.7	573.0	650.0	573.7	660.0	575.1	668.0	582.5	677.0
GR	581.4	700.0	581.6	706.3	592.5	706.3	592.5	709.7	581.1	709.7
GR	581.1	720.0	581.0	740.0	580.7	760.0	581.1	776.0	581.1	808.0
GR	582.4	900.0	581.9	940.0	580.8	1000.0	582.4	1100.0	583.0	1200.0
GR	590.2	1300.0	591.0	1388.0	591.2	1400.0	592.8	1500.0	594.4	1600.0
GR	595.8	1688.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

SB	0.0	2.02	3.04	0.0	276.0	0.0	3014.1	0.0	571.1	571.1
NH	3.0	.05	548.2	.045	580.2	.10	1446.6	0.0	0.0	0.0
X1	944.0	51.0	500.0	776.0	86.0	86.0	86.0	.857	0.0	0.0
X2	0.0	0.0	1.0	592.6	595.5	0.0	0.0	0.0	.857	0.0
X3	10.0	0.0	0.0	0.0	0.0	0.0	0.0	595.5	595.5	0.0
X4	2.0	581.1	664.946	581.1	692.542					
BT	27.0	0.0	599.2	599.2	100.0	595.5	595.5	200.0	595.9	592.6
BT	300.0	596.2	592.5	400.0	596.5	593.0	468.0	596.6	593.0	468.5
BT	599.5	591.8	500.0	599.5	591.8	566.3	599.7	592.1	569.7	599.7
BT	592.1	636.3	599.9	592.3	639.7	599.9	592.3	706.3	600.1	592.5
BT	709.7	600.1	592.5	775.9	600.3	592.6	776.0	600.3	581.1	808.0
BT	600.5	581.1	808.1	597.7	581.1	900.0	597.4	582.4	1000.0	596.9
BT	580.8	1100.0	596.5	582.4	1200.0	596.1	583.0	1300.0	595.6	590.2
BT	1400.0	595.5	591.2	1500.0	595.5	592.8	1600.0	595.7	594.4	1688.0
BT	595.8	595.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GR	599.2	0.0	595.5	100.0	592.6	200.0	592.5	300.0	593.1	346.0
GR	593.0	400.0	593.0	468.0	591.8	468.5	591.8	500.0	580.5	500.0
GR	579.9	520.0	580.1	540.0	580.3	566.3	592.1	566.3	592.1	569.7
GR	580.4	569.7	580.3	580.0	580.7	600.0	578.9	606.0	574.2	609.0
GR	573.6	620.0	572.9	630.0	572.7	636.3	592.3	636.3	592.3	639.7
GR	571.1	639.7	573.0	650.0	573.7	660.0	575.1	668.0	582.5	677.0
GR	581.4	700.0	581.6	706.3	592.5	706.3	592.5	709.7	581.1	709.7
GR	581.1	720.0	581.0	740.0	580.7	760.0	581.1	776.0	581.1	808.0
GR	582.4	900.0	581.9	940.0	580.8	1000.0	582.4	1100.0	583.0	1200.0
GR	590.2	1300.0	591.0	1388.0	591.2	1400.0	592.8	1500.0	594.4	1600.0
GR	595.8	1688.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

QT	4.0	5250.0	8260.0	9590.0	13000.0	0.0	0.0	0.0	0.0	0.0
NH	6.0	.05	729.0	.09	754.0	.055	802.0	.09	812.0	.07
NH	1429.0	.05	2029.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
X1	1244.0	34.0	754.0	802.0	300.0	330.0	300.0	0.0	-.40	0.0
X3	10.0	0.0	0.0	0.0	0.0	1425.0	0.0	0.0	0.0	0.0
GR	599.6	0.0	596.4	4.0	596.9	28.0	594.7	129.0	593.5	229.0

GR	593.2	329.0	593.7	429.0	594.4	529.0	595.4	629.0	595.2	720.0
GR	594.0	729.0	575.2	754.0	574.3	759.0	573.1	769.0	571.8	779.0
GR	572.1	789.0	573.5	799.0	575.4	802.0	582.6	812.0	583.3	829.0
GR	581.0	835.0	584.5	929.0	584.5	1029.0	583.0	1129.0	583.7	1179.0
GR	589.8	1229.0	591.9	1329.0	594.0	1429.0	592.6	1529.0	592.9	1629.0
GR	590.6	1729.0	588.4	1829.0	590.8	1929.0	593.3	2029.0	0.0	0.0

NC	0.0	0.0	0.0	.10	.30	0.0	0.0	0.0	0.0	0.0
NH	6.0	.05	729.0	.09	754.0	.055	802.0	.09	812.0	.07
NH	1429.0	.05	2400.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

X1	1650.0	34.0	754.0	802.0	406.0	435.0	406.0	0.0	0.0	0.0
X3	10.0	0.0	0.0	0.0	0.0	1425.0	0.0	0.0	0.0	0.0
GR	599.6	0.0	596.4	4.0	596.9	28.0	594.7	129.0	593.5	229.0
GR	593.2	329.0	593.7	429.0	594.4	529.0	595.4	629.0	595.2	720.0
GR	594.0	729.0	575.2	754.0	574.3	759.0	573.1	769.0	571.8	779.0
GR	572.1	789.0	573.5	799.0	575.4	802.0	582.6	812.0	583.3	829.0
GR	581.0	835.0	584.5	929.0	584.5	1029.0	583.0	1129.0	583.7	1179.0
GR	589.8	1229.0	591.9	1329.0	594.0	1429.0	592.6	1529.0	592.9	1629.0
GR	590.6	1729.0	588.4	1829.0	590.8	1929.0	593.3	2029.0	594.3	2400.0

NH	7.0	.05	1300.0	.06	1400.0	.09	1421.0	.045	1460.0	.09
NH	1481.0	.11	1915.0	.05	3600.0	0.0	0.0	0.0	0.0	0.0
X1	4670.0	50.0	1421.0	1460.0	2900.0	2950.0	3010.0	0.0	0.0	0.0
X3	0.0	0.0	0.0	1300.0	0.0	0.0	0.0	0.0	0.0	0.0
GR	600.1	0.0	598.9	100.0	598.2	200.0	598.9	285.0	598.8	300.0
GR	598.0	400.0	597.5	500.0	596.2	600.0	594.8	700.0	594.2	800.0
GR	593.8	900.0	593.9	1000.0	593.8	1100.0	594.6	1200.0	595.0	1300.0
GR	594.6	1330.0	591.8	1400.0	583.9	1415.0	575.8	1421.0	574.8	1425.0
GR	574.2	1435.0	574.4	1445.0	575.0	1455.0	575.9	1460.0	580.0	1473.0
GR	582.8	1481.0	583.4	1485.0	583.3	1500.0	582.4	1600.0	582.4	1700.0
GR	583.4	1800.0	581.6	1885.0	583.6	1900.0	590.6	1915.0	593.7	2000.0
GR	592.8	2100.0	594.0	2200.0	594.8	2300.0	595.1	2400.0	595.5	2600.0
GR	595.5	2700.0	595.4	2800.0	595.3	2900.0	595.6	3000.0	595.6	3100.0
GR	596.0	3200.0	596.0	3300.0	595.8	3400.0	595.8	3500.0	596.0	3600.0

NH	6.0	.05	700.0	.06	1600.0	.09	1638.0	.055	1670.0	.09
NH	1685.0	.05	4000.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
X1	7680.0	51.0	1638.0	1670.0	2800.0	2800.0	3010.0	0.0	0.0	0.0
X3	10.0	0.0	0.0	0.0	0.0	2800.0	0.0	0.0	0.0	0.0
GR	601.9	0.0	599.5	100.0	598.4	200.0	597.9	300.0	597.3	400.0
GR	597.1	500.0	597.2	600.0	597.5	700.0	597.3	800.0	598.3	900.0
GR	597.6	1000.0	597.8	1100.0	596.2	1200.0	596.5	1216.0	593.9	1300.0
GR	594.4	1400.0	594.6	1500.0	595.4	1600.0	578.9	1635.0	576.1	1638.0
GR	575.4	1641.0	575.3	1650.0	575.5	1660.0	575.8	1670.0	576.3	1673.0
GR	582.0	1685.0	583.7	1700.0	585.7	1800.0	585.7	1900.0	585.6	2100.0
GR	585.3	2200.0	585.6	2300.0	585.1	2400.0	583.7	2500.0	583.0	2544.0
GR	591.4	2600.0	594.2	2618.0	595.2	2700.0	595.5	2800.0	595.5	2900.0
GR	595.4	3000.0	594.7	3100.0	594.5	3200.0	594.4	3300.0	594.7	3400.0
GR	594.9	3500.0	595.2	3600.0	595.5	3700.0	595.9	3800.0	596.3	3900.0
GR	596.6	4000.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

NH	6.0	.05	1967.0	.06	2009.0	.05	2062.0	.06	2070.0	.08
NH	2100.0	.055	3200.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
X1	10100.	45.0	2009.0	2062.0	2000.0	2350.0	2420.0	0.0	0.0	0.0
X3	0.0	0.0	0.0	1700.0	0.0	0.0	0.0	0.0	0.0	0.0
GR	597.2	0.0	596.6	100.0	596.8	200.0	596.5	300.0	596.5	400.0
GR	595.9	500.0	595.5	600.0	595.3	700.0	595.3	800.0	594.5	900.0
GR	595.1	1000.0	595.9	1100.0	596.3	1130.0	595.3	1200.0	594.5	1300.0
GR	595.1	1400.0	595.7	1500.0	595.8	1600.0	596.0	1700.0	593.7	1800.0

GR	591.7	1900.0	591.0	1967.0	584.0	2000.0	577.5	2009.0	575.5	2020.0
GR	575.2	2030.0	575.3	2040.0	575.3	2050.0	577.4	2062.0	583.6	2070.0
GR	586.3	2100.0	586.9	2200.0	586.7	2300.0	586.2	2400.0	585.1	2500.0
GR	584.1	2600.0	587.2	2680.0	590.6	2700.0	596.3	2743.0	597.6	2800.0
GR	597.3	2900.0	597.3	2970.0	597.3	3000.0	596.8	3100.0	597.2	3200.0

NH	5.0	.05	1600.0	.11	1613.0	.055	1679.0	.11	1710.0	.05
NH	2600.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
X1	11580.	36.0	1613.0	1679.0	1480.0	1480.0	1480.0	0.0	0.0	0.0
GR	599.3	0.0	598.4	100.0	597.2	200.0	596.6	300.0	596.4	400.0
GR	596.4	500.0	596.4	600.0	595.6	700.0	596.3	800.0	596.3	900.0
GR	596.3	1000.0	595.8	1100.0	596.0	1200.0	596.5	1300.0	595.2	1400.0
GR	592.8	1500.0	592.3	1550.0	588.1	1600.0	577.3	1613.0	576.7	1623.0
GR	576.1	1635.0	576.8	1645.0	577.2	1655.0	576.9	1665.0	577.4	1679.0
GR	583.4	1686.0	584.6	1700.0	589.0	1710.0	588.9	1733.0	589.2	1755.0
GR	588.6	1800.0	590.6	1900.0	592.7	2000.0	593.7	2130.0	596.1	2300.0
GR	598.5	2600.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NC	0.0	0.0	0.0	.50	1.0	0.0	0.0	0.0	0.0	0.0
NH	4.0	.10	1600.0	.05	1700.0	.10	1900.0	.04	2600.0	0.0
X1	11721.	40.0	1600.0	1700.0	141.0	141.0	141.0	0.0	0.0	0.0
X3	0.0	0.0	0.0	1300.0	0.0	0.0	0.0	0.0	0.0	0.0
GR	599.3	0.0	598.4	100.0	597.2	200.0	596.6	300.0	596.4	400.0
GR	596.4	600.0	595.6	700.0	596.3	800.0	596.3	1000.0	595.8	1100.0
GR	596.0	1200.0	596.5	1300.0	595.2	1400.0	592.8	1500.0	592.3	1550.0
GR	592.6	1600.0	586.7	1600.0	586.7	1602.0	578.6	1602.0	577.3	1605.0
GR	576.5	1608.0	576.3	1614.0	576.1	1620.0	576.2	1630.0	575.9	1640.0
GR	576.3	1650.0	576.6	1660.0	576.8	1666.0	583.8	1681.0	582.8	1699.0
GR	591.9	1700.0	592.8	1700.0	592.7	1703.0	589.2	1755.0	588.6	1800.0
GR	590.6	1900.0	592.7	2000.0	593.7	2130.0	596.1	2300.0	598.5	2600.0
NC	.08	.08	.05	0.0	0.0	0.0	0.0	0.0	0.0	0.0
X1	11738.	0.0	0.0	0.0	17.0	17.0	17.0	0.0	0.0	0.0
X3	0.0	0.0	0.0	1300.0	0.0	0.0	0.0	0.0	0.0	0.0
NH	5.0	.04	1600.0	.09	1605.0	.05	1660.0	.09	1700.0	.04
NH	2600.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
X1	11739	0.0	0.0	0.0	1.0	1.0	1.0	0.0	0.0	0.0
X3	0.0	0.0	0.0	1300.0	0.0	0.0	0.0	0.0	0.0	0.0
NH	8.0	.03	1200.0	.04	1860.0	.09	1956.0	.054	1960.0	.05
NH	2023.0	.05	2033.0	.09	2454.0	.04	3600.0	0.0	0.0	0.0
X1	14670.	49.0	1960.0	2023.0	2850.0	2600.0	2940.0	0.0	0.0	0.0
X3	0.0	0.0	0.0	0.0	0.0	3350.0	0.0	0.0	0.0	0.0
GR	602.9	0.0	601.9	6.0	598.1	100.0	598.6	200.0	597.5	300.0
GR	597.8	400.0	599.6	500.0	598.5	600.0	598.3	700.0	598.1	800.0
GR	598.3	900.0	598.1	1000.0	598.3	1100.0	597.5	1200.0	597.5	1300.0
GR	597.5	1400.0	597.5	1500.0	597.7	1600.0	598.7	1700.0	598.5	1800.0
GR	597.5	1860.0	595.3	1900.0	583.2	1956.0	578.3	1960.0	578.2	1966.0
GR	577.2	1976.0	577.4	1986.0	575.6	1996.0	575.3	2006.0	576.3	2016.0
GR	577.7	2023.0	587.7	2033.0	586.4	2100.0	585.4	2200.0	584.8	2300.0
GR	582.6	2400.0	590.7	2454.0	594.0	2500.0	595.1	2600.0	596.4	2700.0
GR	596.9	2800.0	597.1	2900.0	597.4	3000.0	597.5	3100.0	597.5	3200.0
GR	597.1	3300.0	597.5	3400.0	597.5	3500.0	596.9	3600.0	0.0	0.0

	NC	0.0	0.0	0.0	0.1	0.3	0.0	0.0	0.0	0.0	0.0
	NH	7.0	.08	400.0	.05	872.0	.094	906.0	.055	945.0	.09
	NH	958.0	.08	1000.0	.05	2900.0	0.0	0.0	0.0	0.0	0.0
	X1	17820.	40.0	906.0	945.0	3150.0	3000.0	3150.0	0.0	0.0	0.0
J	X3						1700.0				
	GR	599.8		598.8	100.0	599.0	200.0	597.6	300.0	597.9	400.0
	GR	598.3	426.0	597.8	500.0	598.0	600.0	598.2	700.0	598.1	800.0
	GR	596.4	872.0	582.8	900.0	579.2	906.0	577.7	912.0	575.0	920.0
	GR	575.2	930.0	576.7	940.0	578.9	945.0	586.7	958.0	588.1	968.0
	GR	584.7	1000.0	588.3	1100.0	589.5	1200.0	589.7	1300.0	587.3	1400.0
	GR	586.2	1500.0	586.8	1600.0	588.1	1700.0	588.5	1800.0	590.0	1900.0
	GR	593.5	2000.0	597.0	2100.0	597.8	2200.0	597.8	2300.0	595.1	2400.0
	GR	596.0	2500.0	597.3	2600.0	597.8	2700.0	598.2	2800.0	598.1	2900.0

	NC				.30	.50					
	NH	6.0	.05	1200.0	.09	1711.0	.05	1748.0	.09	1758.0	.07
	NH	2000.0	.05	3600.0							
K	X1	19270.	48.0	1700.0	1758.0	1500.0	1400.0	1450.0	0.0	0.0	0.0
	X3				~~405.0~~		1925.0				
	GR	607.1	0.0	602.4	100.0	600.6	200.0	599.5	300.0	598.3	400.0
	GR	599.1	500.0	599.7	600.0	598.9	700.0	598.1	732.0	598.4	800.0
	GR	599.1	900.0	597.8	1000.0	597.9	1100.0	598.6	1200.0	598.1	1300.0
	GR	598.0	1400.0	598.3	1500.0	599.8	1600.0	600.3	1620.0	597.4	1673.0
	GR	584.9	1700.0	579.2	1711.0	578.9	1720.0	578.6	1730.0	578.9	1740.0
	GR	579.5	1748.0	587.4	1758.0	585.0	1800.0	585.6	1873.0	588.0	1878.0
	GR	587.4	1900.0	587.6	2000.0	588.6	2100.0	589.0	2200.0	589.0	2300.0
	GR	592.6	2400.0	597.7	2500.0	597.8	2600.0	598.4	2700.0	598.8	2800.0
	GR	597.9	2900.0	598.0	3000.0	597.2	3100.0	595.7	3200.0	597.3	3300.0
	GR	597.3	3400.0	596.4	3500.0	595.1	3600.0	0.0	0.0	0.0	0.0

	QT	4.0	5440.0	8410.0	9720.0	13100.0	0.0	0.0	0.0	0.0	0.0
	NC				.50	1.0					
	NH	5.0	.05	1647.0	.094	1708.0	.05	1897.0	.09	1926.6	.06
	NH	3600.0									
d/s	X1	19360.	64.0	1700.0	1926.6	90.0	90.0	90.0			
Face	X3						1926.0	599.9			
	X4	1.0	587.5	1941.0							
	GR	605.8	0.0	602.9	100.0	601.9	200.0	601.1	300.0	600.3	400.0
	GR	599.7	500.0	599.2	600.0	599.0	700.0	599.0	800.0	599.0	900.0
	GR	599.6	1100.0	600.2	1400.0	600.4	1600.0	600.4	1647.0	597.4	1700.0
	GR	594.0	1700.0	593.0	1708.0	586.3	1726.0	582.3	1736.1	583.5	1736.1
	GR	583.5	1736.6	597.7	1736.7	597.7	1739.6	583.5	1739.6	583.5	1740.1
	GR	581.5	1740.1	580.8	1750.0	580.5	1770.0	581.0	1780.0	581.4	1786.1
	GR	583.5	1786.1	583.5	1786.6	597.8	1786.6	597.8	1789.6	583.5	1789.6
	GR	585.6	1800.0	586.6	1820.0	586.7	1836.6	597.8	1836.6	597.8	1839.6
	GR	585.9	1839.7	586.2	1860.0	586.1	1875.0	585.9	1886.6	597.7	1886.6
	GR	597.7	1889.6	584.5	1889.6	585.6	1897.0	594.4	1919.0	595.3	1926.6
	GR	587.4	1926.6	587.4	1926.7	587.4	1926.8	587.6	1973.0	589.0	2173.0
	GR	592.6	2373.0	600.2	2530.0	600.2	2800.0	600.4	2900.0	600.5	3000.0
	GR	600.2	3300.0	600.0	3400.0	600.1	3500.0	601.1	3600.0	0.0	0.0

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11JAN94 11:33:23

u/s Face	SB	0.0	1.82	3.04	0.0	226.6	0.0	2502.7	0.0	580.5	580.5
L	X1	19401.	0.0	0.0	0.0	39.0	39.0	39.0	0.0	0.0	0.0
	X2	0.0	0.0	1.0	597.8	599.0					
	X3						1926.6	599.9			
Half	BT	37.0	0.0	603.8	570.0	100.0	602.9	570.0	200.0	601.9	570.0
	BT	400.0	600.3	570.0	500.0	599.7	570.0	600.0	599.2	570.0	700.0
	BT	599.0	570.0	900.0	599.0	570.0	1100.0	599.6	570.0	1400.0	600.2
	BT	570.0	1600.0	600.4	570.0	1700.0	600.5	597.4	1700.0	601.2	597.7

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BT   1736.6      601.2      597.7    1739.6      601.2      597.7    1786.6      601.3      597.8    1789.6
BT    601.3      597.8     1836.6     601.3      597.8     1839.6     601.3      597.8     1886.6     601.2
BT    597.7     1889.6      601.2     597.7     1897.0      601.2     597.7     1919.0      601.2     597.7
BT   1926.6      601.2      597.7    1926.6      600.5      595.3    1941.0      600.5      587.5    1973.0
BT    600.5      570.0     2173.0     600.1      570.0     2373.0     599.9      570.0     2530.0     600.2
BT    570.0     2800.0      600.2     570.0     2900.0      600.4     570.0     3000.0      600.5     570.0
BT   3300.0      600.2      570.0    3400.0      600.0      570.0    3500.0      600.0      570.0    3600.0
BT    601.1      570.0        0.0       0.0        0.0        0.0       0.0        0.0        0.0       0.0
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


 *PROF 1
0

CCHV=      .100 CEHV=      .300
1490 NH CARD USED
*SECNO   .000

3470 ENCROACHMENT STATIONS=      265.0      935.0  TYPE=       1  TARGET=       670.000
      .000     16.39     588.39       .00     588.39     588.50       .11       .00       .00     578.30
    6710.0     101.1     3573.3    3035.6       94.2     1041.8    2786.1        .0        .0     575.10
       .00      1.07       3.43      1.09       .070       .045      .099      .000    572.00     518.32
   .000300        0.         0.        0.          0          0         0       .00    416.68     935.00


1490 NH CARD USED
*SECNO 300.000

3470 ENCROACHMENT STATIONS=      340.0      860.0  TYPE=       1  TARGET=       520.000
   300.000     16.47     588.47       .00        .00     588.60       .13       .10       .01     578.30
    6710.0     109.8     3813.9    2786.3       96.1     1047.9    2327.2      25.5       2.6     575.10
       .03      1.14       3.64      1.20       .070       .045      .098      .000    572.00     518.00
   .000336      300.       300.      300.          0          0         0       .00    342.00     860.00


CCHV=      .500 CEHV=     1.000
1490 NH CARD USED
*SECNO 858.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =    .68


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       595.30 ELREA=       595.30

   858.000     17.64     588.74       .00        .00     588.88       .14       .26       .02     591.80
    6710.0        .0     6710.0        .0         .0     2208.1        .0      61.3       6.2     581.10
       .08       .00       3.04       .00       .000       .049      .000      .000    571.10     428.50
   .000736      558.       558.      538.          2          0         0       .00    227.79     665.03
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     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


 SPECIAL BRIDGE

 SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
        .00      2.02      3.04       .00    276.00       .00   3014.10       .00    571.10    571.10

 1490 NH CARD USED
 *SECNO 944.000
 1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

 6070,LOW FLOW BY NORMAL BRIDGE

 EGPRS=       .000  EGLWC=    588.881  ELLC=    592.600  PCWSE=    588.736  ELTRD=    595.500

 3265 DIVIDED FLOW


 3370 NORMAL BRIDGE, NRD=  27 MIN ELTRD=   595.50 MAX ELLC=   592.60


 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       595.50 ELREA=       595.50

    944.000     17.72    588.82       .00       .00    588.97       .15       .09       .00    591.80
     6710.0        .0    6710.0        .0        .0    2176.5        .0      65.6       6.7    581.10
        .09       .00      3.08       .00      .000      .066      .000      .000    571.10    428.50
    .001501       86.       86.       86.         2         0         0   -247.44    227.79    665.03


 1490 NH CARD USED
 *SECNO 1244.000

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.79


 3470 ENCROACHMENT STATIONS=          .0    1425.0  TYPE=       1  TARGET=     1424.999
   1244.000     17.73    589.13       .00       .00    589.20       .07       .19       .04    574.80
     5250.0     122.0    2314.2    2813.8     136.5     791.2    2427.2      85.5       9.3    575.00
        .13       .89      2.92      1.16      .090      .055      .071      .000    571.40    734.95
    .000286      300.      300.      330.         2         0         0       .00    491.82   1226.77


 CCHV=     .100 CEHV=      .300
 1490 NH CARD USED
 *SECNO 1650.000
1
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     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST
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```
3470 ENCROACHMENT STATIONS=          .0    1425.0  TYPE=      1  TARGET=      1424.999
  1650.000     17.45    589.25       .00       .00    589.33       .08       .13       .00    575.20
    5250.0     122.5    2378.9    2748.7     131.3     777.9    2309.5     117.7      14.1    575.40
       .19       .93      3.06      1.19      .090      .055      .071      .000    571.80    735.32
   .000320      406.      406.      435.         2         0         0       .00    489.18   1224.49


1490 NH CARD USED
*SECNO 4670.000

3470 ENCROACHMENT STATIONS=      1300.0    3600.0  TYPE=      1  TARGET=     -1300.000
  4670.000     15.95    590.15       .00       .00    590.24       .08       .91       .00    575.80
    5250.0      78.8    2094.9    3076.3      98.8     602.2    3396.1     366.3      48.0    575.90
       .62       .80      3.48       .91      .090      .045      .108      .000    574.20   1403.14
   .000291     2900.     3010.     2950.         0         0         0       .00    510.88   1914.03


1490 NH CARD USED
*SECNO 7680.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.82


3470 ENCROACHMENT STATIONS=          .0    2800.0  TYPE=      1  TARGET=      2799.999
  7680.000     15.35    590.65       .00       .00    590.66       .02       .42       .01    576.10
    5250.0      96.6     750.7    4402.7     185.7     484.7    5095.3     685.9      96.3    575.80
      1.45       .52      1.55       .86      .090      .055      .051      .000    575.30   1610.09
   .000088     2800.     3010.     2800.         2         0         0       .00    984.88   2594.97


1490 NH CARD USED
*SECNO 10100.000

3470 ENCROACHMENT STATIONS=      1700.0    3200.0  TYPE=      1  TARGET=     -1700.000
 10100.000     15.71    590.91       .00       .00    590.95       .04       .28       .01    577.50
    5250.0     199.1    1862.0    3188.9     203.8     801.3    3166.1     953.4     142.5    577.40
      1.90       .98      2.32      1.01      .060      .050      .056      .000    575.20   1967.44
   .000165     2000.     2420.     2350.         2         0         0       .00    734.87   2702.31


1490 NH CARD USED
1
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     SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS    L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB        ACH      AROB       VOL       TWA    R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL        XNCH       XNR       WTN    ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL      IDC     ICONT     CORAR    TOPWID    ENDST


*SECNO 11580.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .46

 11580.000     15.11    591.21       .00       .00    591.47       .26       .46       .07    577.30
    5250.0     211.8    4253.2     785.0     168.4     948.2     595.0    1053.3     161.2    577.40
      2.00      1.26      4.49      1.32      .092      .055      .073      .000    576.10   1562.93
   .000790     1480.     1480.     1480.         2         0         0       .00    366.30   1929.23


CCHV=      .500 CEHV=     1.000
1490 NH CARD USED
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*SECNO 11721.000

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=      1300.0     2600.0  TYPE=       1  TARGET=     -1300.000
 11721.000     15.46     591.36       .00       .00     591.59       .23       .11       .01    592.60
    5250.0        .0     5045.1     204.9        .0     1283.6     335.4    1058.7     162.3    592.80
      2.01       .00       3.93       .61      .000       .049      .098      .000    575.90   1600.00
   .000721      141.       141.      141.         2          0         0       .00    313.30   1936.25


*SECNO 11738.000

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=      1300.0     2600.0  TYPE=       1  TARGET=     -1300.000
 11738.000     15.49     591.39       .00       .00     591.61       .22       .01       .00    592.60
    5250.0        .0     4991.6     258.4        .0     1285.5     339.3    1059.3     162.4    592.80
      2.01       .00       3.88       .76      .000       .050      .080      .000    575.90   1600.00
   .000742       17.        17.       17.         1          0         0       .00    314.44   1937.11


1490 NH CARD USED
*SECNO 11739.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW

1
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3470 ENCROACHMENT STATIONS=      1300.0     2600.0  TYPE=       1  TARGET=     -1300.000
 11739.000     15.56     591.46       .00       .00     591.63       .17       .00       .02    592.60
    5250.0        .0     4536.7     713.3        .0     1293.6     356.9    1059.4     162.4    592.80
      2.01       .00       3.51      2.00      .000       .071      .040      .000    575.90   1600.00
   .001227        1.         1.        1.         2          0         0       .00    319.51   1940.97


1490 NH CARD USED
*SECNO 14670.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.69


3470 ENCROACHMENT STATIONS=          .0     3350.0  TYPE=       1  TARGET=      3349.999
 14670.000     17.37     592.67       .00       .00     592.72       .05      1.02       .06    578.30
    5250.0     189.4     2441.6    2619.0     255.1     1002.1    3158.4    1250.1     189.7    577.70
      2.51       .74       2.44       .83      .078       .050      .088      .000    575.30   1912.18
   .000169     2850.      2940.     2600.         3          0         0       .00    569.25   2481.43


CCHV=     .100 CEHV=      .300
1490 NH CARD USED
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*SECNO 17820.000

3470 ENCROACHMENT STATIONS=         .0    1700.0  TYPE=      1  TARGET=      1699.999
 17820.000      18.11     593.11        .00        .00     593.13        .02        .41        .00     579.20
    5250.0      108.1     1181.7     3960.2      182.1      650.3     4163.0     1577.8      237.9     578.90
      3.26        .59       1.82        .95       .094       .055       .052       .000     575.00     878.77
   .000111      3150.      3150.      3000.          3          0          0        .00     821.23    1700.00


CCHV=     .300 CEHV=      .500
1490 NH CARD USED
*SECNO 19270.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .37


3470 ENCROACHMENT STATIONS=      405.0    1925.0  TYPE=      1  TARGET=      1520.000
 19270.000      14.79     593.39        .00        .00     593.51        .12        .33        .05     584.90
    5250.0       89.3     2500.6     2660.1       77.9      759.8     1200.6     1691.9      255.1     587.40
      3.40       1.15       3.29       2.22       .090       .068       .070       .000     578.60    1681.65
   .000796      1500.      1450.      1400.          2          0          0        .00     243.35    1925.00
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


CCHV=     .500 CEHV=     1.000
1490 NH CARD USED
*SECNO 19360.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=         .0    1926.0  TYPE=      1  TARGET=      1925.999
 19360.000      12.98     593.48        .00        .00     593.66        .18        .09        .06     597.40
    5440.0         .0     5440.0         .0         .0     1601.2         .0     1695.7      255.6     599.90
      3.41        .00       3.40        .00       .000       .049       .000       .000     580.50    1704.13
   .001254        90.        90.        90.          2          0          0        .00     200.62    1916.71


SPECIAL BRIDGE

SB  XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
       .00       1.82       3.04        .00     226.60        .00    2502.70        .00     580.50     580.50

*SECNO 19401.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS=       .000  EGLWC=    593.663  ELLC=    597.800  PCWSE=    593.484  ELTRD=    599.000

3265 DIVIDED FLOW
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3370 NORMAL BRIDGE, NRD=  37 MIN ELTRD=   599.00 MAX ELLC=   597.80


3470 ENCROACHMENT STATIONS=          .0     1926.6  TYPE=      1  TARGET=      1926.599
 19401.000      13.04     593.54        .00        .00     593.71        .18        .05        .00     597.40
    5440.0         .0     5440.0         .0         .0     1611.7         .0     1697.1      255.7     599.90
      3.41        .00       3.38        .00       .000       .050       .000       .000     580.50    1703.71
   .001236        39.        39.        39.          2          0          0        .00     201.16    1916.84
```



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T1 CLINTON TOWNSHIP FLOOD INSURANCE STUDY
T2 UPDATED 50-YEAR FLOOD   STS CONSULTANTS LTD.   12/93
T3 NORTH BRANCH OF THE CLINTON RIVER

J1  ICHECK    INQ       NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

    -1.0       3.0       0.0        0.0        0.0        0.0        0.0        0.0     592.09       0.0

J2  NPROF     IPLOT     PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

    2.0       0.0      -1.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
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    SECNO     DEPTH     CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q         QLOB      QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME      VLOB      VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE     XLOBL     XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


 *PROF 2
0

CCHV=      .100 CEHV=      .300
1490 NH CARD USED
*SECNO  .000
3280 CROSS SECTION       .00 EXTENDED      1.09 FEET


3470 ENCROACHMENT STATIONS=       265.0      935.0  TYPE=      1  TARGET=       670.000
      .000      20.09     592.09        .00     592.09     592.20        .11        .00        .00     578.30
   10200.0      248.1     4799.8     5152.1      198.9     1289.7     3999.7         .0         .0     575.10
       .00       1.25       3.72       1.29       .070       .045       .099       .000     572.00     505.05
   .000266         0.         0.         0.          0          0          0        .00     429.94     935.00


1490 NH CARD USED
*SECNO 300.000
3280 CROSS SECTION    300.00 EXTENDED      1.16 FEET


3470 ENCROACHMENT STATIONS=       340.0      860.0  TYPE=      1  TARGET=       520.000
   300.000      20.15     592.15        .00        .00     592.30        .15        .09        .01     578.30
   10200.0      274.1     5251.4     4674.5      201.4     1294.6     3258.7       35.3        2.7     575.10
       .03       1.36       4.06       1.43       .070       .045       .098       .000     572.00     504.80
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.000315	300.	300.	300.	1	0	0	.00	355.20	860.00

CCHV= .500 CEHV= 1.000
1490 NH CARD USED
*SECNO 858.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .69

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 595.30 ELREA= 595.30

858.000	21.30	592.40	.00	.00	592.57	.17	.24	.03	591.80
10200.0	.0	10200.0	.0	.0	3043.6	.0	84.5	6.4	581.10
.08	.00	3.35	.00	.000	.049	.000	.000	571.10	428.50
.000663	558.	558.	538.	2	0	0	.00	233.62	665.03

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

SPECIAL BRIDGE

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
.00	2.02	3.04	.00	276.00	.00	3014.10	.00	571.10	571.10

1490 NH CARD USED
*SECNO 944.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS= .000 EGLWC= 592.575 ELLC= 592.600 PCWSE= 592.398 ELTRD= 595.500

3265 DIVIDED FLOW

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .52

3370 NORMAL BRIDGE, NRD= 27 MIN ELTRD= 595.50 MAX ELLC= 592.60

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 595.50 ELREA= 595.50

944.000	21.40	592.50	.00	.00	592.69	.19	.10	.02	591.80
10200.0	.0	10200.0	.0	.0	2917.8	.0	90.4	6.9	581.10
.08	.00	3.50	.00	.000	.066	.000	.000	571.10	428.50
.002449	86.	86.	86.	2	0	0	-445.48	233.62	665.03

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1490 NH CARD USED
*SECNO 1244.000

3265 DIVIDED FLOW

3280 CROSS SECTION   1244.00 EXTENDED        .36 FEET

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.89

3470 ENCROACHMENT STATIONS=          .0     1425.0  TYPE=       1  TARGET=      1424.999
  1244.000      21.46     592.86       .00        .00     592.92        .05        .16        .07     574.80
    8260.0      185.8     2669.1    5405.1      218.1      970.6     4308.4      120.8       10.3     575.00
       .13        .85       2.75      1.25       .090       .055       .071       .000     571.40     307.37
   .000193       300.       300.      330.          2          0          0        .00     698.62    1393.99
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     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

CCHV=     .100 CEHV=      .300
1490 NH CARD USED
*SECNO 1650.000

3470 ENCROACHMENT STATIONS=          .0     1425.0  TYPE=       1  TARGET=      1424.999
  1650.000      21.15     592.95       .00        .00     593.01        .06        .09        .00     575.20
    8260.0      186.2     2731.9    5342.0      209.4      955.3     4122.4      173.9       17.0     575.40
       .20        .89       2.86      1.30       .090       .055       .071       .000     571.80     730.40
   .000213       406.       406.      435.          2          0          0        .00     648.44    1378.84

1490 NH CARD USED
*SECNO 4670.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=      1300.0     3600.0  TYPE=       1  TARGET=     -1300.000
  4670.000      19.41     593.61       .00        .00     593.69        .08        .68        .01     575.80
    8260.0      168.4     2704.1    5387.5      210.1      737.4     5162.0      560.7       66.0     575.90
       .63        .80       3.67      1.04       .087       .045       .107       .000     574.20    1354.69
   .000247      2900.      3010.     2950.          2          0          0        .00     800.87    2167.70

1490 NH CARD USED
*SECNO 7680.000

3265 DIVIDED FLOW

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.20

3470 ENCROACHMENT STATIONS=          .0     2800.0  TYPE=       1  TARGET=      2799.999
  7680.000      18.66     593.96       .00        .00     593.97        .01        .27        .01     576.10
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     8260.0      132.7      795.9     7331.4      290.3      590.8     8196.8     1052.0      125.0     575.80
       1.48        .46       1.35        .89       .090       .055       .051       .000     575.30    1298.09
    .000051      2800.      3010.      2800.          2          0          0        .00    1027.13    2616.45


 1490 NH CARD USED
 *SECNO 10100.000
1
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     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


 3470 ENCROACHMENT STATIONS=      1700.0     3200.0  TYPE=       1  TARGET=     -1700.000
  10100.000      18.91     594.11        .00        .00     594.14        .03        .17        .00     577.50
     8260.0      502.4     2026.8     5730.7      668.7      971.3     5258.5     1480.4      177.1     577.40
       1.98        .75       2.09       1.09       .057       .050       .056       .000     575.20    1782.02
    .000103      2000.      2420.      2350.          2          0          0        .00     944.48    2726.51


 1490 NH CARD USED
 *SECNO 11580.000

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =    .44

  11580.000      18.21     594.31        .00        .00     594.48        .17        .29        .04     577.30
     8260.0      671.5     4791.3     2797.2      491.3     1152.3     1691.9     1654.2      205.7     577.40
       2.11       1.37       4.16       1.65       .068       .055       .059       .000     576.10    1437.24
    .000524      1480.      1480.      1480.          2          0          0        .00     735.71    2172.95


 CCHV=      .500 CEHV=     1.000
 1490 NH CARD USED
 *SECNO 11721.000

 3470 ENCROACHMENT STATIONS=      1300.0     2600.0  TYPE=       1  TARGET=     -1300.000
  11721.000      18.49     594.39        .00        .00     594.60        .21        .08        .04     592.60
     8260.0      122.5     6543.8     1593.7      241.0     1586.1     1353.5     1664.8      208.0     592.80
       2.12        .51       4.13       1.18       .100       .049       .075       .000     575.90    1433.92
    .000613       141.       141.       141.          2          0          0        .00     744.67    2178.59


 *SECNO 11738.000

 3470 ENCROACHMENT STATIONS=      1300.0     2600.0  TYPE=       1  TARGET=     -1300.000
  11738.000      18.50     594.40        .00        .00     594.61        .21        .01        .00     592.60
     8260.0      159.3     6550.2     1550.4      242.6     1587.1     1358.1     1666.0      208.3     592.80
       2.12        .66       4.13       1.14       .080       .050       .080       .000     575.90    1433.51
    .000651        17.        17.        17.          0          0          0        .00     745.77    2179.28


 1490 NH CARD USED
 *SECNO 11739.000
1
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     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
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      Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
      TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
      SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


 1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

 3470 ENCROACHMENT STATIONS=      1300.0     2600.0  TYPE=       1  TARGET=     -1300.000
  11739.000      18.66     594.56        .00        .00     594.67        .10        .00        .05     592.60
     8260.0      367.9     4593.0     3299.2      270.7     1603.6     1438.4     1666.1      208.4     592.80
       2.12       1.36       2.86       2.29       .040       .072       .040       .000     575.90    1426.62
    .000634         1.         1.         1.          2          0          0        .00     764.39    2191.00


 1490 NH CARD USED
 *SECNO 14670.000

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.91


 3470 ENCROACHMENT STATIONS=          .0     3350.0  TYPE=       1  TARGET=      3349.999
  14670.000      20.16     595.46        .00        .00     595.52        .06        .83        .02     578.30
     8260.0      345.9     3233.6     4680.5      406.8     1178.0     4573.6     1961.6      254.3     577.70
       2.58        .85       2.75       1.02       .080       .050       .086       .000     575.30    1897.10
    .000173      2850.      2940.      2600.          2          0          0        .00     730.57    2627.67


 CCHV=      .100 CEHV=      .300
 1490 NH CARD USED
 *SECNO 17820.000

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.42


 3470 ENCROACHMENT STATIONS=          .0     1700.0  TYPE=       1  TARGET=      1699.999
  17820.000      20.86     595.86        .00        .00     595.88        .02        .36        .00     579.20
     8260.0      154.9     1342.4     6762.7      264.6      757.4     6236.8     2428.1      308.3     578.90
       3.29        .59       1.77       1.08       .094       .055       .052       .000     575.00     873.12
    .000086      3150.      3150.      3000.          2          0          0        .00     826.88    1700.00


 CCHV=      .300 CEHV=      .500
 1490 NH CARD USED
 *SECNO 19270.000
 1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
 3280 CROSS SECTION   19270.00 EXTENDED        .97 FEET

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      SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
      Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
      TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
      SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .32


 3470 ENCROACHMENT STATIONS=       405.0     1925.0  TYPE=       1  TARGET=      1520.000
  19270.000      17.47     596.07        .00        .00     596.23        .16        .28        .07     584.90
```

8260.0	190.1	3498.3	4571.6	134.7	914.9	1647.1	2589.5	325.7	587.40
3.42	1.41	3.82	2.78	.090	.068	.070	.000	578.60	1675.88
.000839	1500.	1450.	1400.	2	0	0	.00	249.12	1925.00

CCHV= .500 CEHV= 1.000
1490 NH CARD USED
*SECNO 19360.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= .0 1926.0 TYPE= 1 TARGET= 1925.999

19360.000	15.67	596.17	.00	.00	596.40	.23	.10	.07	597.40
8410.0	.0	8410.0	.0	.0	2163.8	.0	2594.5	326.1	599.90
3.42	.00	3.89	.00	.000	.052	.000	.000	580.50	1700.00
.001424	90.	90.	90.	2	0	0	.00	214.07	1926.00

SPECIAL BRIDGE

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
.00	1.82	3.04	.00	226.60	.00	2502.70	.00	580.50	580.50

*SECNO 19401.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS= .000 EGLWC= 596.400 ELLC= 597.800 PCWSE= 596.165 ELTRD= 599.000

3265 DIVIDED FLOW

3370 NORMAL BRIDGE, NRD= 37 MIN ELTRD= 599.00 MAX ELLC= 597.80

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3470 ENCROACHMENT STATIONS= .0 1926.6 TYPE= 1 TARGET= 1926.599

19401.000	15.72	596.22	.00	.00	596.46	.23	.06	.00	597.40
8410.0	.0	8410.0	.0	.0	2177.1	.0	2596.4	326.3	599.90
3.42	.00	3.86	.00	.000	.052	.000	.000	580.50	1700.00
.001405	39.	39.	39.	2	0	0	.00	214.68	1926.60

T1 CLINTON TOWNSHIP FLOOD INSURANCE STUDY
T2 UPDATED 100-YEAR FLOOD STS CONSULTANTS LTD. 12/93
T3 NORTH BRANCH OF THE CLINTON RIVER

```
J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

    -1.0       4.0       0.0       0.0       0.0       0.0       0.0       0.0     593.25      0.0

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    3.0       0.0      -1.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0

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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


 *PROF 3
0

 CCHV=     .100 CEHV=      .300
 1490 NH CARD USED
 *SECNO  .000

 3265 DIVIDED FLOW

 3280 CROSS SECTION       .00 EXTENDED      2.25 FEET


 3470 ENCROACHMENT STATIONS=       265.0      935.0  TYPE=       1  TARGET=       670.000
      .000     21.25    593.25       .00    593.25    593.37       .12       .00       .00    578.30
   11600.0     340.1    5287.1    5972.8     305.3    1367.5    4380.1        .0        .0    575.10
       .00      1.11      3.87      1.36      .068      .045      .099      .000    572.00    265.00
   .000266        0.        0.        0.         0         0         0       .00    619.10    935.00


 1490 NH CARD USED
 *SECNO 300.000

 3265 DIVIDED FLOW

 3280 CROSS SECTION    300.00 EXTENDED      2.32 FEET


 3470 ENCROACHMENT STATIONS=       340.0      860.0  TYPE=       1  TARGET=       520.000
   300.000     21.31    593.31       .00       .00    593.47       .16       .09       .01    578.30
   11600.0     358.8    5825.1    5416.1     271.1    1372.2    3551.8      38.7       3.8    575.10
       .03      1.32      4.25      1.52      .069      .045      .098      .000    572.00    340.00
   .000319      300.      300.      300.         1         0         0       .00    483.47    860.00


 CCHV=     .500 CEHV=     1.000
 1490 NH CARD USED
 *SECNO 858.000
 1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .70

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 595.30 ELREA= 595.30

858.000	22.46	593.56	.00	.00	593.75	.19	.24	.03	591.80
11600.0	.0	11600.0	.0	.0	3317.0	.0	92.4	8.4	581.10
.07	.00	3.50	.00	.000	.049	.000	.000	571.10	428.50
.000652	558.	558.	538.	2	0	0	.00	236.53	665.03

SPECIAL BRIDGE

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
.00	2.02	3.04	.00	276.00	.00	3014.10	.00	571.10	571.10

1490 NH CARD USED
*SECNO 944.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
594.02	593.75	.00	0.	11600.	3014.	5934.	592.60	595.50	0.

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 595.50 ELREA= 595.50

944.000	22.74	593.84	.00	.00	594.02	.18	.27	.00	591.80
11600.0	.0	11600.0	.0	.0	3367.4	.0	99.0	8.8	581.10
.08	.00	3.44	.00	.000	.066	.000	.000	571.10	428.50
.001150	86.	86.	86.	2	0	0	.00	236.53	665.03

1490 NH CARD USED
*SECNO 1244.000

3265 DIVIDED FLOW

3280 CROSS SECTION 1244.00 EXTENDED 1.66 FEET

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.14

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

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3470 ENCROACHMENT STATIONS=          .0    1425.0  TYPE=       1  TARGET=      1424.999
  1244.000       22.76     594.16       .00        .00    594.21       .05        .12       .07     574.80
    9590.0       339.0     2793.7    6457.3      580.4    1032.7    5103.9      135.5      13.6     575.00
       .13         .58       2.71      1.27       .075      .055      .071       .000    571.40     140.84
   .000172        300.       300.      330.          2         0         0        .00   1104.14    1425.00

CCHV=      .100 CEHV=      .300
1490 NH CARD USED
*SECNO 1650.000

3265 DIVIDED FLOW

3280 CROSS SECTION   1650.00 EXTENDED       .93 FEET

3470 ENCROACHMENT STATIONS=          .0    1425.0  TYPE=       1  TARGET=      1424.999
  1650.000       22.43     594.23       .00        .00    594.29       .06        .08       .00     575.20
    9590.0       283.0     2873.8    6433.2      449.7    1017.0    4900.4      199.8      24.0     575.40
       .20         .63       2.83      1.31       .080      .055      .071       .000    571.80     168.06
   .000191        406.       406.      435.          2         0         0        .00   1034.58    1425.00

1490 NH CARD USED
*SECNO 4670.000

3470 ENCROACHMENT STATIONS=      1300.0    3600.0  TYPE=       1  TARGET=     -1300.000
  4670.000       20.64     594.84       .00        .00    594.91       .08        .62       .01     575.80
    9590.0       244.3     2888.5    6457.3      311.3     785.2    6104.6      660.1      92.7     575.90
       .65         .78       3.68      1.06       .083      .045      .105       .000    574.20    1312.29
   .000228       2900.      3010.     2950.          2         0         0        .00    999.73    2312.02

1490 NH CARD USED
*SECNO 7680.000

3265 DIVIDED FLOW

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.24
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     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

3470 ENCROACHMENT STATIONS=          .0    2800.0  TYPE=       1  TARGET=      2799.999
  7680.000       19.85     595.15       .00        .00    595.17       .01        .25       .01     576.10
    9590.0       180.1      835.1    8574.8      542.5     628.9    9363.5     1233.5     170.2     575.80
      1.49         .33       1.33       .92       .085      .055      .051       .000    575.30    1259.58
   .000046       2800.      3010.     2800.          2         0         0        .00   1404.74    2695.98

1490 NH CARD USED
*SECNO 10100.000

3470 ENCROACHMENT STATIONS=      1700.0    3200.0  TYPE=       1  TARGET=     -1700.000
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 10100.000      20.09     595.29        .00        .00     595.32        .03        .15        .00     577.50
    9590.0      733.1     2112.9     6743.9      965.2     1033.6     6044.0     1729.9      232.7     577.40
      1.99        .76       2.04       1.12       .055       .050       .056       .000     575.20    1730.97
   .000091      2000.      2420.      2350.          2          0          0        .00    1004.40    2735.36


1490 NH CARD USED
*SECNO 11580.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .46

 11580.000      19.36     595.46        .00        .00     595.60        .14        .25        .03     577.30
    9590.0      991.8     4781.2     3817.0      723.6     1228.6     2310.5     1938.9      264.6     577.40
      2.14       1.37       3.89       1.65       .063       .055       .057       .000     576.10    1379.79
   .000421      1480.      1480.      1480.          2          0          0        .00     875.07    2254.86


CCHV=     .500 CEHV=    1.000
1490 NH CARD USED
*SECNO 11721.000

3470 ENCROACHMENT STATIONS=     1300.0     2600.0  TYPE=      1  TARGET=     -1300.000
 11721.000      19.63     595.53        .00        .00     595.71        .18        .07        .04     592.60
    9590.0      282.4     6723.5     2584.1      459.8     1700.3     1946.3     1952.5      267.5     592.80
      2.15        .61       3.95       1.33       .100       .049       .069       .000     575.90    1374.75
   .000514       141.       141.       141.          2          0          0        .00     884.74    2259.50


*SECNO 11738.000

3470 ENCROACHMENT STATIONS=     1300.0     2600.0  TYPE=      1  TARGET=     -1300.000
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


 11738.000      19.64     595.54        .00        .00     595.73        .19        .01        .01     592.60
    9590.0      373.4     6875.4     2341.2      461.6     1701.1     1950.8     1954.1      267.8     592.80
      2.15        .81       4.04       1.20       .080       .050       .080       .000     575.90    1374.14
   .000569        17.        17.        17.          0          0          0        .00     885.92    2260.06


1490 NH CARD USED
*SECNO 11739.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3470 ENCROACHMENT STATIONS=     1300.0     2600.0  TYPE=      1  TARGET=     -1300.000
 11739.000      19.79     595.69        .00        .00     595.78        .08        .00        .05     592.60
    9590.0      746.5     4378.2     4465.2      498.3     1717.0     2040.4     1954.2      267.8     592.80
      2.15       1.50       2.55       2.19       .040       .072       .040       .000     575.90    1361.96
   .000459         1.         1.         1.          2          0          0        .00     909.32    2271.28


1490 NH CARD USED
*SECNO 14670.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.63
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3470 ENCROACHMENT STATIONS=          .0    3350.0  TYPE=      1  TARGET=      3349.999
 14670.000      21.16     596.46      .00       .00    596.52      .06       .73      .01    578.30
   9590.0       428.8     3517.8    5643.4     479.1    1241.2    5219.7    2302.7    321.4    577.70
    2.60          .89       2.83      1.08      .081      .050      .085      .000   575.30   1878.84
  .000172       2850.      2940.     2600.        2         0         0       .00   833.86   2712.71

CCHV=      .100 CEHV=      .300
1490 NH CARD USED
*SECNO 17820.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.45

3470 ENCROACHMENT STATIONS=          .0    1700.0  TYPE=      1  TARGET=      1699.999
 17820.000      21.85     596.85      .00       .00    596.87      .02       .35      .00    579.20
   9590.0       179.7     1428.0    7982.4     302.4     796.1    6986.2    2824.9    379.7    578.90
    3.29          .59       1.79      1.14      .094      .055      .052      .000   575.00    852.96
  .000082       3150.      3150.     3000.        2         0         0       .00   847.04   1700.00

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     SECNO      DEPTH     CWSEL     CRIWS     WSELK      EG        HV        HL       OLOSS    L-BANK ELEV
     Q          QLOB      QCH       QROB      ALOB       ACH       AROB      VOL      TWA      R-BANK ELEV
     TIME       VLOB      VCH       VROB      XNL        XNCH      XNR       WTN      ELMIN    SSTA
     SLOPE      XLOBL     XLCH      XLOBR     ITRIAL     IDC       ICONT     CORAR    TOPWID   ENDST

CCHV=      .300 CEHV=      .500
1490 NH CARD USED
*SECNO 19270.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
3280 CROSS SECTION  19270.00 EXTENDED      1.94 FEET

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =    .31

3470 ENCROACHMENT STATIONS=       405.0    1925.0  TYPE=      1  TARGET=      1520.000
 19270.000      18.44     597.04      .00       .00    597.23      .18       .27      .08    584.90
   9590.0       241.3     3930.5    5418.2     159.0     970.9    1808.5    3003.6    397.5    587.40
    3.40         1.52       4.05      3.00      .090      .068      .070      .000   578.60   1673.79
  .000869       1500.      1450.     1400.        0         0         0       .00   251.21   1925.00     2500 (597.7)

CCHV=      .500 CEHV=     1.000
1490 NH CARD USED
*SECNO 19360.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=          .0    1926.0  TYPE=      1  TARGET=      1925.999
 19360.000      16.64     597.14      .00       .00    597.40      .26       .10      .08    597.40
   9720.0          .0     9720.0       .0        .0    2373.1       .0    3009.1    398.0    599.90
    3.41          .00       4.10       .00      .000      .052      .000      .000   580.50   1700.00
  .001476         90.        90.       90.        2         0         0       .00   214.09   1926.00
```

```
SPECIAL BRIDGE

SB  XK          XKOR        COFQ        RDLEN       BWC         BWP         BAREA       SS          ELCHU       ELCHD
      .00        1.82        3.04         .00      226.60         .00     2502.70         .00      580.50      580.50

*SECNO 19401.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
1
   11JAN94      11:33:23                                                                                          PAGE    28


    SECNO       DEPTH       CWSEL       CRIWS       WSELK       EG          HV          HL          OLOSS       L-BANK ELEV
    Q           QLOB        QCH         QROB        ALOB        ACH         AROB        VOL         TWA         R-BANK ELEV
    TIME        VLOB        VCH         VROB        XNL         XNCH        XNR         WTN         ELMIN       SSTA
    SLOPE       XLOBL       XLCH        XLOBR       ITRIAL      IDC         ICONT       CORAR       TOPWID      ENDST


6070,LOW FLOW BY NORMAL BRIDGE

EGPRS=       .000  EGLWC=     597.404  ELLC=      597.800  PCWSE=     597.143  ELTRD=     599.000

3265 DIVIDED FLOW


3370 NORMAL BRIDGE, NRD=  37 MIN ELTRD=    599.00 MAX ELLC=    597.80


3470 ENCROACHMENT STATIONS=          .0     1926.6  TYPE=       1  TARGET=      1926.599
 19401.000       16.71      597.21         .00         .00      597.46         .26         .06         .00      597.40
    9720.0          .0      9720.0          .0          .0      2387.6          .0      3011.2       398.2      599.90
      3.41         .00        4.07         .00        .000        .052        .000        .000      580.50     1700.00
   .001456         39.         39.         39.           2           0           0         .00      214.69     1926.60


1
   11JAN94      11:33:23                                                                                          PAGE    29


T1 CLINTON TOWNSHIP FLOOD INSURANCE STUDY
T2 UPDATED 500-YEAR FLOOD   STS CONSULTANTS LTD.   12/93
T3 NORTH BRANCH OF THE CLINTON RIVER

J1  ICHECK      INQ         NINV        IDIR        STRT        METRIC      HVINS       Q           WSEL        FQ

    -1.0         5.0         0.0         0.0         0.0         0.0         0.0         0.0      596.25         0.0

J2  NPROF       IPLOT       PRFVS       XSECV       XSECH       FN          ALLDC       IBW         CHNIM       ITRACE

    15.0         0.0        -1.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0



1
   11JAN94      11:33:23                                                                                          PAGE    30


    SECNO       DEPTH       CWSEL       CRIWS       WSELK       EG          HV          HL          OLOSS       L-BANK ELEV
    Q           QLOB        QCH         QROB        ALOB        ACH         AROB        VOL         TWA         R-BANK ELEV
    TIME        VLOB        VCH         VROB        XNL         XNCH        XNR         WTN         ELMIN       SSTA
```

```
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


*PROF 4
0

CCHV=      .100 CEHV=      .300
1490 NH CARD USED
*SECNO   .000
3280 CROSS SECTION        .00 EXTENDED      5.25 FEET


3470 ENCROACHMENT STATIONS=      265.0      935.0  TYPE=        1  TARGET=       670.000
      .000      24.25     596.25        .00     596.25     596.37        .12        .00        .00     578.30
   15500.0     1464.4     6230.9     7804.7     1123.9     1568.5     5364.1         .0         .0     575.10
       .00       1.30       3.97       1.45       .051       .045       .099       .000     572.00     265.00
   .000234         0.         0.         0.          0          0          0        .00     670.00     935.00


1490 NH CARD USED
*SECNO 300.000
3280 CROSS SECTION     300.00 EXTENDED      5.30 FEET


3470 ENCROACHMENT STATIONS=      340.0      860.0  TYPE=        1  TARGET=       520.000
   300.000      24.30     596.30        .00        .00     596.46        .17        .08        .01     578.30
   15500.0     1273.9     7060.9     7165.2      862.7     1571.5     4304.4       50.9        4.1     575.10
       .03       1.48       4.49       1.66       .054       .045       .099       .000     572.00     340.00
   .000298       300.       300.       300.          2          0          0        .00     520.00     860.00


CCHV=      .500 CEHV=     1.000
1490 NH CARD USED
*SECNO 858.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
3280 CROSS SECTION     858.00 EXTENDED        .80 FEET


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.55

   858.000      25.50     596.60        .00        .00     596.63        .03        .10        .07     591.80
   15500.0     1203.4     7019.7     7277.0     1234.9     4037.1     7482.7      173.1       16.1     581.10
       .14        .97       1.74        .97       .040       .049       .090       .000     571.10      60.22
   .000124       558.       558.       538.          2          0          0        .00    1386.40    1446.62


1
   11JAN94      11:33:23                                                                                    PAGE    31


    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


SPECIAL BRIDGE

SB  XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
       .00       2.02       3.04        .00     276.00        .00    3014.10        .00     571.10     571.10

1490 NH CARD USED
```

```
*SECNO 944.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
3280 CROSS SECTION    944.00 EXTENDED      1.27 FEET

PRESSURE AND WEIR FLOW,  Weir Submergence Based on TRAPEZOIDAL Shape


 EGPRS       EGLWC        H3        QWEIR       QPR        BAREA    TRAPEZOID     ELLC      ELTRD      WEIRLN
                                                                       AREA
    597.43     596.63       .00      3500.     11974.      3014.     5934.      592.60     595.50       975.


   944.000      25.97     597.07       .00        .00     597.10       .02        .47        .00     591.80
   15500.0     1355.0     6136.5    8008.4     1411.3     4132.8    7851.6      198.9       18.8     581.10
       .16        .96       1.48      1.02       .050       .066      .100       .000     571.10      49.29
   .000162        86.        86.       86.          2          0         3        .00    1397.33    1446.62


1490 NH CARD USED
*SECNO 1244.000
3280 CROSS SECTION   1244.00 EXTENDED      4.62 FEET


3470 ENCROACHMENT STATIONS=          .0    1425.0  TYPE=       1  TARGET=     1424.999
  1244.000      25.72     597.12       .00        .00     597.15       .04        .04        .01     574.80
   13000.0     1815.3     2834.6    8350.1     2519.0     1174.7    6947.0      286.8       29.0     575.00
       .23        .72       2.41      1.20       .056       .055      .070       .000     571.40       2.60
   .000115       300.       300.      330.          0          0         0        .00    1422.39    1425.00


CCHV=      .100 CEHV=      .300
1490 NH CARD USED
*SECNO 1650.000
3280 CROSS SECTION   1650.00 EXTENDED      3.87 FEET


3470 ENCROACHMENT STATIONS=          .0    1425.0  TYPE=       1  TARGET=     1424.999
  1650.000      25.36     597.16       .00        .00     597.20       .04        .05        .00     575.20
   13000.0     1632.6     2933.3    8434.1     2261.2     1158.2    6733.2      388.2       42.7     575.40
       .31        .72       2.53      1.25       .057       .055      .070       .000     571.80       3.03
   .000129       406.       406.      435.          0          0         0        .00    1421.97    1425.00
```



```
    SECNO      DEPTH      CWSEL      CRIWS      WSELK       EG         HV         HL        OLOSS     L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB        ACH        AROB       VOL       TWA       R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL         XNCH       XNR        WTN       ELMIN     SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL      IDC        ICONT      CORAR     TOPWID    ENDST


1490 NH CARD USED
*SECNO 4670.000
3280 CROSS SECTION   4670.00 EXTENDED      1.56 FEET


3470 ENCROACHMENT STATIONS=      1300.0    3600.0  TYPE=       1  TARGET=    -1300.000
  4670.000      23.36     597.56       .00        .00     597.60       .04        .40        .00     575.80
   13000.0      506.3     2810.8    9682.9      640.2      891.5   10995.2     1155.9      168.3     575.90
       .91        .79       3.15       .88       .073       .045      .090       .000     574.20    1300.00
   .000142      2900.      3010.     2950.          2          0         0        .00    2300.00    3600.00
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1490 NH CARD USED
*SECNO 7680.000

3265 DIVIDED FLOW

3280 CROSS SECTION   7680.00 EXTENDED      1.18 FEET


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.98


3470 ENCROACHMENT STATIONS=          .0    2800.0  TYPE=      1  TARGET=      2799.999
  7680.000     22.48     597.78       .00       .00    597.79       .01       .18       .00    576.10
  13000.0      620.3      917.0   11462.7    1956.8     712.9   12308.7    2043.8     317.5    575.80
     1.76        .32       1.29       .93      .070      .055      .051      .000    575.30    320.83
   .000036     2800.      3010.     2800.         2         0         0       .00   2337.64   2800.00


1490 NH CARD USED
*SECNO 10100.000
3280 CROSS SECTION  10100.00 EXTENDED       .68 FEET


3470 ENCROACHMENT STATIONS=     1700.0    3200.0  TYPE=      1  TARGET=     -1700.000
 10100.000     22.68     597.88       .00       .00    597.91       .03       .12       .00    577.50
   13000.0    1469.7     2329.9    9200.4    1756.0    1171.1    8133.4    2732.8     415.1    577.40
      2.27       .84       1.99      1.13      .054      .050      .056      .000    575.20   1700.00
   .000073     2000.      2420.     2350.         2         0         0       .00   1500.00   3200.00


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   11JAN94      11:33:23                                                                                     PAGE    33


    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

1490 NH CARD USED
*SECNO 11580.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =    .59

 11580.000     21.93     598.03       .00       .00    598.09       .06       .17       .01    577.30
   13000.0    3054.9     4168.3    5776.8    3450.6    1398.0    4122.1    3073.1     481.5    577.40
      2.50       .89       2.98      1.40      .054      .055      .055      .000    576.10    130.94
   .000208     1480.      1480.     1480.         2         0         0       .00   2410.15   2541.09


CCHV=      .500 CEHV=     1.000
1490 NH CARD USED
*SECNO 11721.000

3470 ENCROACHMENT STATIONS=     1300.0    2600.0  TYPE=      1  TARGET=     -1300.000
 11721.000     22.17     598.07       .00       .00    598.17       .11       .04       .05    592.60
   13000.0     843.2     6727.4    5429.4    1182.1    1953.2    3691.4    3098.6     487.5    592.80
      2.52       .71       3.44      1.47      .100      .049      .060      .000    575.90   1300.00
   .000325      141.       141.      141.         1         0         0       .00   1244.62   2544.62
```

```
 *SECNO 11738.000

 3470 ENCROACHMENT STATIONS=      1300.0     2600.0  TYPE=       1  TARGET=     -1300.000
  11738.000      22.17     598.07        .00        .00     598.20        .13        .01        .02     592.60
    13000.0     1177.7     7283.9     4538.5     1185.9     1954.5     3702.1     3101.3      487.9     592.80
       2.52        .99       3.73       1.23       .080       .050       .080       .000     575.90    1300.00
    .000402        17.        17.        17.          0          0          0        .00    1246.20    2546.20


 1490 NH CARD USED
 *SECNO 11739.000
 1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

 3470 ENCROACHMENT STATIONS=      1300.0     2600.0  TYPE=       1  TARGET=     -1300.000
  11739.000      22.28     598.18        .00        .00     598.24        .05        .00        .04     592.60
    13000.0     1886.0     3927.9     7186.1     1220.5     1966.0     3800.4     3101.5      488.0     592.80
       2.52       1.55       2.00       1.89       .040       .072       .040       .000     575.90    1300.00
    .000236         1.         1.         1.          2          0          0        .00    1260.61    2560.61


1
    11JAN94      11:33:23                                                                                        PAGE    34


     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

 1490 NH CARD USED
 *SECNO 14670.000

 3265 DIVIDED FLOW

 3280 CROSS SECTION  14670.00 EXTENDED       1.79 FEET


 3470 ENCROACHMENT STATIONS=          .0     3350.0  TYPE=       1  TARGET=      3349.999
  14670.000      23.39     598.69        .00        .00     598.73        .05        .49        .00     578.30
    13000.0     1083.5     3789.9     8126.6     1786.8     1381.3     7696.6     3655.9      625.3     577.70
       3.02        .61       2.74       1.06       .062       .050       .078       .000     575.30      85.47
    .000140      2850.      2940.      2600.          2          0          0        .00    3123.28    3350.00

 CCHV=     .100 CEHV=      .300
 1490 NH CARD USED
 *SECNO 17820.000
 3280 CROSS SECTION  17820.00 EXTENDED        .92 FEET


 3470 ENCROACHMENT STATIONS=          .0     1700.0  TYPE=       1  TARGET=      1699.999
  17820.000      24.02     599.02        .00        .00     599.04        .03        .31        .00     579.20
    13000.0      425.9     1635.5    10938.6     1095.5      880.6     8621.3     4403.8      793.2     578.90
       3.67        .39       1.86       1.27       .078       .055       .052       .000     575.00      78.48
    .000077      3150.      3150.      3000.          2          0          0        .00    1621.52    1700.00

 CCHV=     .300 CEHV=      .500
 1490 NH CARD USED
 *SECNO 19270.000
 1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
```

```
3265 DIVIDED FLOW

3280 CROSS SECTION  19270.00 EXTENDED      4.08 FEET


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =    .30


3470 ENCROACHMENT STATIONS=       405.0     1925.0  TYPE=       1  TARGET=      1520.000
 19270.000      20.58     599.18       .00        .00     599.39       .21        .26        .09     584.90
   13000.0      943.0     4795.7    7261.3     1045.0     1095.2    2166.5     4646.9      842.2     587.40
      3.78        .90       4.38      3.35       .074       .068      .070       .000     578.60     405.00
   .000865      1500.      1450.     1400.          1          0         0        .00    1285.93    1925.00


1
   11JAN94      11:33:23                                                                              PAGE    35


     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

CCHV=      .500 CEHV=      1.000
1490 NH CARD USED
*SECNO 19360.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=          .0     1926.0  TYPE=       1  TARGET=      1925.999
 19360.000      18.79     599.29       .00        .00     599.61       .32        .10        .12     597.40
   13100.0       60.8    13039.2        .0      122.4     2850.5        .0     4654.5      844.2     599.90
      3.78        .50       4.57       .00       .064       .053      .000       .000     580.50     582.46
   .001598        90.        90.       90.          2          0         0        .00     672.80    1926.00


SPECIAL BRIDGE

SB  XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
       .00       1.82       3.04       .00     226.60        .00    2502.70        .00     580.50     580.50

*SECNO 19401.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW

PRESSURE AND WEIR FLOW,  Weir Submergence Based on TRAPEZOIDAL Shape


  EGPRS      EGLWC        H3        QWEIR       QPR        BAREA     TRAPEZOID      ELLC      ELTRD      WEIRLN
                                                                        AREA
    600.06     599.61       .00      1203.     11875.      2503.      3920.     597.80     599.00       836.


3470 ENCROACHMENT STATIONS=          .0     1926.6  TYPE=       1  TARGET=      1926.599
 19401.000      19.13     599.63       .00        .00     599.92       .30        .31        .00     597.40
```

13100.0	213.2	12886.8	.0	306.1	2930.0	.0	4657.2	844.9	599.90
3.78	.70	4.40	.00	.056	.053	.000	.000	580.50	514.48
.001438	39.	39.	39.	2	0	3	.00	865.30	1926.60

THIS RUN EXECUTED 11JAN94 11:33:26

****
HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

BRANCH OF THE CLINTON R

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	.000	.00	.00	.00	572.00	6710.00	588.39	.00	588.50	3.00	3.43	3922.06	3870.95
	.000	.00	.00	.00	572.00	10200.00	592.09	.00	592.20	2.66	3.72	5488.32	6252.45
	.000	.00	.00	.00	572.00	11600.00	593.25	.00	593.37	2.66	3.87	6052.85	7116.52
	.000	.00	.00	.00	572.00	15500.00	596.25	.00	596.37	2.34	3.97	8056.48	10140.90
	300.000	300.00	.00	.00	572.00	6710.00	588.47	.00	588.60	3.36	3.64	3471.17	3661.88
	300.000	300.00	.00	.00	572.00	10200.00	592.15	.00	592.30	3.15	4.06	4754.69	5750.46
	300.000	300.00	.00	.00	572.00	11600.00	593.31	.00	593.47	3.19	4.25	5195.04	6496.52
	300.000	300.00	.00	.00	572.00	15500.00	596.30	.00	596.46	2.98	4.49	6738.62	8977.64
*	858.000	558.00	.00	.00	571.10	6710.00	588.74	.00	588.88	7.36	3.04	2208.13	2473.58
*	858.000	558.00	.00	.00	571.10	10200.00	592.40	.00	592.57	6.63	3.35	3043.60	3960.89
*	858.000	558.00	.00	.00	571.10	11600.00	593.56	.00	593.75	6.52	3.50	3317.01	4543.74
*	858.000	558.00	.00	.00	571.10	15500.00	596.60	.00	596.63	1.24	1.74	12754.69	13924.87
	944.000	86.00	595.50	592.60	571.10	6710.00	588.82	.00	588.97	15.01	3.08	2176.49	1732.08
*	944.000	86.00	595.50	592.60	571.10	10200.00	592.50	.00	592.69	24.49	3.50	2917.80	2061.14
	944.000	86.00	595.50	592.60	571.10	11600.00	593.84	.00	594.02	11.50	3.44	3367.39	3421.12
	944.000	86.00	595.50	592.60	571.10	15500.00	597.07	.00	597.10	1.62	1.48	13395.70	12165.37
*	1244.000	300.00	.00	.00	571.40	5250.00	589.13	.00	589.20	2.86	2.92	3354.99	3103.35
*	1244.000	300.00	.00	.00	571.40	8260.00	592.86	.00	592.92	1.93	2.75	5497.12	5951.02
*	1244.000	300.00	.00	.00	571.40	9590.00	594.16	.00	594.21	1.72	2.71	6716.98	7319.46
	1244.000	300.00	.00	.00	571.40	13000.00	597.12	.00	597.15	1.15	2.41	10640.67	12121.27
	1650.000	406.00	.00	.00	571.80	5250.00	589.25	.00	589.33	3.20	3.06	3218.71	2934.70
	1650.000	406.00	.00	.00	571.80	8260.00	592.95	.00	593.01	2.13	2.86	5287.16	5662.48
	1650.000	406.00	.00	.00	571.80	9590.00	594.23	.00	594.29	1.91	2.83	6367.09	6936.22
	1650.000	406.00	.00	.00	571.80	13000.00	597.16	.00	597.20	1.29	2.53	10152.67	11441.10
	4670.000	3010.00	.00	.00	574.20	5250.00	590.15	.00	590.24	2.91	3.48	4097.13	3078.02
	4670.000	3010.00	.00	.00	574.20	8260.00	593.61	.00	593.69	2.47	3.67	6109.49	5258.31
	4670.000	3010.00	.00	.00	574.20	9590.00	594.84	.00	594.91	2.28	3.68	7201.03	6345.02
	4670.000	3010.00	.00	.00	574.20	13000.00	597.56	.00	597.60	1.42	3.15	12526.80	10922.29

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
*	7680.000	3010.00	.00	.00	575.30	5250.00	590.65	.00	590.66	.88	1.55	5765.77	5597.51
*	7680.000	3010.00	.00	.00	575.30	8260.00	593.96	.00	593.97	.51	1.35	9077.88	11551.43
*	7680.000	3010.00	.00	.00	575.30	9590.00	595.15	.00	595.17	.46	1.33	10534.97	14187.41
*	7680.000	3010.00	.00	.00	575.30	13000.00	597.78	.00	597.79	.36	1.29	14978.36	21582.25
	10100.000	2420.00	.00	.00	575.20	5250.00	590.91	.00	590.95	1.65	2.32	4171.25	4087.35
	10100.000	2420.00	.00	.00	575.20	8260.00	594.11	.00	594.14	1.03	2.09	6898.55	8140.84
	10100.000	2420.00	.00	.00	575.20	9590.00	595.29	.00	595.32	.91	2.04	8042.80	10055.35
	10100.000	2420.00	.00	.00	575.20	13000.00	597.88	.00	597.91	.73	1.99	11060.55	15222.49
*	11580.000	1480.00	.00	.00	576.10	5250.00	591.21	.00	591.47	7.90	4.49	1711.60	1867.55
*	11580.000	1480.00	.00	.00	576.10	8260.00	594.31	.00	594.48	5.24	4.16	3335.54	3609.71
*	11580.000	1480.00	.00	.00	576.10	9590.00	595.46	.00	595.60	4.21	3.89	4262.73	4673.55
*	11580.000	1480.00	.00	.00	576.10	13000.00	598.03	.00	598.09	2.08	2.98	8970.75	9012.00
	11721.000	141.00	.00	.00	575.90	5250.00	591.36	.00	591.59	7.21	3.93	1619.01	1954.74
	11721.000	141.00	.00	.00	575.90	8260.00	594.39	.00	594.60	6.13	4.13	3180.59	3335.12
	11721.000	141.00	.00	.00	575.90	9590.00	595.53	.00	595.71	5.14	3.95	4106.45	4228.21
	11721.000	141.00	.00	.00	575.90	13000.00	598.07	.00	598.17	3.25	3.44	6826.65	7206.99
	11738.000	17.00	.00	.00	575.90	5250.00	591.39	.00	591.61	7.42	3.88	1624.72	1927.20
	11738.000	17.00	.00	.00	575.90	8260.00	594.40	.00	594.61	6.51	4.13	3187.83	3236.75
	11738.000	17.00	.00	.00	575.90	9590.00	595.54	.00	595.73	5.69	4.04	4113.48	4019.18
	11738.000	17.00	.00	.00	575.90	13000.00	598.07	.00	598.20	4.02	3.73	6842.47	6481.72
	11739.000	1.00	.00	.00	575.90	5250.00	591.46	.00	591.63	12.27	3.51	1650.41	1498.97
	11739.000	1.00	.00	.00	575.90	8260.00	594.56	.00	594.67	6.34	2.86	3312.81	3280.96
	11739.000	1.00	.00	.00	575.90	9590.00	595.69	.00	595.78	4.59	2.55	4255.65	4474.16
	11739.000	1.00	.00	.00	575.90	13000.00	598.18	.00	598.24	2.36	2.00	6986.90	8460.53
*	14670.000	2940.00	.00	.00	575.30	5250.00	592.67	.00	592.72	1.69	2.44	4415.63	4033.32
*	14670.000	2940.00	.00	.00	575.30	8260.00	595.46	.00	595.52	1.73	2.75	6158.42	6273.53
*	14670.000	2940.00	.00	.00	575.30	9590.00	596.46	.00	596.52	1.72	2.83	6940.01	7305.08
	14670.000	2940.00	.00	.00	575.30	13000.00	598.69	.00	598.73	1.40	2.74	10864.74	10984.94
	17820.000	3150.00	.00	.00	575.00	5250.00	593.11	.00	593.13	1.11	1.82	4995.41	4992.73
*	17820.000	3150.00	.00	.00	575.00	8260.00	595.86	.00	595.88	.86	1.77	7258.84	8916.16
*	17820.000	3150.00	.00	.00	575.00	9590.00	596.85	.00	596.87	.82	1.79	8084.75	10574.56
	17820.000	3150.00	.00	.00	575.00	13000.00	599.02	.00	599.04	.77	1.86	10597.32	14806.23
*	19270.000	1450.00	.00	.00	578.60	5250.00	593.39	.00	593.51	7.96	3.29	2038.36	1860.73
*	19270.000	1450.00	.00	.00	578.60	8260.00	596.07	.00	596.23	8.39	3.82	2696.72	2851.88
*	19270.000	1450.00	.00	.00	578.60	9590.00	597.04	.00	597.23	8.69	4.05	2938.50	3254.04
*	19270.000	1450.00	.00	.00	578.60	13000.00	599.18	.00	599.39	8.65	4.38	4306.73	4419.25
	19360.000	90.00	.00	.00	580.50	5440.00	593.48	.00	593.66	12.54	3.40	1601.22	1536.31
	19360.000	90.00	.00	.00	580.50	8410.00	596.17	.00	596.40	14.24	3.89	2163.77	2228.95
	19360.000	90.00	.00	.00	580.50	9720.00	597.14	.00	597.40	14.76	4.10	2373.15	2530.35
	19360.000	90.00	.00	.00	580.50	13100.00	599.29	.00	599.61	15.98	4.57	2972.88	3276.54

1
11JAN94 11:33:23 PAGE 38

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K

19401.000	39.00	599.00	597.80	580.50	5440.00	593.54	.00	593.71	12.36	3.38	1611.65	1547.22
19401.000	39.00	599.00	597.80	580.50	8410.00	596.22	.00	596.46	14.05	3.86	2177.07	2243.96
19401.000	39.00	599.00	597.80	580.50	9720.00	597.21	.00	597.46	14.56	4.07	2387.56	2547.09
19401.000	39.00	599.00	597.80	580.50	13100.00	599.63	.00	599.92	14.38	4.40	3236.08	3454.50

BRANCH OF THE CLINTON R

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	.000	6710.00	588.39	.00	.00	.00	416.68	.00
	.000	10200.00	592.09	3.70	.00	.00	429.94	.00
	.000	11600.00	593.25	1.16	.00	.00	619.10	.00
	.000	15500.00	596.25	3.00	.00	.00	670.00	.00
	300.000	6710.00	588.47	.00	.08	.00	342.00	300.00
	300.000	10200.00	592.15	3.68	.06	.00	355.20	300.00
	300.000	11600.00	593.31	1.16	.06	.00	483.47	300.00
	300.000	15500.00	596.30	2.98	.05	.00	520.00	300.00
*	858.000	6710.00	588.74	.00	.26	.00	227.79	558.00
*	858.000	10200.00	592.40	3.66	.24	.00	233.62	558.00
*	858.000	11600.00	593.56	1.16	.24	.00	236.53	558.00
*	858.000	15500.00	596.60	3.04	.30	.00	1386.40	558.00
	944.000	6710.00	588.82	.00	.09	.00	227.79	86.00
*	944.000	10200.00	592.50	3.67	.10	.00	233.62	86.00
	944.000	11600.00	593.84	1.34	.28	.00	236.53	86.00
	944.000	15500.00	597.07	3.24	.47	.00	1397.33	86.00
*	1244.000	5250.00	589.13	.00	.30	.00	491.82	300.00
*	1244.000	8260.00	592.86	3.74	.37	.00	698.62	300.00
*	1244.000	9590.00	594.16	1.29	.32	.00	1104.14	300.00
	1244.000	13000.00	597.12	2.96	.04	.00	1422.39	300.00
	1650.000	5250.00	589.25	.00	.12	.00	489.18	406.00
	1650.000	8260.00	592.95	3.70	.08	.00	648.44	406.00
	1650.000	9590.00	594.23	1.28	.07	.00	1034.58	406.00
	1650.000	13000.00	597.16	2.93	.05	.00	1421.97	406.00
	4670.000	5250.00	590.15	.00	.90	.00	510.88	3010.00
	4670.000	8260.00	593.61	3.46	.67	.00	800.87	3010.00
	4670.000	9590.00	594.84	1.22	.60	.00	999.73	3010.00
	4670.000	13000.00	597.56	2.73	.40	.00	2300.00	3010.00
*	7680.000	5250.00	590.65	.00	.49	.00	984.88	3010.00
*	7680.000	8260.00	593.96	3.31	.35	.00	1027.13	3010.00
*	7680.000	9590.00	595.15	1.19	.32	.00	1404.74	3010.00
*	7680.000	13000.00	597.78	2.62	.21	.00	2337.64	3010.00
	10100.000	5250.00	590.91	.00	.26	.00	734.87	2420.00
	10100.000	8260.00	594.11	3.21	.15	.00	944.48	2420.00
	10100.000	9590.00	595.29	1.17	.14	.00	1004.40	2420.00
	10100.000	13000.00	597.88	2.59	.11	.00	1500.00	2420.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	11580.000	5250.00	591.21	.00	.31	.00	366.30	1480.00
*	11580.000	8260.00	594.31	3.09	.19	.00	735.71	1480.00
*	11580.000	9590.00	595.46	1.16	.17	.00	875.07	1480.00
*	11580.000	13000.00	598.03	2.57	.15	.00	2410.15	1480.00
	11721.000	5250.00	591.36	.00	.15	.00	313.30	141.00
	11721.000	8260.00	594.39	3.02	.08	.00	744.67	141.00
	11721.000	9590.00	595.53	1.14	.07	.00	884.74	141.00
	11721.000	13000.00	598.07	2.54	.04	.00	1244.62	141.00
	11738.000	5250.00	591.39	.00	.02	.00	314.44	17.00
	11738.000	8260.00	594.40	3.01	.01	.00	745.77	17.00
	11738.000	9590.00	595.54	1.14	.01	.00	885.92	17.00
	11738.000	13000.00	598.07	2.53	.01	.00	1246.20	17.00
	11739.000	5250.00	591.46	.00	.08	.00	319.51	1.00
	11739.000	8260.00	594.56	3.10	.16	.00	764.39	1.00
	11739.000	9590.00	595.69	1.13	.16	.00	909.32	1.00
	11739.000	13000.00	598.18	2.49	.11	.00	1260.61	1.00
*	14670.000	5250.00	592.67	.00	1.21	.00	569.25	2940.00
*	14670.000	8260.00	595.46	2.80	.90	.00	730.57	2940.00
*	14670.000	9590.00	596.46	1.00	.77	.00	833.86	2940.00
	14670.000	13000.00	598.69	2.22	.50	.00	3123.28	2940.00
	17820.000	5250.00	593.11	.00	.44	.00	821.23	3150.00
*	17820.000	8260.00	595.86	2.75	.40	.00	826.88	3150.00
*	17820.000	9590.00	596.85	.99	.39	.00	847.04	3150.00
	17820.000	13000.00	599.02	2.16	.33	.00	1621.52	3150.00
*	19270.000	5250.00	593.39	.00	.28	.00	243.35	1450.00
*	19270.000	8260.00	596.07	2.67	.21	.00	249.12	1450.00
*	19270.000	9590.00	597.04	.97	.19	.00	251.21	1450.00
*	19270.000	13000.00	599.18	2.14	.17	.00	1285.93	1450.00
	19360.000	5440.00	593.48	.00	.09	.00	200.62	90.00
	19360.000	8410.00	596.17	2.68	.10	.00	214.07	90.00
	19360.000	9720.00	597.14	.98	.10	.00	214.09	90.00
	19360.000	13100.00	599.29	2.14	.10	.00	672.80	90.00
	19401.000	5440.00	593.54	.00	.05	.00	201.16	39.00
	19401.000	8410.00	596.22	2.69	.06	.00	214.68	39.00
	19401.000	9720.00	597.21	.98	.06	.00	214.69	39.00
	19401.000	13100.00	599.63	2.42	.34	.00	865.30	39.00

SUMMARY OF ERRORS AND SPECIAL NOTES

WARNING SECNO= 858.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 858.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 858.000 PROFILE= 3 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 858.000 PROFILE= 4 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

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WARNING SECNO=    944.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   1244.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   1244.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   1244.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   7680.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   7680.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   7680.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   7680.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  11580.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  11580.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  11580.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  11580.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  14670.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  14670.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  14670.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  17820.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  17820.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  19270.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  19270.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  19270.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  19270.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Clinton Twp

3) WATERCOURSE: North Branch Clinton River

4) DOCUMENT TYPE: 10, 50, 100, 500 yr flood & encroached

00BREAK00

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1*****************************************                         **************************************
 *  HEC-2 WATER SURFACE PROFILES          *                         *  U.S. ARMY CORPS OF ENGINEERS
 *                                        *                         *  HYDROLOGIC ENGINEERING CENTER
 *  Version   4.6.2;  May 1991            *                         *  609 SECOND STREET, SUITE D
 *                                        *                         *  DAVIS, CALIFORNIA 95616-4687
 *  RUN DATE    11JAN94    TIME   11:33:23 *                         *          (916) 756-1104
 ******************************************                         **************************************
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X     X  XXXXXXX   XXXXX             XXXXX
X     X  X        X     X           X     X
X     X  X        X                       X
XXXXXXX  XXXX     X          XXXXX   XXXXX
X     X  X        X                 X
X     X  X        X     X           X
X     X  XXXXXXX   XXXXX            XXXXXXX
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THIS RUN EXECUTED 11JAN94   11:33:23

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**************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
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T1 CLINTON TOWNSHIP FLOOD INSURANCE STUDY
T2 UPDATED 10-YEAR FLOOD   STS CONSULTANTS LTD.   12/93
T3 NORTH BRANCH OF THE CLINTON RIVER

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-1.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	588.39	0.0

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	1.0	0.0	-1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

J3 VARIABLE CODES FOR SUMMARY PRINTOUT

150.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

QT	4.0	6710.0	10200.0	11600.0	15500.0	0.0	0.0	0.0	0.0	0.0
NC	.07	.07	.04	.10	0.30	0.0	0.0	0.0	0.0	0.0
NH	5.0	.04	500.0	.07	540.0	.045	607.0	.07	615.0	.10
NH	1388.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
X1	0.0	39.0	540.0	607.0	0.0	0.0	0.0	0.0	0.0	0.0
X3	10.0	0.0	0.0	265.0	0.0	935.0	0.0	0.0	0.0	0.0
GR	599.2	0.0	595.5	100.0	592.6	200.0	592.5	300.0	593.1	346.0
GR	593.0	400.0	593.5	500.0	588.2	519.0	585.2	527.0	582.9	533.0
GR	578.3	540.0	574.7	540.0	573.8	545.0	573.1	550.0	572.5	555.0
GR	572.1	560.0	572.1	565.0	572.1	570.0	572.0	575.0	572.0	580.0
GR	572.2	590.0	573.1	595.0	574.2	600.0	575.1	607.0	577.0	611.0

GR	580.1	615.0	579.7	650.0	578.5	653.0	580.8	700.0	577.3	725.0
GR	579.3	800.0	582.4	900.0	581.9	940.0	580.8	1000.0	580.9	1000.0
GR	582.4	1100.0	583.0	1200.0	590.2	1300.0	591.0	1388.0	0.0	0.0

NH	5.0	.04	500.0	.07	540.0	.045	607.0	.07	615.0	.10
NH	1388.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
X1	300.0	0.0	0.0	0.0	300.0	300.0	300.0	0.0	0.0	0.0
X3	0.0	0.0	0.0	340.0	0.0	860.0	0.0	0.0	0.0	0.0

NC	0.0	0.0	0.0	.50	1.0	0.0	0.0	0.0	0.0	0.0
NH	5.0	.04	428.5	.05	548.3	.045	580.189	.05	665.032	.09
NH	1446.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
X1	858.0	51.0	500.0	776.0	558.0	538.0	558.0	.857	0.0	0.0
X3	10.0	0.0	0.0	0.0	0.0	0.0	0.0	595.3	595.3	0.0
GR	599.2	0.0	595.5	100.0	592.6	200.0	592.5	300.0	593.1	346.0
GR	593.0	400.0	593.0	468.0	591.8	468.5	591.8	500.0	580.5	500.0
GR	579.9	520.0	580.1	540.0	580.3	566.3	592.1	566.3	592.1	569.7
GR	580.4	569.7	580.3	580.0	580.7	600.0	578.9	606.0	574.2	609.0
GR	573.6	620.0	572.9	630.0	572.7	636.3	592.3	636.3	592.3	639.7

GR	571.1	639.7	573.0	650.0	573.7	660.0	575.1	668.0	582.5	677.0
GR	581.4	700.0	581.6	706.3	592.5	706.3	592.5	709.7	581.1	709.7
GR	581.1	720.0	581.0	740.0	580.7	760.0	581.1	776.0	581.1	808.0
GR	582.4	900.0	581.9	940.0	580.8	1000.0	582.4	1100.0	583.0	1200.0
GR	590.2	1300.0	591.0	1388.0	591.2	1400.0	592.8	1500.0	594.4	1600.0
GR	595.8	1688.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

SB	0.0	2.02	3.04	0.0	276.0	0.0	3014.1	0.0	571.1	571.1
NH	3.0	.05	548.2	.045	580.2	.10	1446.6	0.0	0.0	0.0
X1	944.0	51.0	500.0	776.0	86.0	86.0	86.0	.857	0.0	0.0
X2	0.0	0.0	1.0	592.6	595.5	0.0	0.0	0.0	.857	0.0
X3	10.0	0.0	0.0	0.0	0.0	0.0	0.0	595.5	595.5	0.0
X4	2.0	581.1	664.946	581.1	692.542					
BT	27.0	0.0	599.2	599.2	100.0	595.5	595.5	200.0	595.9	592.6
BT	300.0	596.2	592.5	400.0	596.5	593.0	468.0	596.6	593.0	468.5
BT	599.5	591.8	500.0	599.5	591.8	566.3	599.7	592.1	569.7	599.7
BT	592.1	636.3	599.9	592.3	639.7	599.9	592.3	706.3	600.1	592.5
BT	709.7	600.1	592.5	775.9	600.3	592.6	776.0	600.3	581.1	808.0
BT	600.5	581.1	808.1	597.7	581.1	900.0	597.4	582.4	1000.0	596.9
BT	580.8	1100.0	596.5	582.4	1200.0	596.1	583.0	1300.0	595.6	590.2
BT	1400.0	595.5	591.2	1500.0	595.5	592.8	1600.0	595.7	594.4	1688.0
BT	595.8	595.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GR	599.2	0.0	595.5	100.0	592.6	200.0	592.5	300.0	593.1	346.0
GR	593.0	400.0	593.0	468.0	591.8	468.5	591.8	500.0	580.5	500.0
GR	579.9	520.0	580.1	540.0	580.3	566.3	592.1	566.3	592.1	569.7
GR	580.4	569.7	580.3	580.0	580.7	600.0	578.9	606.0	574.2	609.0
GR	573.6	620.0	572.9	630.0	572.7	636.3	592.3	636.3	592.3	639.7
GR	571.1	639.7	573.0	650.0	573.7	660.0	575.1	668.0	582.5	677.0
GR	581.4	700.0	581.6	706.3	592.5	706.3	592.5	709.7	581.1	709.7
GR	581.1	720.0	581.0	740.0	580.7	760.0	581.1	776.0	581.1	808.0
GR	582.4	900.0	581.9	940.0	580.8	1000.0	582.4	1100.0	583.0	1200.0
GR	590.2	1300.0	591.0	1388.0	591.2	1400.0	592.8	1500.0	594.4	1600.0
GR	595.8	1688.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

QT	4.0	5250.0	8260.0	9590.0	13000.0	0.0	0.0	0.0	0.0	0.0
NH	6.0	.05	729.0	.09	754.0	.055	802.0	.09	812.0	.07
NH	1429.0	.05	2029.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
X1	1244.0	34.0	754.0	802.0	300.0	330.0	300.0	0.0	-.40	0.0
X3	10.0	0.0	0.0	0.0	0.0	1425.0	0.0	0.0	0.0	0.0
GR	599.6	0.0	596.4	4.0	596.9	28.0	594.7	129.0	593.5	229.0

GR	593.2	329.0	593.7	429.0	594.4	529.0	595.4	629.0	595.2	720.0
GR	594.0	729.0	575.2	754.0	574.3	759.0	573.1	769.0	571.8	779.0
GR	572.1	789.0	573.5	799.0	575.4	802.0	582.6	812.0	583.3	829.0
GR	581.0	835.0	584.5	929.0	584.5	1029.0	583.0	1129.0	583.7	1179.0
GR	589.8	1229.0	591.9	1329.0	594.0	1429.0	592.6	1529.0	592.9	1629.0
GR	590.6	1729.0	588.4	1829.0	590.8	1929.0	593.3	2029.0	0.0	0.0
NC	0.0	0.0	0.0	.10	.30	0.0	0.0	0.0	0.0	0.0
NH	6.0	.05	729.0	.09	754.0	.055	802.0	.09	812.0	.07
NH	1429.0	.05	2400.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

X1	1650.0	34.0	754.0	802.0	406.0	435.0	406.0	0.0	0.0	0.0
X3	10.0	0.0	0.0	0.0	0.0	1425.0	0.0	0.0	0.0	0.0
GR	599.6	0.0	596.4	4.0	596.9	28.0	594.7	129.0	593.5	229.0
GR	593.2	329.0	593.7	429.0	594.4	529.0	595.4	629.0	595.2	720.0
GR	594.0	729.0	575.2	754.0	574.3	759.0	573.1	769.0	571.8	779.0
GR	572.1	789.0	573.5	799.0	575.4	802.0	582.6	812.0	583.3	829.0
GR	581.0	835.0	584.5	929.0	584.5	1029.0	583.0	1129.0	583.7	1179.0
GR	589.8	1229.0	591.9	1329.0	594.0	1429.0	592.6	1529.0	592.9	1629.0
GR	590.6	1729.0	588.4	1829.0	590.8	1929.0	593.3	2029.0	594.3	2400.0
NH	7.0	.05	1300.0	.06	1400.0	.09	1421.0	.045	1460.0	.09
NH	1481.0	.11	1915.0	.05	3600.0	0.0	0.0	0.0	0.0	0.0
X1	4670.0	50.0	1421.0	1460.0	2900.0	2950.0	3010.0	0.0	0.0	0.0
X3	0.0	0.0	0.0	1300.0	0.0	0.0	0.0	0.0	0.0	0.0
GR	600.1	0.0	598.9	100.0	598.2	200.0	598.9	285.0	598.8	300.0
GR	598.0	400.0	597.5	500.0	596.2	600.0	594.8	700.0	594.2	800.0
GR	593.8	900.0	593.9	1000.0	593.8	1100.0	594.6	1200.0	595.0	1300.0
GR	594.6	1330.0	591.8	1400.0	583.9	1415.0	575.8	1421.0	574.8	1425.0
GR	574.2	1435.0	574.4	1445.0	575.0	1455.0	575.9	1460.0	580.0	1473.0
GR	582.8	1481.0	583.4	1485.0	583.3	1500.0	582.4	1600.0	582.4	1700.0
GR	583.4	1800.0	581.6	1885.0	583.6	1900.0	590.6	1915.0	593.7	2000.0
GR	592.8	2100.0	594.0	2200.0	594.8	2300.0	595.1	2400.0	595.5	2600.0
GR	595.5	2700.0	595.4	2800.0	595.3	2900.0	595.6	3000.0	595.6	3100.0
GR	596.0	3200.0	596.0	3300.0	595.8	3400.0	595.8	3500.0	596.0	3600.0
NH	6.0	.05	700.0	.06	1600.0	.09	1638.0	.055	1670.0	.09
NH	1685.0	.05	4000.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
X1	7680.0	51.0	1638.0	1670.0	2800.0	2800.0	3010.0	0.0	0.0	0.0
X3	10.0	0.0	0.0	0.0	0.0	2800.0	0.0	0.0	0.0	0.0
GR	601.9	0.0	599.5	100.0	598.4	200.0	597.9	300.0	597.3	400.0
GR	597.1	500.0	597.2	600.0	597.5	700.0	597.3	800.0	598.3	900.0
GR	597.6	1000.0	597.8	1100.0	596.2	1200.0	596.5	1216.0	593.9	1300.0
GR	594.4	1400.0	594.6	1500.0	595.4	1600.0	578.9	1635.0	576.1	1638.0
GR	575.4	1641.0	575.3	1650.0	575.5	1660.0	575.8	1670.0	576.3	1673.0
GR	582.0	1685.0	583.7	1700.0	585.7	1800.0	585.7	1900.0	585.6	2100.0
GR	585.3	2200.0	585.6	2300.0	585.1	2400.0	583.7	2500.0	583.0	2544.0
GR	591.4	2600.0	594.2	2618.0	595.2	2700.0	595.5	2800.0	595.5	2900.0
GR	595.4	3000.0	594.7	3100.0	594.5	3200.0	594.4	3300.0	594.7	3400.0
GR	594.9	3500.0	595.2	3600.0	595.5	3700.0	595.9	3800.0	596.3	3900.0
GR	596.6	4000.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NH	6.0	.05	1967.0	.06	2009.0	.05	2062.0	.06	2070.0	.08
NH	2100.0	.055	3200.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
X1	10100.	45.0	2009.0	2062.0	2000.0	2350.0	2420.0	0.0	0.0	0.0
X3	0.0	0.0	0.0	1700.0	0.0	0.0	0.0	0.0	0.0	0.0
GR	597.2	0.0	596.6	100.0	596.8	200.0	596.5	300.0	596.5	400.0
GR	595.9	500.0	595.5	600.0	595.3	700.0	595.3	800.0	594.5	900.0
GR	595.1	1000.0	595.9	1100.0	596.3	1130.0	595.3	1200.0	594.5	1300.0
GR	595.1	1400.0	595.7	1500.0	595.8	1600.0	596.0	1700.0	593.7	1800.0

GR	591.7	1900.0	591.0	1967.0	584.0	2000.0	577.5	2009.0	575.5	2020.0
GR	575.2	2030.0	575.3	2040.0	575.3	2050.0	577.4	2062.0	583.6	2070.0
GR	586.3	2100.0	586.9	2200.0	586.7	2300.0	586.2	2400.0	585.1	2500.0
GR	584.1	2600.0	587.2	2680.0	590.6	2700.0	596.3	2743.0	597.6	2800.0
GR	597.3	2900.0	597.3	2970.0	597.3	3000.0	596.8	3100.0	597.2	3200.0

NH	5.0	.05	1600.0	.11	1613.0	.055	1679.0	.11	1710.0	.05
NH	2600.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
X1	11580.	36.0	1613.0	1679.0	1480.0	1480.0	1480.0	0.0	0.0	0.0
GR	599.3	0.0	598.4	100.0	597.2	200.0	596.6	300.0	596.4	400.0
GR	596.4	500.0	596.4	600.0	595.6	700.0	596.3	800.0	596.3	900.0
GR	596.3	1000.0	595.8	1100.0	596.0	1200.0	596.5	1300.0	595.2	1400.0
GR	592.8	1500.0	592.3	1550.0	588.1	1600.0	577.3	1613.0	576.7	1623.0
GR	576.1	1635.0	576.8	1645.0	577.2	1655.0	576.9	1665.0	577.4	1679.0
GR	583.4	1686.0	584.6	1700.0	589.0	1710.0	588.9	1733.0	589.2	1755.0
GR	588.6	1800.0	590.6	1900.0	592.7	2000.0	593.7	2130.0	596.1	2300.0
GR	598.5	2600.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NC	0.0	0.0	0.0	.50	1.0	0.0	0.0	0.0	0.0	0.0
NH	4.0	.10	1600.0	.05	1700.0	.10	1900.0	.04	2600.0	0.0
X1	11721.	40.0	1600.0	1700.0	141.0	141.0	141.0	0.0	0.0	0.0
X3	0.0	0.0	0.0	1300.0	0.0	0.0	0.0	0.0	0.0	0.0
GR	599.3	0.0	598.4	100.0	597.2	200.0	596.6	300.0	596.4	400.0
GR	596.4	600.0	595.6	700.0	596.3	800.0	596.3	1000.0	595.8	1100.0
GR	596.0	1200.0	596.5	1300.0	595.2	1400.0	592.8	1500.0	592.3	1550.0
GR	592.6	1600.0	586.7	1600.0	586.7	1602.0	578.6	1602.0	577.3	1605.0
GR	576.5	1608.0	576.3	1614.0	576.1	1620.0	576.2	1630.0	575.9	1640.0
GR	576.3	1650.0	576.6	1660.0	576.8	1666.0	583.8	1681.0	582.8	1699.0
GR	591.9	1700.0	592.8	1700.0	592.7	1703.0	589.2	1755.0	588.6	1800.0
GR	590.6	1900.0	592.7	2000.0	593.7	2130.0	596.1	2300.0	598.5	2600.0
NC	.08	.08	.05	0.0	0.0	0.0	0.0	0.0	0.0	0.0
X1	11738.	0.0	0.0	0.0	17.0	17.0	17.0	0.0	0.0	0.0
X3	0.0	0.0	0.0	1300.0	0.0	0.0	0.0	0.0	0.0	0.0
NH	5.0	.04	1600.0	.09	1605.0	.05	1660.0	.09	1700.0	.04
NH	2600.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
X1	11739	0.0	0.0	0.0	1.0	1.0	1.0	0.0	0.0	0.0
X3	0.0	0.0	0.0	1300.0	0.0	0.0	0.0	0.0	0.0	0.0

NH	8.0	.03	1200.0	.04	1860.0	.09	1956.0	.054	1960.0	.05
NH	2023.0	.05	2033.0	.09	2454.0	.04	3600.0	0.0	0.0	0.0
X1	14670.	49.0	1960.0	2023.0	2850.0	2600.0	2940.0	0.0	0.0	0.0
X3	0.0	0.0	0.0	0.0	0.0	3350.0	0.0	0.0	0.0	0.0
GR	602.9	0.0	601.9	6.0	598.1	100.0	598.6	200.0	597.5	300.0
GR	597.8	400.0	599.6	500.0	598.5	600.0	598.3	700.0	598.1	800.0
GR	598.3	900.0	598.1	1000.0	598.3	1100.0	597.5	1200.0	597.5	1300.0
GR	597.5	1400.0	597.5	1500.0	597.7	1600.0	598.7	1700.0	598.5	1800.0
GR	597.5	1860.0	595.3	1900.0	583.2	1956.0	578.3	1960.0	578.2	1966.0
GR	577.2	1976.0	577.4	1986.0	575.6	1996.0	575.3	2006.0	576.3	2016.0
GR	577.7	2023.0	587.7	2033.0	586.4	2100.0	585.4	2200.0	584.8	2300.0
GR	582.6	2400.0	590.7	2454.0	594.0	2500.0	595.1	2600.0	596.4	2700.0
GR	596.9	2800.0	597.1	2900.0	597.4	3000.0	597.5	3100.0	597.5	3200.0
GR	597.1	3300.0	597.5	3400.0	597.5	3500.0	596.9	3600.0	0.0	0.0

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NC	0.0	0.0	0.0	0.1	0.3	0.0	0.0	0.0	0.0	0.0
NH	7.0	.08	400.0	.05	872.0	.094	906.0	.055	945.0	.09
NH	958.0	.08	1000.0	.05	2900.0	0.0	0.0	0.0	0.0	0.0
X1	17820.	40.0	906.0	945.0	3150.0	3000.0	3150.0	0.0	0.0	0.0
X3						1700.0				
GR	599.8		598.8	100.0	599.0	200.0	597.6	300.0	597.9	400.0
GR	598.3	426.0	597.8	500.0	598.0	600.0	598.2	700.0	598.1	800.0
GR	596.4	872.0	582.8	900.0	579.2	906.0	577.7	912.0	575.0	920.0
GR	575.2	930.0	576.7	940.0	578.9	945.0	586.7	958.0	588.1	968.0
GR	584.7	1000.0	588.3	1100.0	589.5	1200.0	589.7	1300.0	587.3	1400.0
GR	586.2	1500.0	586.8	1600.0	588.1	1700.0	588.5	1800.0	590.0	1900.0
GR	593.5	2000.0	597.0	2100.0	597.8	2200.0	597.8	2300.0	595.1	2400.0
GR	596.0	2500.0	597.3	2600.0	597.8	2700.0	598.2	2800.0	598.1	2900.0

K

NC				.30	.50					
NH	6.0	.05	1200.0	.09	1711.0	.05	1748.0	.09	1758.0	.07
NH	2000.0	.05	3600.0							
X1	19270.	48.0	1700.0	1758.0	1500.0	1400.0	1450.0	0.0	0.0	0.0
X3				~~405.0~~		1925.0				
GR	607.1	0.0	602.4	100.0	600.6	200.0	599.5	300.0	598.3	400.0
GR	599.1	500.0	599.7	600.0	598.9	700.0	598.1	732.0	598.4	800.0
GR	599.1	900.0	597.8	1000.0	597.9	1100.0	598.6	1200.0	598.1	1300.0
GR	598.0	1400.0	598.3	1500.0	599.8	1600.0	600.3	1620.0	597.4	1673.0
GR	584.9	1700.0	579.2	1711.0	578.9	1720.0	578.6	1730.0	578.9	1740.0
GR	579.5	1748.0	587.4	1758.0	585.0	1800.0	585.6	1873.0	588.0	1878.0
GR	587.4	1900.0	587.6	2000.0	588.6	2100.0	589.0	2200.0	589.0	2300.0
GR	592.6	2400.0	597.7	2500.0	597.8	2600.0	598.4	2700.0	598.8	2800.0
GR	597.9	2900.0	598.0	3000.0	597.2	3100.0	595.7	3200.0	597.3	3300.0
GR	597.3	3400.0	596.4	3500.0	595.1	3600.0	0.0	0.0	0.0	0.0

d/s Face

QT	4.0	5440.0	8410.0	9720.0	13100.0	0.0	0.0	0.0	0.0	0.0
NC				.50	1.0					
NH	5.0	.05	1647.0	.094	1708.0	.05	1897.0	.09	1926.6	.06
NH	3600.0									
X1	19360.	64.0	1700.0	1926.6	90.0	90.0	90.0			
X3						1926.0	599.9			
X4	1.0	587.5	1941.0							
GR	605.8	0.0	602.9	100.0	601.9	200.0	601.1	300.0	600.3	400.0
GR	599.7	500.0	599.2	600.0	599.0	700.0	599.0	800.0	599.0	900.0
GR	599.6	1100.0	600.2	1400.0	600.4	1600.0	600.4	1647.0	597.4	1700.0
GR	594.0	1700.0	593.0	1708.0	586.3	1726.0	582.3	1736.1	583.5	1736.1
GR	583.5	1736.6	597.7	1736.7	597.7	1739.6	583.5	1739.6	583.5	1740.1
GR	581.5	1740.1	580.8	1750.0	580.5	1770.0	581.0	1780.0	581.4	1786.1
GR	583.5	1786.1	583.5	1786.6	597.8	1786.6	597.8	1789.6	583.5	1789.6
GR	585.6	1800.0	586.6	1820.0	586.7	1836.6	597.8	1836.6	597.8	1839.6
GR	585.9	1839.7	586.2	1860.0	586.1	1875.0	585.9	1886.6	597.7	1886.6
GR	597.7	1889.6	584.5	1889.6	585.6	1897.0	594.4	1919.0	595.3	1926.6
GR	587.4	1926.6	587.4	1926.7	587.4	1926.8	587.6	1973.0	589.0	2173.0
GR	592.6	2373.0	600.2	2530.0	600.2	2800.0	600.4	2900.0	600.5	3000.0
GR	600.2	3300.0	600.0	3400.0	600.1	3500.0	601.1	3600.0	0.0	0.0

u/s Face
L
Half Rf

SB	0.0	1.82	3.04	0.0	226.6	0.0	2502.7	0.0	580.5	580.5
X1	19401.	0.0	0.0	0.0	39.0	39.0	39.0	0.0	0.0	0.0
X2	0.0	0.0	1.0	597.8	599.0					
X3						1926.6	599.9			
BT	37.0	0.0	603.8	570.0	100.0	602.9	570.0	200.0	601.9	570.0
BT	400.0	600.3	570.0	500.0	599.7	570.0	600.0	599.2	570.0	700.0
BT	599.0	570.0	900.0	599.0	570.0	1100.0	599.6	570.0	1400.0	600.2
BT	570.0	1600.0	600.4	570.0	1700.0	600.5	597.4	1700.0	601.2	597.7

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BT   1736.6       601.2       597.7     1739.6       601.2       597.7     1786.6       601.3       597.8     1789.6
BT    601.3       597.8      1836.6      601.3       597.8      1839.6      601.3       597.8      1886.6      601.2
BT    597.7      1889.6       601.2      597.7      1897.0       601.2      597.7      1919.0       601.2      597.7
BT   1926.6       601.2       597.7     1926.6       600.5       595.3     1941.0       600.5       587.5     1973.0
BT    600.5       570.0      2173.0      600.1       570.0      2373.0      599.9       570.0      2530.0      600.2
BT    570.0      2800.0       600.2      570.0      2900.0       600.4      570.0      3000.0       600.5      570.0
BT   3300.0       600.2       570.0     3400.0       600.0       570.0     3500.0       600.0       570.0     3600.0
BT    601.1       570.0         0.0        0.0         0.0         0.0        0.0         0.0         0.0        0.0
1
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     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


 *PROF 1
0

 CCHV=      .100 CEHV=      .300
 1490 NH CARD USED
 *SECNO  .000

 3470 ENCROACHMENT STATIONS=       265.0      935.0  TYPE=       1  TARGET=       670.000
      .000      16.39    588.39       .00    588.39    588.50       .11       .00       .00    578.30
    6710.0      101.1    3573.3    3035.6      94.2    1041.8    2786.1        .0        .0    575.10
       .00       1.07      3.43      1.09      .070      .045      .099      .000    572.00    518.32
   .000300         0.        0.        0.         0         0         0       .00    416.68    935.00


 1490 NH CARD USED
 *SECNO 300.000

 3470 ENCROACHMENT STATIONS=       340.0      860.0  TYPE=       1  TARGET=       520.000
   300.000      16.47    588.47       .00       .00    588.60       .13       .10       .01    578.30
    6710.0      109.8    3813.9    2786.3      96.1    1047.9    2327.2      25.5       2.6    575.10
       .03       1.14      3.64      1.20      .070      .045      .098      .000    572.00    518.00
   .000336       300.      300.      300.         0         0         0       .00    342.00    860.00


 CCHV=      .500 CEHV=     1.000
 1490 NH CARD USED
 *SECNO 858.000
 1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

 3265 DIVIDED FLOW


 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =    .68


 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       595.30 ELREA=       595.30

   858.000      17.64    588.74       .00       .00    588.88       .14       .26       .02    591.80
    6710.0         .0    6710.0        .0        .0    2208.1        .0      61.3       6.2    581.10
       .08        .00      3.04       .00      .000      .049      .000      .000    571.10    428.50
   .000736       558.      558.      538.         2         0         0       .00    227.79    665.03

1
   11JAN94      11:33:23                                                                                            PAGE     8
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


 SPECIAL BRIDGE

 SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
       .00      2.02      3.04       .00    276.00       .00   3014.10       .00    571.10    571.10

 1490 NH CARD USED
 *SECNO 944.000
 1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

 6070,LOW FLOW BY NORMAL BRIDGE

 EGPRS=       .000  EGLWC=    588.881   ELLC=    592.600  PCWSE=    588.736  ELTRD=    595.500

 3265 DIVIDED FLOW


 3370 NORMAL BRIDGE, NRD=  27 MIN ELTRD=   595.50 MAX ELLC=   592.60


 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       595.50 ELREA=       595.50

    944.000     17.72    588.82       .00       .00    588.97       .15       .09       .00    591.80
     6710.0        .0    6710.0        .0        .0    2176.5        .0      65.6       6.7    581.10
        .09       .00      3.08       .00      .000      .066      .000      .000    571.10    428.50
    .001501       86.       86.       86.         2         0         0   -247.44    227.79    665.03


 1490 NH CARD USED
 *SECNO 1244.000

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.79


 3470 ENCROACHMENT STATIONS=          .0    1425.0  TYPE=       1  TARGET=     1424.999
   1244.000     17.73    589.13       .00       .00    589.20       .07       .19       .04    574.80
     5250.0     122.0    2314.2    2813.8     136.5     791.2    2427.2      85.5       9.3    575.00
        .13       .89      2.92      1.16      .090      .055      .071      .000    571.40    734.95
    .000286      300.      300.      330.         2         0         0       .00    491.82   1226.77


 CCHV=     .100 CEHV=      .300
 1490 NH CARD USED
 *SECNO 1650.000
1
    11JAN94      11:33:23                                                                                         PAGE     9


   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST
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3470 ENCROACHMENT STATIONS=        .0    1425.0  TYPE=      1  TARGET=     1424.999
  1650.000      17.45    589.25       .00       .00    589.33       .08       .13       .00    575.20
    5250.0      122.5    2378.9    2748.7     131.3     777.9    2309.5     117.7      14.1    575.40
       .19        .93      3.06      1.19      .090      .055      .071      .000    571.80    735.32
   .000320       406.      406.      435.         2         0         0       .00    489.18   1224.49


1490 NH CARD USED
*SECNO 4670.000

3470 ENCROACHMENT STATIONS=     1300.0    3600.0  TYPE=      1  TARGET=    -1300.000
  4670.000      15.95    590.15       .00       .00    590.24       .08       .91       .00    575.80
    5250.0       78.8    2094.9    3076.3      98.8     602.2    3396.1     366.3      48.0    575.90
       .62        .80      3.48       .91      .090      .045      .108      .000    574.20   1403.14
   .000291      2900.     3010.     2950.         0         0         0       .00    510.88   1914.03


1490 NH CARD USED
*SECNO 7680.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.82


3470 ENCROACHMENT STATIONS=        .0    2800.0  TYPE=      1  TARGET=     2799.999
  7680.000      15.35    590.65       .00       .00    590.66       .02       .42       .01    576.10
    5250.0       96.6     750.7    4402.7     185.7     484.7    5095.3     685.9      96.3    575.80
      1.45        .52      1.55       .86      .090      .055      .051      .000    575.30   1610.09
   .000088      2800.     3010.     2800.         2         0         0       .00    984.88   2594.97


1490 NH CARD USED
*SECNO 10100.000

3470 ENCROACHMENT STATIONS=     1700.0    3200.0  TYPE=      1  TARGET=    -1700.000
 10100.000      15.71    590.91       .00       .00    590.95       .04       .28       .01    577.50
    5250.0      199.1    1862.0    3188.9     203.8     801.3    3166.1     953.4     142.5    577.40
      1.90        .98      2.32      1.01      .060      .050      .056      .000    575.20   1967.44
   .000165      2000.     2420.     2350.         2         0         0       .00    734.87   2702.31


1490 NH CARD USED
1
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     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


*SECNO 11580.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .46

 11580.000      15.11    591.21       .00       .00    591.47       .26       .46       .07    577.30
    5250.0      211.8    4253.2     785.0     168.4     948.2     595.0    1053.3     161.2    577.40
      2.00       1.26      4.49      1.32      .092      .055      .073      .000    576.10   1562.93
   .000790      1480.     1480.     1480.         2         0         0       .00    366.30   1929.23


CCHV=      .500 CEHV=     1.000
1490 NH CARD USED
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*SECNO 11721.000

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=     1300.0     2600.0  TYPE=       1  TARGET=    -1300.000
 11721.000      15.46     591.36        .00        .00     591.59        .23        .11        .01     592.60
    5250.0         .0     5045.1      204.9         .0     1283.6      335.4     1058.7      162.3     592.80
      2.01        .00       3.93        .61       .000       .049       .098       .000     575.90    1600.00
   .000721       141.       141.       141.          2          0          0        .00     313.30    1936.25


*SECNO 11738.000

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=     1300.0     2600.0  TYPE=       1  TARGET=    -1300.000
 11738.000      15.49     591.39        .00        .00     591.61        .22        .01        .00     592.60
    5250.0         .0     4991.6      258.4         .0     1285.5      339.3     1059.3      162.4     592.80
      2.01        .00       3.88        .76       .000       .050       .080       .000     575.90    1600.00
   .000742        17.        17.        17.          1          0          0        .00     314.44    1937.11


1490 NH CARD USED
*SECNO 11739.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW
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     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3470 ENCROACHMENT STATIONS=     1300.0     2600.0  TYPE=       1  TARGET=    -1300.000
 11739.000      15.56     591.46        .00        .00     591.63        .17        .00        .02     592.60
    5250.0         .0     4536.7      713.3         .0     1293.6      356.9     1059.4      162.4     592.80
      2.01        .00       3.51       2.00       .000       .071       .040       .000     575.90    1600.00
   .001227         1.         1.         1.          2          0          0        .00     319.51    1940.97


1490 NH CARD USED
*SECNO 14670.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.69


3470 ENCROACHMENT STATIONS=         .0     3350.0  TYPE=       1  TARGET=     3349.999
 14670.000      17.37     592.67        .00        .00     592.72        .05       1.02        .06     578.30
    5250.0      189.4     2441.6     2619.0      255.1     1002.1     3158.4     1250.1      189.7     577.70
      2.51        .74       2.44        .83       .078       .050       .088       .000     575.30    1912.18
   .000169      2850.      2940.      2600.          3          0          0        .00     569.25    2481.43


CCHV=      .100 CEHV=      .300
1490 NH CARD USED
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*SECNO 17820.000

3470 ENCROACHMENT STATIONS=          .0    1700.0  TYPE=        1  TARGET=      1699.999
 17820.000       18.11     593.11       .00       .00     593.13       .02       .41       .00     579.20
    5250.0       108.1     1181.7    3960.2     182.1      650.3    4163.0    1577.8     237.9     578.90
      3.26         .59       1.82       .95      .094       .055      .052      .000    575.00     878.77
   .000111       3150.      3150.     3000.         3          0         0       .00    821.23    1700.00


CCHV=      .300 CEHV=      .500
1490 NH CARD USED
*SECNO 19270.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =    .37


3470 ENCROACHMENT STATIONS=       405.0    1925.0  TYPE=        1  TARGET=      1520.000
 19270.000       14.79     593.39       .00       .00     593.51       .12       .33       .05     584.90
    5250.0        89.3     2500.6    2660.1      77.9      759.8    1200.6    1691.9     255.1     587.40
      3.40        1.15       3.29      2.22      .090       .068      .070      .000    578.60    1681.65
   .000796       1500.      1450.     1400.         2          0         0       .00    243.35    1925.00


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    SECNO       DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q           QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME        VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE       XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


CCHV=      .500 CEHV=     1.000
1490 NH CARD USED
*SECNO 19360.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=          .0    1926.0  TYPE=        1  TARGET=      1925.999
 19360.000       12.98     593.48       .00       .00     593.66       .18       .09       .06     597.40
    5440.0          .0     5440.0        .0        .0     1601.2        .0    1695.7     255.6     599.90
      3.41         .00       3.40       .00      .000       .049      .000      .000    580.50    1704.13
   .001254         90.        90.       90.         2          0         0       .00    200.62    1916.71



SPECIAL BRIDGE

SB  XK          XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
       .00        1.82       3.04       .00     226.60        .00    2502.70       .00     580.50     580.50

*SECNO 19401.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS=        .000  EGLWC=     593.663  ELLC=     597.800  PCWSE=     593.484  ELTRD=     599.000

3265 DIVIDED FLOW
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3370 NORMAL BRIDGE, NRD=  37 MIN ELTRD=   599.00 MAX ELLC=   597.80


3470 ENCROACHMENT STATIONS=          .0     1926.6  TYPE=      1  TARGET=      1926.599
 19401.000      13.04     593.54       .00        .00     593.71        .18        .05        .00     597.40
    5440.0         .0     5440.0        .0         .0     1611.7         .0     1697.1      255.7     599.90
      3.41        .00       3.38       .00       .000       .050       .000       .000     580.50    1703.71
   .001236        39.        39.       39.          2          0          0        .00     201.16    1916.84


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T1 CLINTON TOWNSHIP FLOOD INSURANCE STUDY
T2 UPDATED 50-YEAR FLOOD   STS CONSULTANTS LTD.   12/93
T3 NORTH BRANCH OF THE CLINTON RIVER

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

    -1.0       3.0       0.0       0.0       0.0       0.0       0.0       0.0     592.09      0.0

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    2.0        0.0      -1.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0

1
   11JAN94      11:33:23                                                                                        PAGE   14


    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

 *PROF 2
0

CCHV=     .100 CEHV=      .300
1490 NH CARD USED
*SECNO  .000
3280 CROSS SECTION       .00 EXTENDED      1.09 FEET


3470 ENCROACHMENT STATIONS=       265.0      935.0  TYPE=      1  TARGET=      670.000
      .000      20.09     592.09       .00     592.09     592.20        .11        .00        .00     578.30
   10200.0      248.1     4799.8    5152.1      198.9     1289.7     3999.7         .0         .0     575.10
       .00       1.25       3.72      1.29       .070       .045       .099       .000     572.00     505.05
   .000266         0.         0.        0.          0          0          0        .00     429.94     935.00


1490 NH CARD USED
*SECNO 300.000
3280 CROSS SECTION    300.00 EXTENDED      1.16 FEET


3470 ENCROACHMENT STATIONS=       340.0      860.0  TYPE=      1  TARGET=      520.000
   300.000      20.15     592.15       .00        .00     592.30        .15        .09        .01     578.30
   10200.0      274.1     5251.4    4674.5      201.4     1294.6     3258.7       35.3        2.7     575.10
       .03       1.36       4.06      1.43       .070       .045       .098       .000     572.00     504.80
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```
   .000315      300.      300.      300.         1         0         0       .00    355.20    860.00


CCHV=     .500 CEHV=    1.000
1490 NH CARD USED
*SECNO 858.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .69


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      595.30 ELREA=      595.30

   858.000     21.30    592.40       .00       .00    592.57       .17       .24       .03    591.80
   10200.0        .0   10200.0        .0        .0    3043.6        .0      84.5       6.4    581.10
       .08       .00      3.35       .00      .000      .049      .000      .000    571.10    428.50
   .000663      558.      558.      538.         2         0         0       .00    233.62    665.03

1
   11JAN94      11:33:23                                                                                  PAGE   15


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
       .00      2.02      3.04       .00    276.00       .00   3014.10       .00    571.10    571.10

1490 NH CARD USED
*SECNO 944.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS=       .000  EGLWC=    592.575  ELLC=    592.600  PCWSE=    592.398  ELTRD=    595.500

3265 DIVIDED FLOW


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .52


3370 NORMAL BRIDGE, NRD=  27 MIN ELTRD=   595.50 MAX ELLC=   592.60


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      595.50 ELREA=      595.50

   944.000     21.40    592.50       .00       .00    592.69       .19       .10       .02    591.80
   10200.0        .0   10200.0        .0        .0    2917.8        .0      90.4       6.9    581.10
       .08       .00      3.50       .00      .000      .066      .000      .000    571.10    428.50
   .002449       86.       86.       86.         2         0         0   -445.48    233.62    665.03
```

1490 NH CARD USED
*SECNO 1244.000

3265 DIVIDED FLOW

3280 CROSS SECTION 1244.00 EXTENDED .36 FEET

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.89

3470 ENCROACHMENT STATIONS= .0 1425.0 TYPE= 1 TARGET= 1424.999

1244.000	21.46	592.86	.00	.00	592.92	.05	.16	.07	574.80
8260.0	185.8	2669.1	5405.1	218.1	970.6	4308.4	120.8	10.3	575.00
.13	.85	2.75	1.25	.090	.055	.071	.000	571.40	307.37
.000193	300.	300.	330.	2	0	0	.00	698.62	1393.99

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

CCHV= .100 CEHV= .300
1490 NH CARD USED
*SECNO 1650.000

3470 ENCROACHMENT STATIONS= .0 1425.0 TYPE= 1 TARGET= 1424.999

1650.000	21.15	592.95	.00	.00	593.01	.06	.09	.00	575.20
8260.0	186.2	2731.9	5342.0	209.4	955.3	4122.4	173.9	17.0	575.40
.20	.89	2.86	1.30	.090	.055	.071	.000	571.80	730.40
.000213	406.	406.	435.	2	0	0	.00	648.44	1378.84

1490 NH CARD USED
*SECNO 4670.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 1300.0 3600.0 TYPE= 1 TARGET= -1300.000

4670.000	19.41	593.61	.00	.00	593.69	.08	.68	.01	575.80
8260.0	168.4	2704.1	5387.5	210.1	737.4	5162.0	560.7	66.0	575.90
.63	.80	3.67	1.04	.087	.045	.107	.000	574.20	1354.69
.000247	2900.	3010.	2950.	2	0	0	.00	800.87	2167.70

1490 NH CARD USED
*SECNO 7680.000

3265 DIVIDED FLOW

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.20

3470 ENCROACHMENT STATIONS= .0 2800.0 TYPE= 1 TARGET= 2799.999

7680.000	18.66	593.96	.00	.00	593.97	.01	.27	.01	576.10

```
    8260.0      132.7      795.9     7331.4      290.3      590.8     8196.8     1052.0      125.0     575.80
      1.48        .46       1.35        .89       .090       .055       .051       .000     575.30    1298.09
   .000051      2800.      3010.      2800.          2          0          0        .00    1027.13    2616.45


 1490 NH CARD USED
 *SECNO 10100.000
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     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


 3470 ENCROACHMENT STATIONS=      1700.0     3200.0  TYPE=       1  TARGET=     -1700.000
  10100.000      18.91     594.11        .00        .00     594.14        .03        .17        .00     577.50
    8260.0      502.4     2026.8     5730.7      668.7      971.3     5258.5     1480.4      177.1     577.40
      1.98        .75       2.09       1.09       .057       .050       .056       .000     575.20    1782.02
   .000103      2000.      2420.      2350.          2          0          0        .00     944.48    2726.51


 1490 NH CARD USED
 *SECNO 11580.000

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =    .44

  11580.000      18.21     594.31        .00        .00     594.48        .17        .29        .04     577.30
    8260.0      671.5     4791.3     2797.2      491.3     1152.3     1691.9     1654.2      205.7     577.40
      2.11       1.37       4.16       1.65       .068       .055       .059       .000     576.10    1437.24
   .000524      1480.      1480.      1480.          2          0          0        .00     735.71    2172.95


 CCHV=      .500 CEHV=     1.000
 1490 NH CARD USED
 *SECNO 11721.000

 3470 ENCROACHMENT STATIONS=      1300.0     2600.0  TYPE=       1  TARGET=     -1300.000
  11721.000      18.49     594.39        .00        .00     594.60        .21        .08        .04     592.60
    8260.0      122.5     6543.8     1593.7      241.0     1586.1     1353.5     1664.8      208.0     592.80
      2.12        .51       4.13       1.18       .100       .049       .075       .000     575.90    1433.92
   .000613       141.       141.       141.          2          0          0        .00     744.67    2178.59


 *SECNO 11738.000

 3470 ENCROACHMENT STATIONS=      1300.0     2600.0  TYPE=       1  TARGET=     -1300.000
  11738.000      18.50     594.40        .00        .00     594.61        .21        .01        .00     592.60
    8260.0      159.3     6550.2     1550.4      242.6     1587.1     1358.1     1666.0      208.3     592.80
      2.12        .66       4.13       1.14       .080       .050       .080       .000     575.90    1433.51
   .000651        17.        17.        17.          0          0          0        .00     745.77    2179.28


 1490 NH CARD USED
 *SECNO 11739.000
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     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
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    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3470 ENCROACHMENT STATIONS=      1300.0     2600.0  TYPE=       1  TARGET=     -1300.000
 11739.000      18.66     594.56        .00        .00     594.67        .10        .00        .05     592.60
    8260.0      367.9     4593.0     3299.2      270.7     1603.6     1438.4     1666.1      208.4     592.80
      2.12       1.36       2.86       2.29       .040       .072       .040       .000     575.90    1426.62
   .000634         1.         1.         1.          2          0          0        .00     764.39    2191.00


1490 NH CARD USED
*SECNO 14670.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.91


3470 ENCROACHMENT STATIONS=          .0     3350.0  TYPE=       1  TARGET=      3349.999
 14670.000      20.16     595.46        .00        .00     595.52        .06        .83        .02     578.30
    8260.0      345.9     3233.6     4680.5      406.8     1178.0     4573.6     1961.6      254.3     577.70
      2.58        .85       2.75       1.02       .080       .050       .086       .000     575.30    1897.10
   .000173      2850.      2940.      2600.          2          0          0        .00     730.57    2627.67


CCHV=     .100 CEHV=      .300
1490 NH CARD USED
*SECNO 17820.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.42


3470 ENCROACHMENT STATIONS=          .0     1700.0  TYPE=       1  TARGET=      1699.999
 17820.000      20.86     595.86        .00        .00     595.88        .02        .36        .00     579.20
    8260.0      154.9     1342.4     6762.7      264.6      757.4     6236.8     2428.1      308.3     578.90
      3.29        .59       1.77       1.08       .094       .055       .052       .000     575.00     873.12
   .000086      3150.      3150.      3000.          2          0          0        .00     826.88    1700.00


CCHV=     .300 CEHV=      .500
1490 NH CARD USED
*SECNO 19270.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
3280 CROSS SECTION  19270.00 EXTENDED        .97 FEET
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .32


3470 ENCROACHMENT STATIONS=       405.0     1925.0  TYPE=       1  TARGET=      1520.000
 19270.000      17.47     596.07        .00        .00     596.23        .16        .28        .07     584.90
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    8260.0      190.1     3498.3    4571.6      134.7      914.9     1647.1     2589.5      325.7     587.40
      3.42       1.41       3.82      2.78       .090       .068       .070       .000     578.60    1675.88
   .000839      1500.      1450.     1400.          2          0          0        .00     249.12    1925.00
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CCHV=      .500 CEHV=     1.000
1490 NH CARD USED
*SECNO 19360.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=          .0     1926.0  TYPE=       1  TARGET=       1925.999
 19360.000      15.67     596.17        .00        .00     596.40        .23        .10        .07     597.40
    8410.0         .0     8410.0         .0         .0     2163.8         .0     2594.5      326.1     599.90
      3.42        .00       3.89        .00       .000       .052       .000       .000     580.50    1700.00
   .001424         90.        90.        90.          2          0          0        .00     214.07    1926.00



SPECIAL BRIDGE

SB  XK         XKOR       COFQ       RDLEN       BWC        BWP       BAREA       SS         ELCHU      ELCHD
      .00       1.82       3.04        .00     226.60        .00    2502.70        .00     580.50     580.50

*SECNO 19401.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS=        .000  EGLWC=     596.400  ELLC=     597.800  PCWSE=     596.165  ELTRD=     599.000

3265 DIVIDED FLOW


3370 NORMAL BRIDGE, NRD=  37 MIN ELTRD=    599.00 MAX ELLC=    597.80
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3470 ENCROACHMENT STATIONS=          .0     1926.6  TYPE=       1  TARGET=       1926.599
 19401.000      15.72     596.22        .00        .00     596.46        .23        .06        .00     597.40
    8410.0         .0     8410.0         .0         .0     2177.1         .0     2596.4      326.3     599.90
      3.42        .00       3.86        .00       .000       .052       .000       .000     580.50    1700.00
   .001405         39.        39.        39.          2          0          0        .00     214.68    1926.60
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T1 CLINTON TOWNSHIP FLOOD INSURANCE STUDY
T2 UPDATED 100-YEAR FLOOD   STS CONSULTANTS LTD.   12/93
T3 NORTH BRANCH OF THE CLINTON RIVER
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J1  ICHECK     INQ       NINV       IDIR       STRT      METRIC     HVINS       Q         WSEL       FQ

    -1.0        4.0       0.0        0.0        0.0        0.0        0.0       0.0     593.25      0.0

J2  NPROF      IPLOT     PRFVS      XSECV      XSECH      FN         ALLDC      IBW       CHNIM      ITRACE

    3.0        0.0       -1.0       0.0        0.0        0.0        0.0        0.0       0.0        0.0
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

 *PROF 3
0

 CCHV=     .100 CEHV=      .300
 1490 NH CARD USED
 *SECNO  .000

 3265 DIVIDED FLOW

 3280 CROSS SECTION       .00 EXTENDED      2.25 FEET


 3470 ENCROACHMENT STATIONS=      265.0      935.0  TYPE=       1  TARGET=      670.000
        .000      21.25     593.25        .00     593.25     593.37        .12        .00        .00     578.30
     11600.0      340.1     5287.1     5972.8      305.3     1367.5     4380.1         .0         .0     575.10
         .00       1.11       3.87       1.36       .068       .045       .099       .000     572.00     265.00
     .000266         0.         0.         0.          0          0          0        .00     619.10     935.00


 1490 NH CARD USED
 *SECNO 300.000

 3265 DIVIDED FLOW

 3280 CROSS SECTION    300.00 EXTENDED      2.32 FEET


 3470 ENCROACHMENT STATIONS=      340.0      860.0  TYPE=       1  TARGET=      520.000
     300.000      21.31     593.31        .00        .00     593.47        .16        .09        .01     578.30
     11600.0      358.8     5825.1     5416.1      271.1     1372.2     3551.8       38.7        3.8     575.10
         .03       1.32       4.25       1.52       .069       .045       .098       .000     572.00     340.00
     .000319       300.       300.       300.          1          0          0        .00     483.47     860.00


 CCHV=     .500 CEHV=     1.000
 1490 NH CARD USED
 *SECNO 858.000
 1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =    .70
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       595.30 ELREA=       595.30

   858.000      22.46     593.56        .00        .00     593.75        .19        .24        .03     591.80
   11600.0         .0    11600.0         .0         .0     3317.0         .0       92.4        8.4     581.10
       .07        .00       3.50        .00       .000       .049       .000       .000     571.10     428.50
   .000652       558.       558.       538.          2          0          0        .00     236.53     665.03


SPECIAL BRIDGE

SB  XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
      .00        2.02       3.04        .00     276.00        .00    3014.10        .00     571.10     571.10

1490 NH CARD USED
*SECNO 944.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
PRESSURE FLOW

 EGPRS      EGLWC      H3         QWEIR      QPR        BAREA      TRAPEZOID    ELLC       ELTRD      WEIRLN
                                                                     AREA
    594.02     593.75        .00         0.     11600.      3014.      5934.     592.60     595.50         0.


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       595.50 ELREA=       595.50

   944.000      22.74     593.84        .00        .00     594.02        .18        .27        .00     591.80
   11600.0         .0    11600.0         .0         .0     3367.4         .0       99.0        8.8     581.10
       .08        .00       3.44        .00       .000       .066       .000       .000     571.10     428.50
   .001150        86.        86.        86.          2          0          0        .00     236.53     665.03

1490 NH CARD USED
*SECNO 1244.000

3265 DIVIDED FLOW

3280 CROSS SECTION   1244.00 EXTENDED      1.66 FEET

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.14
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST
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3470 ENCROACHMENT STATIONS=          .0    1425.0  TYPE=       1  TARGET=     1424.999
  1244.000      22.76     594.16       .00        .00     594.21       .05       .12        .07     574.80
    9590.0      339.0     2793.7    6457.3      580.4     1032.7    5103.9     135.5       13.6     575.00
       .13        .58       2.71      1.27       .075       .055      .071      .000     571.40     140.84
   .000172       300.       300.      330.          2          0         0       .00    1104.14    1425.00

CCHV=      .100 CEHV=      .300
1490 NH CARD USED
*SECNO 1650.000

3265 DIVIDED FLOW

3280 CROSS SECTION   1650.00 EXTENDED       .93 FEET

3470 ENCROACHMENT STATIONS=          .0    1425.0  TYPE=       1  TARGET=     1424.999
  1650.000      22.43     594.23       .00        .00     594.29       .06       .08        .00     575.20
    9590.0      283.0     2873.8    6433.2      449.7     1017.0    4900.4     199.8       24.0     575.40
       .20        .63       2.83      1.31       .080       .055      .071      .000     571.80     168.06
   .000191       406.       406.      435.          2          0         0       .00    1034.58    1425.00

1490 NH CARD USED
*SECNO 4670.000

3470 ENCROACHMENT STATIONS=      1300.0    3600.0  TYPE=       1  TARGET=    -1300.000
  4670.000      20.64     594.84       .00        .00     594.91       .08       .62        .01     575.80
    9590.0      244.3     2888.5    6457.3      311.3      785.2    6104.6     660.1       92.7     575.90
       .65        .78       3.68      1.06       .083       .045      .105      .000     574.20    1312.29
   .000228      2900.      3010.     2950.          2          0         0       .00     999.73    2312.02

1490 NH CARD USED
*SECNO 7680.000

3265 DIVIDED FLOW

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.24

1
   11JAN94       11:33:23                                                                                  PAGE   25

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

3470 ENCROACHMENT STATIONS=          .0    2800.0  TYPE=       1  TARGET=     2799.999
  7680.000      19.85     595.15       .00        .00     595.17       .01       .25        .01     576.10
    9590.0      180.1      835.1    8574.8      542.5      628.9    9363.5    1233.5      170.2     575.80
      1.49        .33       1.33       .92       .085       .055      .051      .000     575.30    1259.58
   .000046      2800.      3010.     2800.          2          0         0       .00    1404.74    2695.98

1490 NH CARD USED
*SECNO 10100.000

3470 ENCROACHMENT STATIONS=      1700.0    3200.0  TYPE=       1  TARGET=    -1700.000
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 10100.000      20.09    595.29       .00       .00    595.32       .03       .15       .00    577.50
   9590.0       733.1    2112.9    6743.9     965.2    1033.6    6044.0    1729.9     232.7    577.40
     1.99         .76      2.04      1.12      .055      .050      .056      .000    575.20   1730.97
   .000091      2000.     2420.     2350.         2         0         0       .00   1004.40   2735.36


1490 NH CARD USED
*SECNO 11580.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =    .46

 11580.000      19.36    595.46       .00       .00    595.60       .14       .25       .03    577.30
   9590.0       991.8    4781.2    3817.0     723.6    1228.6    2310.5    1938.9     264.6    577.40
     2.14        1.37      3.89      1.65      .063      .055      .057      .000    576.10   1379.79
   .000421      1480.     1480.     1480.         2         0         0       .00    875.07   2254.86


CCHV=      .500 CEHV=     1.000
1490 NH CARD USED
*SECNO 11721.000

3470 ENCROACHMENT STATIONS=      1300.0     2600.0  TYPE=       1  TARGET=     -1300.000
 11721.000      19.63    595.53       .00       .00    595.71       .18       .07       .04    592.60
   9590.0       282.4    6723.5    2584.1     459.8    1700.3    1946.3    1952.5     267.5    592.80
     2.15         .61      3.95      1.33      .100      .049      .069      .000    575.90   1374.75
   .000514       141.      141.      141.         2         0         0       .00    884.74   2259.50


*SECNO 11738.000

3470 ENCROACHMENT STATIONS=      1300.0     2600.0  TYPE=       1  TARGET=     -1300.000
1
   11JAN94      11:33:23                                                                                    PAGE    26


     SECNO      DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS   L-BANK ELEV
     Q          QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME       VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE      XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


 11738.000      19.64    595.54       .00       .00    595.73       .19       .01       .01    592.60
   9590.0       373.4    6875.4    2341.2     461.6    1701.1    1950.8    1954.1     267.8    592.80
     2.15         .81      4.04      1.20      .080      .050      .080      .000    575.90   1374.14
   .000569        17.       17.       17.         0         0         0       .00    885.92   2260.06


1490 NH CARD USED
*SECNO 11739.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3470 ENCROACHMENT STATIONS=      1300.0     2600.0  TYPE=       1  TARGET=     -1300.000
 11739.000      19.79    595.69       .00       .00    595.78       .08       .00       .05    592.60
   9590.0       746.5    4378.2    4465.2     498.3    1717.0    2040.4    1954.2     267.8    592.80
     2.15        1.50      2.55      2.19      .040      .072      .040      .000    575.90   1361.96
   .000459         1.        1.        1.         2         0         0       .00    909.32   2271.28


1490 NH CARD USED
*SECNO 14670.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.63
```

```
3470 ENCROACHMENT STATIONS=          .0     3350.0  TYPE=      1  TARGET=      3349.999
 14670.000      21.16     596.46       .00       .00     596.52       .06       .73       .01     578.30
    9590.0      428.8     3517.8    5643.4     479.1     1241.2    5219.7    2302.7     321.4     577.70
      2.60        .89       2.83      1.08      .081       .050      .085      .000    575.30    1878.84
   .000172      2850.      2940.     2600.         2          0         0       .00    833.86    2712.71

CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO 17820.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.45

3470 ENCROACHMENT STATIONS=          .0     1700.0  TYPE=      1  TARGET=      1699.999
 17820.000      21.85     596.85       .00       .00     596.87       .02       .35       .00     579.20
    9590.0      179.7     1428.0    7982.4     302.4      796.1    6986.2    2824.9     379.7     578.90
      3.29        .59       1.79      1.14      .094       .055      .052      .000    575.00     852.96
   .000082      3150.      3150.     3000.         2          0         0       .00    847.04    1700.00
```



```
    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

CCHV=     .300 CEHV=     .500
1490 NH CARD USED
*SECNO 19270.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
3280 CROSS SECTION  19270.00 EXTENDED       1.94 FEET

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .31

3470 ENCROACHMENT STATIONS=       405.0     1925.0  TYPE=      1  TARGET=      1520.000
 19270.000      18.44     597.04       .00       .00     597.23       .18       .27       .08     584.90
    9590.0      241.3     3930.5    5418.2     159.0      970.9    1808.5    3003.6     397.5     587.40
      3.40       1.52       4.05      3.00      .090       .068      .070      .000    578.60    1673.79
   .000869      1500.      1450.     1400.         0          0         0       .00    251.21    1925.00     2500 (597.1)

CCHV=     .500 CEHV=    1.000
1490 NH CARD USED
*SECNO 19360.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=          .0     1926.0  TYPE=      1  TARGET=      1925.999
 19360.000      16.64     597.14       .00       .00     597.40       .26       .10       .08     597.40
    9720.0         .0     9720.0        .0        .0     2373.1        .0    3009.1     398.0     599.90
      3.41        .00       4.10       .00      .000       .052      .000      .000    580.50    1700.00
   .001476        90.        90.       90.         2          0         0       .00    214.09    1926.00
```

```
SPECIAL BRIDGE

SB  XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
      .00       1.82       3.04        .00     226.60        .00    2502.70        .00     580.50     580.50

*SECNO 19401.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
1
   11JAN94      11:33:23                                                                                   PAGE   28


    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


6070,LOW FLOW BY NORMAL BRIDGE

EGPRS=        .000  EGLWC=     597.404  ELLC=     597.800  PCWSE=     597.143  ELTRD=     599.000

3265 DIVIDED FLOW


3370 NORMAL BRIDGE, NRD=  37 MIN ELTRD=    599.00 MAX ELLC=    597.80


3470 ENCROACHMENT STATIONS=          .0     1926.6  TYPE=       1  TARGET=      1926.599
 19401.000      16.71     597.21        .00        .00     597.46        .26        .06        .00     597.40
    9720.0         .0     9720.0         .0         .0     2387.6         .0     3011.2      398.2     599.90
      3.41        .00       4.07        .00       .000       .052       .000       .000     580.50    1700.00
   .001456        39.        39.        39.          2          0          0        .00     214.69    1926.60


1
   11JAN94      11:33:23                                                                                   PAGE   29

T1 CLINTON TOWNSHIP FLOOD INSURANCE STUDY
T2 UPDATED 500-YEAR FLOOD   STS CONSULTANTS LTD.    12/93
T3 NORTH BRANCH OF THE CLINTON RIVER

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

    -1.0        5.0        0.0        0.0        0.0        0.0        0.0        0.0     596.25        0.0

J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

   15.0        0.0       -1.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0



1
   11JAN94      11:33:23                                                                                   PAGE   30

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
```

```
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF 4
0

 CCHV=      .100 CEHV=      .300
 1490 NH CARD USED
 *SECNO  .000
 3280 CROSS SECTION       .00 EXTENDED      5.25 FEET


 3470 ENCROACHMENT STATIONS=      265.0      935.0  TYPE=      1  TARGET=      670.000
       .000     24.25    596.25       .00    596.25    596.37       .12       .00       .00    578.30
    15500.0    1464.4    6230.9    7804.7    1123.9    1568.5    5364.1        .0        .0    575.10
        .00      1.30      3.97      1.45      .051      .045      .099      .000    572.00    265.00
    .000234        0.        0.        0.         0         0         0       .00    670.00    935.00


 1490 NH CARD USED
 *SECNO 300.000
 3280 CROSS SECTION    300.00 EXTENDED      5.30 FEET


 3470 ENCROACHMENT STATIONS=      340.0      860.0  TYPE=      1  TARGET=      520.000
    300.000     24.30    596.30       .00       .00    596.46       .17       .08       .01    578.30
    15500.0    1273.9    7060.9    7165.2     862.7    1571.5    4304.4      50.9       4.1    575.10
        .03      1.48      4.49      1.66      .054      .045      .099      .000    572.00    340.00
    .000298      300.      300.      300.         2         0         0       .00    520.00    860.00


 CCHV=      .500 CEHV=     1.000
 1490 NH CARD USED
 *SECNO 858.000
 1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
 3280 CROSS SECTION    858.00 EXTENDED       .80 FEET


 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.55

    858.000     25.50    596.60       .00       .00    596.63       .03       .10       .07    591.80
    15500.0    1203.4    7019.7    7277.0    1234.9    4037.1    7482.7     173.1      16.1    581.10
        .14       .97      1.74       .97      .040      .049      .090      .000    571.10     60.22
    .000124      558.      558.      538.         2         0         0       .00   1386.40   1446.62


1
    11JAN94      11:33:23                                                                                PAGE    31


     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


 SPECIAL BRIDGE

 SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
       .00      2.02      3.04       .00    276.00       .00   3014.10       .00    571.10    571.10

 1490 NH CARD USED
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*SECNO 944.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
3280 CROSS SECTION    944.00 EXTENDED      1.27 FEET

PRESSURE AND WEIR FLOW,  Weir Submergence Based on TRAPEZOIDAL Shape


 EGPRS       EGLWC        H3       QWEIR       QPR       BAREA   TRAPEZOID      ELLC      ELTRD      WEIRLN
                                                                    AREA
    597.43     596.63       .00      3500.     11974.      3014.     5934.     592.60     595.50       975.


   944.000     25.97    597.07       .00       .00    597.10       .02       .47       .00    591.80
   15500.0    1355.0    6136.5    8008.4    1411.3    4132.8    7851.6     198.9      18.8    581.10
       .16       .96      1.48      1.02      .050      .066      .100      .000    571.10     49.29
   .000162       86.       86.       86.         2         0         3       .00   1397.33   1446.62


1490 NH CARD USED
*SECNO 1244.000
3280 CROSS SECTION   1244.00 EXTENDED      4.62 FEET


3470 ENCROACHMENT STATIONS=          .0     1425.0  TYPE=       1  TARGET=     1424.999
  1244.000     25.72    597.12       .00       .00    597.15       .04       .04       .01    574.80
   13000.0    1815.3    2834.6    8350.1    2519.0    1174.7    6947.0     286.8      29.0    575.00
       .23       .72      2.41      1.20      .056      .055      .070      .000    571.40      2.60
   .000115      300.      300.      330.         0         0         0       .00   1422.39   1425.00


CCHV=      .100 CEHV=      .300
1490 NH CARD USED
*SECNO 1650.000
3280 CROSS SECTION   1650.00 EXTENDED      3.87 FEET


3470 ENCROACHMENT STATIONS=          .0     1425.0  TYPE=       1  TARGET=     1424.999
  1650.000     25.36    597.16       .00       .00    597.20       .04       .05       .00    575.20
   13000.0    1632.6    2933.3    8434.1    2261.2    1158.2    6733.2     388.2      42.7    575.40
       .31       .72      2.53      1.25      .057      .055      .070      .000    571.80      3.03
   .000129      406.      406.      435.         0         0         0       .00   1421.97   1425.00

1
   11JAN94      11:33:23                                                                                PAGE   32


    SECNO      DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS   L-BANK ELEV
    Q          QLOB      QCH       QROB      ALOB       ACH       AROB      VOL       TWA     R-BANK ELEV
    TIME       VLOB      VCH       VROB      XNL        XNCH      XNR       WTN     ELMIN     SSTA
    SLOPE      XLOBL     XLCH      XLOBR     ITRIAL     IDC       ICONT     CORAR   TOPWID    ENDST


1490 NH CARD USED
*SECNO 4670.000
3280 CROSS SECTION   4670.00 EXTENDED      1.56 FEET


3470 ENCROACHMENT STATIONS=     1300.0     3600.0  TYPE=       1  TARGET=    -1300.000
  4670.000     23.36    597.56       .00       .00    597.60       .04       .40       .00    575.80
   13000.0     506.3    2810.8    9682.9     640.2     891.5   10995.2    1155.9     168.3    575.90
       .91       .79      3.15       .88      .073      .045      .090      .000    574.20   1300.00
   .000142      2900.     3010.     2950.         2         0         0       .00   2300.00   3600.00
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```
1490 NH CARD USED
*SECNO 7680.000

3265 DIVIDED FLOW

3280 CROSS SECTION   7680.00 EXTENDED      1.18 FEET


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.98


3470 ENCROACHMENT STATIONS=          .0     2800.0  TYPE=       1  TARGET=     2799.999
  7680.000      22.48     597.78        .00        .00     597.79        .01        .18        .00     576.10
   13000.0      620.3      917.0    11462.7     1956.8      712.9    12308.7     2043.8      317.5     575.80
      1.76        .32       1.29        .93       .070       .055       .051       .000     575.30     320.83
   .000036      2800.      3010.      2800.          2          0          0        .00    2337.64    2800.00


1490 NH CARD USED
*SECNO 10100.000
3280 CROSS SECTION  10100.00 EXTENDED       .68 FEET


3470 ENCROACHMENT STATIONS=      1700.0     3200.0  TYPE=       1  TARGET=    -1700.000
 10100.000      22.68     597.88        .00        .00     597.91        .03        .12        .00     577.50
   13000.0     1469.7     2329.9     9200.4     1756.0     1171.1     8133.4     2732.8      415.1     577.40
      2.27        .84       1.99       1.13       .054       .050       .056       .000     575.20    1700.00
   .000073      2000.      2420.      2350.          2          0          0        .00    1500.00    3200.00
```



```
    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


1490 NH CARD USED
*SECNO 11580.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .59

 11580.000      21.93     598.03        .00        .00     598.09        .06        .17        .01     577.30
   13000.0     3054.9     4168.3     5776.8     3450.6     1398.0     4122.1     3073.1      481.5     577.40
      2.50        .89       2.98       1.40       .054       .055       .055       .000     576.10     130.94
   .000208      1480.      1480.      1480.          2          0          0        .00    2410.15    2541.09


CCHV=     .500 CEHV=     1.000
1490 NH CARD USED
*SECNO 11721.000

3470 ENCROACHMENT STATIONS=      1300.0     2600.0  TYPE=       1  TARGET=    -1300.000
 11721.000      22.17     598.07        .00        .00     598.17        .11        .04        .05     592.60
   13000.0      843.2     6727.4     5429.4     1182.1     1953.2     3691.4     3098.6      487.5     592.80
      2.52        .71       3.44       1.47       .100       .049       .060       .000     575.90    1300.00
   .000325       141.       141.       141.          1          0          0        .00    1244.62    2544.62
```

```
*SECNO 11738.000

3470 ENCROACHMENT STATIONS=     1300.0     2600.0  TYPE=       1  TARGET=    -1300.000
 11738.000      22.17     598.07        .00        .00     598.20        .13        .01        .02     592.60
   13000.0     1177.7     7283.9     4538.5     1185.9     1954.5     3702.1     3101.3      487.9     592.80
      2.52        .99       3.73       1.23       .080       .050       .080       .000     575.90    1300.00
   .000402        17.        17.        17.          0          0          0        .00    1246.20    2546.20


1490 NH CARD USED
*SECNO 11739.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3470 ENCROACHMENT STATIONS=     1300.0     2600.0  TYPE=       1  TARGET=    -1300.000
 11739.000      22.28     598.18        .00        .00     598.24        .05        .00        .04     592.60
   13000.0     1886.0     3927.9     7186.1     1220.5     1966.0     3800.4     3101.5      488.0     592.80
      2.52       1.55       2.00       1.89       .040       .072       .040       .000     575.90    1300.00
   .000236         1.         1.         1.          2          0          0        .00    1260.61    2560.61
```



```
    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


1490 NH CARD USED
*SECNO 14670.000

3265 DIVIDED FLOW

3280 CROSS SECTION  14670.00 EXTENDED      1.79 FEET


3470 ENCROACHMENT STATIONS=         .0     3350.0  TYPE=       1  TARGET=     3349.999
 14670.000      23.39     598.69        .00        .00     598.73        .05        .49        .00     578.30
   13000.0     1083.5     3789.9     8126.6     1786.8     1381.3     7696.6     3655.9      625.3     577.70
      3.02        .61       2.74       1.06       .062       .050       .078       .000     575.30      85.47
   .000140      2850.      2940.      2600.          2          0          0        .00    3123.28    3350.00


CCHV=      .100 CEHV=      .300
1490 NH CARD USED
*SECNO 17820.000
3280 CROSS SECTION  17820.00 EXTENDED       .92 FEET


3470 ENCROACHMENT STATIONS=         .0     1700.0  TYPE=       1  TARGET=     1699.999
 17820.000      24.02     599.02        .00        .00     599.04        .03        .31        .00     579.20
   13000.0      425.9     1635.5    10938.6     1095.5      880.6     8621.3     4403.8      793.2     578.90
      3.67        .39       1.86       1.27       .078       .055       .052       .000     575.00      78.48
   .000077      3150.      3150.      3000.          2          0          0        .00    1621.52    1700.00


CCHV=      .300 CEHV=      .500
1490 NH CARD USED
*SECNO 19270.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
```

```
3265 DIVIDED FLOW

3280 CROSS SECTION  19270.00 EXTENDED      4.08 FEET


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .30


3470 ENCROACHMENT STATIONS=      405.0    1925.0  TYPE=      1  TARGET=     1520.000
 19270.000     20.58    599.18      .00       .00    599.39       .21       .26       .09    584.90
   13000.0     943.0    4795.7   7261.3    1045.0    1095.2    2166.5    4646.9     842.2    587.40
      3.78       .90      4.38     3.35      .074      .068      .070      .000    578.60    405.00
   .000865     1500.     1450.    1400.        1         0         0       .00   1285.93   1925.00


1
   11JAN94      11:33:23                                                                                   PAGE   35


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


CCHV=     .500 CEHV=    1.000
1490 NH CARD USED
*SECNO 19360.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=         .0    1926.0  TYPE=      1  TARGET=     1925.999
 19360.000     18.79    599.29      .00       .00    599.61       .32       .10       .12    597.40
   13100.0      60.8   13039.2       .0     122.4    2850.5        .0    4654.5     844.2    599.90
      3.78       .50      4.57      .00      .064      .053      .000      .000    580.50    582.46
   .001598       90.       90.      90.        2         0         0       .00    672.80   1926.00



SPECIAL BRIDGE

SB  XK         XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
      .00      1.82      3.04       .00    226.60       .00   2502.70       .00    580.50    580.50

*SECNO 19401.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW

PRESSURE AND WEIR FLOW,  Weir Submergence Based on TRAPEZOIDAL Shape


 EGPRS      EGLWC       H3        QWEIR      QPR        BAREA    TRAPEZOID     ELLC      ELTRD      WEIRLN
                                                                   AREA
    600.06    599.61       .00      1203.     11875.     2503.     3920.      597.80    599.00       836.


3470 ENCROACHMENT STATIONS=         .0    1926.6  TYPE=      1  TARGET=     1926.599
 19401.000     19.13    599.63      .00       .00    599.92       .30       .31       .00    597.40
```

13100.0	213.2	12886.8	.0	306.1	2930.0	.0	4657.2	844.9	599.90
3.78	.70	4.40	.00	.056	.053	.000	.000	580.50	514.48
.001438	39.	39.	39.	2	0	3	.00	865.30	1926.60

1

THIS RUN EXECUTED 11JAN94 11:33:26

****
HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

BRANCH OF THE CLINTON R

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	.000	.00	.00	.00	572.00	6710.00	588.39	.00	588.50	3.00	3.43	3922.06	3870.95
	.000	.00	.00	.00	572.00	10200.00	592.09	.00	592.20	2.66	3.72	5488.32	6252.45
	.000	.00	.00	.00	572.00	11600.00	593.25	.00	593.37	2.66	3.87	6052.85	7116.52
	.000	.00	.00	.00	572.00	15500.00	596.25	.00	596.37	2.34	3.97	8056.48	10140.90
	300.000	300.00	.00	.00	572.00	6710.00	588.47	.00	588.60	3.36	3.64	3471.17	3661.88
	300.000	300.00	.00	.00	572.00	10200.00	592.15	.00	592.30	3.15	4.06	4754.69	5750.46
	300.000	300.00	.00	.00	572.00	11600.00	593.31	.00	593.47	3.19	4.25	5195.04	6496.52
	300.000	300.00	.00	.00	572.00	15500.00	596.30	.00	596.46	2.98	4.49	6738.62	8977.64
*	858.000	558.00	.00	.00	571.10	6710.00	588.74	.00	588.88	7.36	3.04	2208.13	2473.58
*	858.000	558.00	.00	.00	571.10	10200.00	592.40	.00	592.57	6.63	3.35	3043.60	3960.89
*	858.000	558.00	.00	.00	571.10	11600.00	593.56	.00	593.75	6.52	3.50	3317.01	4543.74
*	858.000	558.00	.00	.00	571.10	15500.00	596.60	.00	596.63	1.24	1.74	12754.69	13924.87
	944.000	86.00	595.50	592.60	571.10	6710.00	588.82	.00	588.97	15.01	3.08	2176.49	1732.08
*	944.000	86.00	595.50	592.60	571.10	10200.00	592.50	.00	592.69	24.49	3.50	2917.80	2061.14
	944.000	86.00	595.50	592.60	571.10	11600.00	593.84	.00	594.02	11.50	3.44	3367.39	3421.12
	944.000	86.00	595.50	592.60	571.10	15500.00	597.07	.00	597.10	1.62	1.48	13395.70	12165.37
*	1244.000	300.00	.00	.00	571.40	5250.00	589.13	.00	589.20	2.86	2.92	3354.99	3103.35
*	1244.000	300.00	.00	.00	571.40	8260.00	592.86	.00	592.92	1.93	2.75	5497.12	5951.02
*	1244.000	300.00	.00	.00	571.40	9590.00	594.16	.00	594.21	1.72	2.71	6716.98	7319.46
	1244.000	300.00	.00	.00	571.40	13000.00	597.12	.00	597.15	1.15	2.41	10640.67	12121.27
	1650.000	406.00	.00	.00	571.80	5250.00	589.25	.00	589.33	3.20	3.06	3218.71	2934.70
	1650.000	406.00	.00	.00	571.80	8260.00	592.95	.00	593.01	2.13	2.86	5287.16	5662.48
	1650.000	406.00	.00	.00	571.80	9590.00	594.23	.00	594.29	1.91	2.83	6367.09	6936.22
	1650.000	406.00	.00	.00	571.80	13000.00	597.16	.00	597.20	1.29	2.53	10152.67	11441.10
	4670.000	3010.00	.00	.00	574.20	5250.00	590.15	.00	590.24	2.91	3.48	4097.13	3078.02
	4670.000	3010.00	.00	.00	574.20	8260.00	593.61	.00	593.69	2.47	3.67	6109.49	5258.31
	4670.000	3010.00	.00	.00	574.20	9590.00	594.84	.00	594.91	2.28	3.68	7201.03	6345.02
	4670.000	3010.00	.00	.00	574.20	13000.00	597.56	.00	597.60	1.42	3.15	12526.80	10922.29

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
*	7680.000	3010.00	.00	.00	575.30	5250.00	590.65	.00	590.66	.88	1.55	5765.77	5597.51
*	7680.000	3010.00	.00	.00	575.30	8260.00	593.96	.00	593.97	.51	1.35	9077.88	11551.43
*	7680.000	3010.00	.00	.00	575.30	9590.00	595.15	.00	595.17	.46	1.33	10534.97	14187.41
*	7680.000	3010.00	.00	.00	575.30	13000.00	597.78	.00	597.79	.36	1.29	14978.36	21582.25
	10100.000	2420.00	.00	.00	575.20	5250.00	590.91	.00	590.95	1.65	2.32	4171.25	4087.35
	10100.000	2420.00	.00	.00	575.20	8260.00	594.11	.00	594.14	1.03	2.09	6898.55	8140.84
	10100.000	2420.00	.00	.00	575.20	9590.00	595.29	.00	595.32	.91	2.04	8042.80	10055.35
	10100.000	2420.00	.00	.00	575.20	13000.00	597.88	.00	597.91	.73	1.99	11060.55	15222.49
*	11580.000	1480.00	.00	.00	576.10	5250.00	591.21	.00	591.47	7.90	4.49	1711.60	1867.55
*	11580.000	1480.00	.00	.00	576.10	8260.00	594.31	.00	594.48	5.24	4.16	3335.54	3609.71
*	11580.000	1480.00	.00	.00	576.10	9590.00	595.46	.00	595.60	4.21	3.89	4262.73	4673.55
*	11580.000	1480.00	.00	.00	576.10	13000.00	598.03	.00	598.09	2.08	2.98	8970.75	9012.00
	11721.000	141.00	.00	.00	575.90	5250.00	591.36	.00	591.59	7.21	3.93	1619.01	1954.74
	11721.000	141.00	.00	.00	575.90	8260.00	594.39	.00	594.60	6.13	4.13	3180.59	3335.12
	11721.000	141.00	.00	.00	575.90	9590.00	595.53	.00	595.71	5.14	3.95	4106.45	4228.21
	11721.000	141.00	.00	.00	575.90	13000.00	598.07	.00	598.17	3.25	3.44	6826.65	7206.99
	11738.000	17.00	.00	.00	575.90	5250.00	591.39	.00	591.61	7.42	3.88	1624.72	1927.20
	11738.000	17.00	.00	.00	575.90	8260.00	594.40	.00	594.61	6.51	4.13	3187.83	3236.75
	11738.000	17.00	.00	.00	575.90	9590.00	595.54	.00	595.73	5.69	4.04	4113.48	4019.18
	11738.000	17.00	.00	.00	575.90	13000.00	598.07	.00	598.20	4.02	3.73	6842.47	6481.72
	11739.000	1.00	.00	.00	575.90	5250.00	591.46	.00	591.63	12.27	3.51	1650.41	1498.97
	11739.000	1.00	.00	.00	575.90	8260.00	594.56	.00	594.67	6.34	2.86	3312.81	3280.96
	11739.000	1.00	.00	.00	575.90	9590.00	595.69	.00	595.78	4.59	2.55	4255.65	4474.16
	11739.000	1.00	.00	.00	575.90	13000.00	598.18	.00	598.24	2.36	2.00	6986.90	8460.53
*	14670.000	2940.00	.00	.00	575.30	5250.00	592.67	.00	592.72	1.69	2.44	4415.63	4033.32
*	14670.000	2940.00	.00	.00	575.30	8260.00	595.46	.00	595.52	1.73	2.75	6158.42	6273.53
*	14670.000	2940.00	.00	.00	575.30	9590.00	596.46	.00	596.52	1.72	2.83	6940.01	7305.08
	14670.000	2940.00	.00	.00	575.30	13000.00	598.69	.00	598.73	1.40	2.74	10864.74	10984.94
	17820.000	3150.00	.00	.00	575.00	5250.00	593.11	.00	593.13	1.11	1.82	4995.41	4992.73
*	17820.000	3150.00	.00	.00	575.00	8260.00	595.86	.00	595.88	.86	1.77	7258.84	8916.16
*	17820.000	3150.00	.00	.00	575.00	9590.00	596.85	.00	596.87	.82	1.79	8084.75	10574.56
	17820.000	3150.00	.00	.00	575.00	13000.00	599.02	.00	599.04	.77	1.86	10597.32	14806.23
*	19270.000	1450.00	.00	.00	578.60	5250.00	593.39	.00	593.51	7.96	3.29	2038.36	1860.73
*	19270.000	1450.00	.00	.00	578.60	8260.00	596.07	.00	596.23	8.39	3.82	2696.72	2851.88
*	19270.000	1450.00	.00	.00	578.60	9590.00	597.04	.00	597.23	8.69	4.05	2938.50	3254.04
*	19270.000	1450.00	.00	.00	578.60	13000.00	599.18	.00	599.39	8.65	4.38	4306.73	4419.25
	19360.000	90.00	.00	.00	580.50	5440.00	593.48	.00	593.66	12.54	3.40	1601.22	1536.31
	19360.000	90.00	.00	.00	580.50	8410.00	596.17	.00	596.40	14.24	3.89	2163.77	2228.95
	19360.000	90.00	.00	.00	580.50	9720.00	597.14	.00	597.40	14.76	4.10	2373.15	2530.35
	19360.000	90.00	.00	.00	580.50	13100.00	599.29	.00	599.61	15.98	4.57	2972.88	3276.54

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K

19401.000	39.00	599.00	597.80	580.50	5440.00	593.54	.00	593.71	12.36	3.38	1611.65	1547.22
19401.000	39.00	599.00	597.80	580.50	8410.00	596.22	.00	596.46	14.05	3.86	2177.07	2243.96
19401.000	39.00	599.00	597.80	580.50	9720.00	597.21	.00	597.46	14.56	4.07	2387.56	2547.09
19401.000	39.00	599.00	597.80	580.50	13100.00	599.63	.00	599.92	14.38	4.40	3236.08	3454.50

BRANCH OF THE CLINTON R

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	.000	6710.00	588.39	.00	.00	.00	416.68	.00
	.000	10200.00	592.09	3.70	.00	.00	429.94	.00
	.000	11600.00	593.25	1.16	.00	.00	619.10	.00
	.000	15500.00	596.25	3.00	.00	.00	670.00	.00
	300.000	6710.00	588.47	.00	.08	.00	342.00	300.00
	300.000	10200.00	592.15	3.68	.06	.00	355.20	300.00
	300.000	11600.00	593.31	1.16	.06	.00	483.47	300.00
	300.000	15500.00	596.30	2.98	.05	.00	520.00	300.00
*	858.000	6710.00	588.74	.00	.26	.00	227.79	558.00
*	858.000	10200.00	592.40	3.66	.24	.00	233.62	558.00
*	858.000	11600.00	593.56	1.16	.24	.00	236.53	558.00
*	858.000	15500.00	596.60	3.04	.30	.00	1386.40	558.00
	944.000	6710.00	588.82	.00	.09	.00	227.79	86.00
*	944.000	10200.00	592.50	3.67	.10	.00	233.62	86.00
	944.000	11600.00	593.84	1.34	.28	.00	236.53	86.00
	944.000	15500.00	597.07	3.24	.47	.00	1397.33	86.00
*	1244.000	5250.00	589.13	.00	.30	.00	491.82	300.00
*	1244.000	8260.00	592.86	3.74	.37	.00	698.62	300.00
*	1244.000	9590.00	594.16	1.29	.32	.00	1104.14	300.00
	1244.000	13000.00	597.12	2.96	.04	.00	1422.39	300.00
	1650.000	5250.00	589.25	.00	.12	.00	489.18	406.00
	1650.000	8260.00	592.95	3.70	.08	.00	648.44	406.00
	1650.000	9590.00	594.23	1.28	.07	.00	1034.58	406.00
	1650.000	13000.00	597.16	2.93	.05	.00	1421.97	406.00
	4670.000	5250.00	590.15	.00	.90	.00	510.88	3010.00
	4670.000	8260.00	593.61	3.46	.67	.00	800.87	3010.00
	4670.000	9590.00	594.84	1.22	.60	.00	999.73	3010.00
	4670.000	13000.00	597.56	2.73	.40	.00	2300.00	3010.00
*	7680.000	5250.00	590.65	.00	.49	.00	984.88	3010.00
*	7680.000	8260.00	593.96	3.31	.35	.00	1027.13	3010.00
*	7680.000	9590.00	595.15	1.19	.32	.00	1404.74	3010.00
*	7680.000	13000.00	597.78	2.62	.21	.00	2337.64	3010.00
	10100.000	5250.00	590.91	.00	.26	.00	734.87	2420.00
	10100.000	8260.00	594.11	3.21	.15	.00	944.48	2420.00
	10100.000	9590.00	595.29	1.17	.14	.00	1004.40	2420.00
	10100.000	13000.00	597.88	2.59	.11	.00	1500.00	2420.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	11580.000	5250.00	591.21	.00	.31	.00	366.30	1480.00
*	11580.000	8260.00	594.31	3.09	.19	.00	735.71	1480.00
*	11580.000	9590.00	595.46	1.16	.17	.00	875.07	1480.00
*	11580.000	13000.00	598.03	2.57	.15	.00	2410.15	1480.00
	11721.000	5250.00	591.36	.00	.15	.00	313.30	141.00
	11721.000	8260.00	594.39	3.02	.08	.00	744.67	141.00
	11721.000	9590.00	595.53	1.14	.07	.00	884.74	141.00
	11721.000	13000.00	598.07	2.54	.04	.00	1244.62	141.00
	11738.000	5250.00	591.39	.00	.02	.00	314.44	17.00
	11738.000	8260.00	594.40	3.01	.01	.00	745.77	17.00
	11738.000	9590.00	595.54	1.14	.01	.00	885.92	17.00
	11738.000	13000.00	598.07	2.53	.01	.00	1246.20	17.00
	11739.000	5250.00	591.46	.00	.08	.00	319.51	1.00
	11739.000	8260.00	594.56	3.10	.16	.00	764.39	1.00
	11739.000	9590.00	595.69	1.13	.16	.00	909.32	1.00
	11739.000	13000.00	598.18	2.49	.11	.00	1260.61	1.00
*	14670.000	5250.00	592.67	.00	1.21	.00	569.25	2940.00
*	14670.000	8260.00	595.46	2.80	.90	.00	730.57	2940.00
*	14670.000	9590.00	596.46	1.00	.77	.00	833.86	2940.00
	14670.000	13000.00	598.69	2.22	.50	.00	3123.28	2940.00
	17820.000	5250.00	593.11	.00	.44	.00	821.23	3150.00
*	17820.000	8260.00	595.86	2.75	.40	.00	826.88	3150.00
*	17820.000	9590.00	596.85	.99	.39	.00	847.04	3150.00
	17820.000	13000.00	599.02	2.16	.33	.00	1621.52	3150.00
*	19270.000	5250.00	593.39	.00	.28	.00	243.35	1450.00
*	19270.000	8260.00	596.07	2.67	.21	.00	249.12	1450.00
*	19270.000	9590.00	597.04	.97	.19	.00	251.21	1450.00
*	19270.000	13000.00	599.18	2.14	.17	.00	1285.93	1450.00
	19360.000	5440.00	593.48	.00	.09	.00	200.62	90.00
	19360.000	8410.00	596.17	2.68	.10	.00	214.07	90.00
	19360.000	9720.00	597.14	.98	.10	.00	214.09	90.00
	19360.000	13100.00	599.29	2.14	.10	.00	672.80	90.00
	19401.000	5440.00	593.54	.00	.05	.00	201.16	39.00
	19401.000	8410.00	596.22	2.69	.06	.00	214.68	39.00
	19401.000	9720.00	597.21	.98	.06	.00	214.69	39.00
	19401.000	13100.00	599.63	2.42	.34	.00	865.30	39.00

SUMMARY OF ERRORS AND SPECIAL NOTES

WARNING SECNO= 858.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 858.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 858.000 PROFILE= 3 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 858.000 PROFILE= 4 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

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WARNING SECNO=    944.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   1244.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   1244.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   1244.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   7680.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   7680.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   7680.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   7680.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  11580.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  11580.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  11580.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  11580.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  14670.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  14670.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  14670.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  17820.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  17820.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  19270.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  19270.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  19270.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  19270.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Clinton Twp

3) WATERCOURSE: NORTH Branch Clinton River

4) DOCUMENT TYPE: Multiple Run) Current

00BREAK00

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 $$$$$$   $$        $$$$$$$$  $$$$$$$$   $$$$$ $   $$$$$$   $$$$$$$$
$$    $$  $$           $$        $$     $$     $  $$    $$        $$
$$        $$           $$        $$     $$   $$$        $$        $$
$$        $$           $$        $$     $$  $ $$     $$$$         $$
$$        $$           $$        $$     $$ $$ $$   $$             $$
$$        $$           $$        $$     $$ $  $$  $$              $$
$$        $$           $$        $$     $$$   $$ $$               $$
$$    $$  $$           $$     $$ $$     $     $$ $$           $$  $$
 $$$$$$   $$$$$$$$ $$$$$$$$    $$$      $ $$$$$  $$$$$$$$      $$$
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AUG 04 '7?

CLINTON TOWNSHIP

NORTH BRANCH OF THE CLINTON RIVER

MULTIPLE PROFILE RUN

current

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 *****************************************
 HEC2 VERSION UPDATED JAN 1976
 ERROR CORRECTIONS 01,02,03,04,05,06,07,08,09
 MODIFICATIONS 52,53,54,55,56,57,58
 *****************************************


 C
 1        CLINTON TOWNSHIP JOB NO. 5670-02  PROJECT MANAGER  WILLIAM C. ROSSOW
 T2        10 YEAR FLOOD = 6710
 T3        NORTH BRANCH OF THE CLINTON RIVER

 J1  ICHECK     INQ       NINV      IDIR      STRT       METRIC     HVINS      Q          WSEL       FQ

        -1.        2.        0.        0.  0.000000       0.00       0.0        0.   588.390      0.000

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH       FN        ALLDC      IBW       CHNIM     ITRACE

       1.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

 J3       1.000     10.000     11.000     12.000     14.000      8.000      4.000      0.000      0.000      0.000
 QT       4.000   6710.000  10200.000  11600.000  15500.000      0.000      0.000      0.000      0.000      0.000
 NC        .070       .070       .040       .100       .300      0.000      0.000      0.000      0.000      0.000
 NH       5.000       .040    500.000       .070    540.000       .045    607.000       .070    615.000       .100
 NH    1388.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000

 X1       0.000     39.000    500.000    615.000    170.000    170.000    170.000      0.000      0.000      0.000
 X3      10.000      0.000      0.000    265.000      0.000    935.000      0.000      0.000      0.000      0.000
 GR     599.200      0.000    595.500    100.000    592.600    200.000    592.500    300.000    593.100    346.000
 GR     593.000    400.000    593.500    500.000    588.200    519.000    585.200    527.000    582.900    533.000
 GR     578.300    540.000    574.700    540.000    573.800    545.000    573.100    550.000    572.500    555.000
 GR     572.100    560.000    572.100    565.000    572.100    570.000    572.000    575.000    572.000    580.000
 GR     572.200    590.000    573.100    595.000    574.200    600.000    575.100    607.000    577.000    611.000
 GR     580.100    615.000    579.700    650.000    578.500    653.000    580.800    700.000    577.300    725.000
 GR     579.300    800.000    582.400    900.000    581.900    940.000    580.800   1000.000    580.900   1000.000
 GR     582.400   1100.000    583.000   1200.000    590.200   1300.000    591.000   1388.000      0.000      0.000
 NH       5.000       .040    500.000       .070    540.000       .045    607.000       .070    615.000       .100
 NH    1388.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000

 X1     300.000      0.000      0.000      0.000    300.000    300.000    300.000      0.000      0.000      0.000
 X3      10.000      0.000      0.000    340.000      0.000    860.000      0.000      0.000      0.000      0.000
 NC       0.000      0.000      0.000       .500      1.000      0.000      0.000      0.000      0.000      0.000
 NH       5.000       .040    428.500       .050    548.300       .045    580.200       .050    665.100       .090
 NH    1446.700      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000

 X1     858.000     51.000    500.000    776.000    558.000    538.000    558.000       .857      0.000      0.000
 X3       0.000      0.000      0.000    500.000    595.200    776.000    595.200      0.000      0.000      0.000
 GR     599.200      0.000    595.500    100.000    592.600    200.000    592.500    300.000    593.100    346.000
 GR     593.000    400.000    593.000    468.000    593.000    468.000    591.800    500.000    580.500    500.000
 GR     579.900    520.000    580.100    540.000    580.300    566.300    592.100    566.300    592.100    569.700
 GR     580.400    569.700    580.300    580.000    580.700    600.000    578.900    606.000    574.200    609.000
 GR     573.600    620.000    572.900    630.000    572.700    636.300    592.300    636.300    592.300    639.700
 GR     571.100    639.700    573.000    650.000    573.700    660.000    575.100    668.000    582.500    677.000
 GR     581.400    700.000    581.600    706.300    592.500    706.300    592.500    709.700    581.100    709.700
 GR     581.100    720.000    581.000    740.000    580.700    760.000    581.100    776.000    581.100    808.000
 GR     582.400    900.000    581.900    940.000    580.800   1000.000    582.400   1100.000    583.000   1200.000
 GR     590.200   1300.000    591.000   1388.000    591.200   1400.000    592.900   1500.000    594.400   1600.000
 GR     595.800   1688.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
 SB       0.000      2.020      3.040      0.000    276.000      0.000   3014.100      0.000    571.100    571.100
 NH       3.000       .050    548.300       .045    580.200       .100   1446.700      0.000      0.000      0.000

 X1     944.000     51.000    500.000    776.000     86.000     86.000     86.000       .857      0.000      0.000
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X2	0.000	0.000	1.000	592.600	595.200	0.000	0.000	0.000	.857	0.000
X3	0.000	0.000	0.000	500.000	595.200	776.000	595.200	0.000	0.000	0.000
BT	27.000	0.000	599.200	0.000	100.000	595.500	0.000	200.000	595.900	0.000
BT	300.000	596.200	0.000	400.000	596.500	0.000	468.000	596.600	0.000	468.000
BT	599.500	0.000	500.000	599.500	591.800	566.300	599.700	592.100	569.700	599.700
BT	592.100	636.300	599.900	592.300	639.700	599.900	592.300	706.300	600.100	592.500
BT	709.700	600.100	592.500	776.000	600.300	592.600	776.000	600.300	581.100	808.000
BT	600.500	0.000	808.000	597.700	0.000	900.000	597.400	0.000	1000.000	596.900
BT	0.000	1100.000	596.500	0.000	1200.000	596.100	0.000	1300.000	595.600	0.000
BT	1400.000	595.200	0.000	1500.000	595.500	0.000	1600.000	595.700	0.000	1688.000
BT	595.800	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	599.200	0.000	595.500	100.000	592.600	200.000	592.500	300.000	593.100	346.000
GR	593.000	400.000	593.000	468.000	593.000	468.000	591.800	500.000	580.500	500.000
GR	579.900	520.000	580.100	540.000	580.300	566.300	592.100	566.300	592.100	569.700
GR	580.400	569.700	580.300	580.000	580.700	600.000	578.900	606.000	574.200	609.000
GR	573.600	620.000	572.900	630.000	572.700	636.300	592.300	636.300	592.300	639.700
GR	571.100	639.700	573.000	650.000	573.700	660.000	575.100	668.000	582.500	677.000
GR	581.400	700.000	581.600	706.300	592.500	706.300	592.500	709.700	581.100	709.700
GR	581.100	720.000	581.000	740.000	580.700	760.000	581.100	776.000	581.100	808.000
GR	582.400	900.000	581.900	940.000	580.800	1000.000	582.400	1100.000	583.000	1200.000
GR	590.200	1300.000	591.000	1388.000	591.200	1400.000	592.800	1500.000	594.400	1600.000
GR	595.800	1688.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NT	4.000	5250.000	8260.000	9590.000	13000.000	0.000	0.000	0.000	0.000	0.000
NH	6.000	.050	729.000	.090	754.000	.055	802.000	.090	812.000	.070
NH	1429.000	.050	2029.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	1244.000	34.000	720.000	812.000	300.000	330.000	300.000	0.000	-.400	0.000
X3	10.000	0.000	0.000	0.000	0.000	1425.000	0.000	0.000	0.000	0.000
GR	599.600	0.000	596.400	4.000	596.900	28.000	594.700	129.000	593.500	229.000
GR	593.200	329.000	593.700	429.000	594.400	529.000	595.400	629.000	595.200	720.000
GR	594.000	729.000	575.200	754.000	574.300	759.000	573.100	769.000	571.800	779.000
GR	572.100	789.000	573.500	799.000	575.400	802.000	582.600	812.000	583.300	829.000
GR	581.000	835.000	584.500	929.000	584.500	1029.000	583.000	1129.000	583.700	1179.000
GR	589.800	1229.000	591.900	1329.000	594.000	1429.000	592.600	1529.000	592.900	1629.000
GR	590.600	1729.000	588.400	1829.000	590.800	1929.000	593.300	2029.000	0.000	0.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
NH	6.000	.050	729.000	.090	754.000	.055	802.000	.090	812.000	.070
NH	1429.000	.050	2029.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	1650.000	34.000	720.000	812.000	406.000	435.000	406.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	1425.000	0.000	0.000	0.000	0.000
GR	599.600	0.000	596.400	4.000	596.900	28.000	594.700	129.000	593.500	229.000
GR	593.200	329.000	593.700	429.000	594.400	529.000	595.400	629.000	595.200	720.000
GR	594.000	729.000	575.200	754.000	574.300	759.000	573.100	769.000	571.800	779.000
GR	572.100	789.000	573.500	799.000	575.400	802.000	582.600	812.000	583.300	829.000
GR	581.000	835.000	584.500	929.000	584.500	1029.000	583.000	1129.000	583.700	1179.000
GR	589.800	1229.000	591.900	1329.000	594.000	1429.000	592.600	1529.000	592.900	1629.000
GR	590.600	1729.000	588.400	1829.000	590.800	1929.000	593.300	2029.000	0.000	0.000
NH	7.000	.050	1300.000	.060	1400.000	.090	1421.000	.045	1460.000	.090
NH	1481.000	.110	1915.000	.050	3600.000	0.000	0.000	0.000	0.000	0.000

X1	4670.000	50.000	1400.000	1481.000	2900.000	2950.000	3010.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	1300.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	600.100	0.000	598.900	100.000	598.200	200.000	598.900	285.000	598.800	300.000
GR	598.000	400.000	597.500	500.000	596.200	600.000	594.800	700.000	594.200	800.000
GR	593.800	900.000	593.900	1000.000	593.800	1100.000	594.600	1200.000	595.000	1300.000
GR	594.600	1330.000	591.300	1400.000	583.900	1415.000	575.800	1421.000	574.800	1425.000
GR	574.200	1435.000	574.400	1445.000	575.000	1455.000	575.900	1460.000	580.000	1473.000
GR	582.800	1481.000	583.400	1485.000	583.300	1500.000	582.400	1600.000	582.400	1700.000
GR	583.400	1800.000	581.600	1885.000	583.600	1900.000	590.600	1915.000	593.700	2000.000
GR	592.800	2100.000	594.000	2200.000	594.800	2300.000	595.100	2400.000	595.500	2600.000
GR	595.500	2700.000	595.400	2800.000	595.300	2900.000	595.600	3000.000	595.600	3100.000
GR	596.000	3200.000	596.000	3300.000	595.800	3400.000	595.800	3500.000	596.000	3600.000
NH	6.000	.050	700.000	.060	1600.000	.090	1638.000	.055	1670.000	.090
NH	1685.000	.050	4000.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	7680.000	51.000	1600.000	1685.000	2800.000	2800.000	3010.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	2800.000	0.000	0.000	0.000	0.000
GR	601.900	0.000	599.500	100.000	598.400	200.000	597.900	300.000	597.300	400.000
GR	597.100	500.000	597.200	600.000	597.500	700.000	597.300	800.000	598.300	900.000
GR	597.600	1000.000	597.800	1100.000	596.200	1200.000	596.500	1216.000	593.900	1300.000
GR	594.400	1400.000	594.600	1500.000	595.400	1600.000	578.900	1635.000	576.100	1638.000
GR	575.400	1641.000	575.300	1650.000	575.500	1660.000	575.800	1670.000	576.300	1673.000
GR	582.000	1685.000	583.700	1700.000	585.700	1800.000	585.700	1900.000	585.600	2100.000
GR	585.300	2200.000	585.600	2300.000	585.100	2400.000	583.700	2500.000	583.000	2544.000
GR	591.400	2600.000	594.200	2618.000	595.200	2700.000	595.500	2800.000	595.500	2900.000
GR	595.400	3000.000	594.700	3100.000	594.500	3200.000	594.400	3300.000	594.700	3400.000
GR	594.900	3500.000	595.200	3600.000	595.500	3700.000	595.900	3800.000	596.300	3900.000
GR	596.600	4000.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	6.000	.050	1967.000	.060	2009.000	.050	2062.000	.060	2070.000	.080
NH	2100.000	.055	3200.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	10100.000	45.000	1967.000	2070.000	2000.000	2350.000	2420.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	1700.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	597.200	0.000	596.600	100.000	596.800	200.000	596.500	300.000	596.500	400.000
GR	595.900	500.000	595.500	600.000	595.300	700.000	595.300	800.000	594.500	900.000
GR	595.100	1000.000	595.900	1100.000	596.300	1130.000	595.300	1200.000	594.500	1300.000
GR	595.100	1400.000	595.700	1500.000	595.800	1600.000	596.000	1700.000	593.700	1800.000
GR	591.700	1900.000	591.000	1967.000	584.000	2000.000	577.500	2009.000	575.500	2020.000
GR	575.200	2030.000	575.300	2040.000	575.300	2050.000	577.400	2062.000	583.600	2070.000
GR	586.300	2100.000	586.900	2200.000	586.700	2300.000	586.200	2400.000	585.100	2500.000
GR	584.100	2600.000	587.200	2680.000	590.600	2700.000	596.300	2743.000	597.600	2800.000
GR	597.300	2900.000	597.300	2970.000	597.300	3000.000	596.800	3100.000	597.200	3200.000
NH	5.000	.050	1600.000	.110	1613.000	.055	1679.000	.110	1710.000	.050
NH	2600.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	11580.000	36.000	1600.000	1710.000	1480.000	1480.000	1480.000	0.000	0.000	0.000
GR	599.300	0.000	598.400	100.000	597.200	200.000	596.600	300.000	596.400	400.000
GR	596.400	500.000	596.400	600.000	595.600	700.000	596.300	800.000	596.300	900.000
GR	596.300	1000.000	595.800	1100.000	596.000	1200.000	596.500	1300.000	595.200	1400.000
GR	592.800	1500.000	592.300	1550.000	588.100	1600.000	577.300	1613.000	576.700	1623.000
GR	576.100	1635.000	576.800	1645.000	577.200	1655.000	576.900	1665.000	577.400	1679.000
GR	583.400	1686.000	584.600	1700.000	589.000	1710.000	588.900	1733.000	589.200	1755.000
GR	588.600	1800.000	590.600	1900.000	592.700	2000.000	593.700	2130.000	596.100	2300.000
GR	598.500	2600.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.500	1.000	0.000	0.000	0.000	0.000	0.000
NH	4.000	.100	1600.000	.050	1700.000	.100	1900.000	.040	2600.000	0.000
X1	11721.000	40.000	1600.000	1700.000	141.000	141.000	141.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	1300.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	599.300	0.000	598.400	100.000	597.200	200.000	596.600	300.000	596.400	400.000
GR	596.400	600.000	595.600	700.000	596.300	800.000	596.300	1000.000	595.800	1100.000
GR	596.000	1200.000	596.500	1300.000	595.200	1400.000	592.800	1500.000	592.300	1550.000
GR	592.600	1600.000	586.700	1600.000	586.700	1602.000	578.600	1602.000	577.300	1605.000
GR	576.500	1608.000	576.300	1614.000	576.100	1620.000	576.200	1630.000	575.900	1640.000
GR	576.300	1650.000	576.600	1660.000	576.800	1666.000	583.800	1681.000	582.800	1699.000
GR	591.900	1700.000	592.800	1700.000	592.700	1703.000	589.200	1755.000	588.600	1800.000
GR	590.600	1900.000	592.700	2000.000	593.700	2130.000	596.100	2300.000	598.500	2600.000
NC	.080	.080	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	11722.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	1300.000	0.000	0.000	0.000	0.000	0.000	0.000
BT	12.000	1550.000	592.300	0.000	1600.000	592.600	591.700	1608.000	592.600	591.700
BT	1614.000	592.700	591.800	1630.000	592.700	591.800	1640.000	592.300	591.900	1650.000
BT	592.800	591.900	1660.000	592.900	592.000	1681.000	592.900	592.000	1699.000	592.800
BT	591.900	1700.000	592.800	591.900	1703.000	592.700	0.000	0.000	0.000	0.000
X1	11738.000	0.000	0.000	0.000	16.000	16.000	16.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	1300.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	5.000	.040	1600.000	.090	1605.000	.050	1660.000	.090	1700.000	.040
NH	2600.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	11739.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	1300.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	8.000	.030	1200.000	.040	1860.000	.090	1956.000	.054	1960.000	.050
NH	2023.000	.050	2033.000	.090	2454.000	.040	3600.000	0.000	0.000	0.000
X1	14670.000	49.000	1956.000	2033.000	2850.000	2600.000	2940.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	3350.000	0.000	0.000	0.000	0.000
GR	602.900	0.000	601.900	6.000	598.100	100.000	598.600	200.000	597.500	300.000
GR	597.800	400.000	599.600	500.000	598.500	600.000	598.300	700.000	598.100	800.000
GR	598.300	900.000	598.100	1000.000	598.300	1100.000	597.500	1200.000	597.500	1300.000
GR	597.500	1400.000	597.500	1500.000	597.700	1600.000	598.700	1700.000	598.500	1800.000
GR	597.500	1860.000	595.300	1900.000	583.200	1956.000	578.300	1960.000	578.200	1966.000
GR	577.200	1976.000	577.400	1986.000	575.600	1996.000	575.300	2006.000	576.300	2016.000
GR	577.700	2023.000	587.700	2033.000	586.400	2100.000	585.400	2200.000	584.800	2300.000
GR	582.600	2400.000	590.700	2454.000	594.000	2500.000	595.100	2600.000	596.400	2700.000
GR	596.900	2800.000	597.100	2900.000	597.400	3000.000	597.500	3100.000	597.500	3200.000
GR	597.100	3300.000	597.500	3400.000	597.500	3500.000	596.900	3600.000	0.000	0.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
NH	6.000	.080	400.000	.050	872.000	.094	906.000	.055	945.000	.090
NH	958.000	.080	1000.000	.050	2900.000	0.000	0.000	0.000	0.000	0.000
X1	17820.000	40.000	872.000	958.000	3150.000	3000.000	3150.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	1700.000	0.000	0.000	0.000	0.000
GR	599.800	0.000	598.800	100.000	599.000	200.000	597.600	300.000	597.900	400.000
GR	598.300	426.000	597.800	500.000	598.000	600.000	598.200	700.000	598.100	800.000
GR	596.400	872.000	582.800	900.000	579.200	906.000	577.700	912.000	575.000	920.000
GR	575.200	930.000	576.700	940.000	578.900	945.000	586.700	958.000	588.100	968.000
GR	584.700	1000.000	588.300	1100.000	589.500	1200.000	589.700	1300.000	587.300	1400.000
GR	586.200	1500.000	586.800	1600.000	588.100	1700.000	588.500	1800.000	590.000	1900.000
GR	593.500	2000.000	597.000	2100.000	597.800	2200.000	597.800	2300.000	595.100	2400.000
GR	596.000	2500.000	597.300	2600.000	597.800	2700.000	598.200	2800.000	598.100	2900.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
NH	7.000	.050	1200.000	.090	1647.000	.090	1711.000	.050	1748.000	.090
NH	1758.000	.070	2000.000	.050	3600.000	0.000	0.000	0.000	0.000	0.000
X1	19270.000	48.000	1700.000	1758.000	1500.000	1400.000	1450.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	405.000	0.000	1925.000	0.000	0.000	0.000	0.000
GR	607.100	0.000	602.400	100.000	600.600	200.000	599.500	300.000	598.300	400.000
GR	599.100	500.000	599.700	600.000	598.900	700.000	598.100	732.000	598.400	800.000
GR	599.100	900.000	597.800	1000.000	597.900	1100.000	598.600	1200.000	598.100	1300.000
GR	598.000	1400.000	598.300	1500.000	599.800	1600.000	600.300	1620.000	597.400	1673.000
GR	584.900	1700.000	579.200	1711.000	578.900	1720.000	578.600	1730.000	578.900	1740.000
GR	579.500	1748.000	587.400	1758.000	585.000	1800.000	585.600	1873.000	588.000	1878.000
GR	587.400	1900.000	587.600	2000.000	588.600	2100.000	589.000	2200.000	589.000	2300.000
GR	592.600	2400.000	597.700	2500.000	597.800	2600.000	598.400	2700.000	598.800	2800.000
GR	597.900	2900.000	598.000	3000.000	597.200	3100.000	595.700	3200.000	597.300	3300.000
GR	597.300	3400.000	596.400	3500.000	595.100	3600.000	0.000	0.000	0.000	0.000
QT	4.000	5440.000	8410.000	9720.000	13100.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.500	1.000	0.000	0.000	0.000	0.000	0.000
NH	5.000	.050	1647.000	.094	1708.000	.050	1897.000	.090	1926.600	.060
NH	3600.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	19360.000	64.000	1700.000	1926.600	90.000	90.000	90.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	1926.600	599.900	0.000	0.000	0.000
GR	603.800	0.000	602.900	100.000	601.900	200.000	601.100	300.000	600.300	400.000
GR	599.700	500.000	599.200	600.000	599.000	700.000	599.000	800.000	599.000	900.000
GR	599.600	1100.000	600.200	1400.000	600.400	1600.000	600.400	1647.000	597.400	1700.000
GR	594.000	1700.000	593.000	1708.000	586.300	1726.000	582.300	1736.100	583.500	1736.100
GR	583.500	1736.600	597.700	1736.600	597.700	1739.600	583.500	1739.600	583.500	1740.100
GR	581.500	1740.100	580.800	1750.000	580.500	1770.000	581.000	1780.000	581.400	1786.100
GR	583.500	1786.100	583.500	1786.600	597.800	1786.600	597.800	1789.600	583.500	1789.600
GR	585.600	1800.000	586.600	1820.000	586.700	1836.600	597.800	1836.600	597.800	1839.600
GR	585.900	1839.600	586.200	1860.000	586.100	1875.000	585.900	1886.600	597.700	1886.600
GR	597.700	1889.600	584.500	1889.600	585.600	1897.000	594.400	1919.000	595.300	1926.600
GR	587.400	1926.600	587.400	1926.600	587.400	1926.600	587.600	1973.000	589.000	2173.000

GR	592.600	2373.000	600.200	2530.000	600.200	2800.000	600.400	2900.000	600.500	3000.000
GR	600.200	3300.000	600.000	3400.000	600.100	3500.000	601.100	3600.000	0.000	0.000
SB	0.000	1.820	3.040	0.000	226.600	0.000	2502.700	0.000	580.500	580.500
X1	19401.000	0.000	0.000	0.000	39.000	39.000	39.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	597.800	599.000	0.000	0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	1926.600	599.900	0.000	0.000	0.000
BT	36.000	0.000	603.800	0.000	100.000	602.900	0.000	200.000	601.900	0.000
BT	400.000	600.300	0.000	500.000	599.700	0.000	600.000	599.200	0.000	700.000
BT	599.000	0.000	900.000	599.000	0.000	1100.000	599.600	0.000	1400.000	600.200
BT	0.000	1600.000	600.400	0.000	1700.000	600.500	597.400	1700.000	601.200	597.700
BT	1736.600	601.200	597.700	1739.600	601.200	597.700	1786.600	601.300	597.800	1789.600
BT	601.300	597.800	1836.600	601.300	597.800	1839.600	601.300	597.800	1886.600	601.200
BT	597.700	1889.600	601.200	597.700	1897.000	601.200	597.700	1919.000	601.200	597.700
BT	1926.600	601.200	597.700	1926.600	600.500	595.300	1973.000	600.500	0.000	2173.000
BT	600.100	0.000	2373.000	599.900	0.000	2530.000	600.200	0.000	2800.000	600.200
BT	0.000	2900.000	600.400	0.000	3000.000	600.500	0.000	3300.000	600.200	0.000
BT	3400.000	600.000	0.000	3500.000	600.100	0.000	3600.000	601.100	0.000	0.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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HEC2 VERSION UPDATED JAN 1976
ERROR CORRECTIONS 01,02,03,04,05,06,07,08,09
MODIFICATIONS 52,53,54,55,56,57,58
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T1      CLINTON TOWNSHIP JOB NO. 5670-02  PROJECT MANAGER  WILLIAM C. ROSSOW
T2      100 YEAR FLOOD = 11600
T3      NORTH BRANCH OF THE CLINTON RIVER

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
        -1.        4.        0.        0.  0.000000      0.00       0.0        0.   593.250     0.000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
      3.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
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CCHV=     .100 CEHV=     .300
1490 NH CARD USED
3280 CROSS SECTION        0.00 EXTENDED        2.25 FEET

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       LEFT/RIGHT
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

3470 ENCROACHMENT STATIONS=      265.0      935.0  TYPE=     1  TARGET=      670.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=        593.50 ELREA=        580.10

        0.00     21.25    593.25      0.00    593.25    593.35       .10      0.00      0.00    593.50
      11600.        0.     5871.     5729.        0.     1737.     4253.        0.        0.    580.10
        0.00      0.00      3.38      1.35     0.000      .047      .100     0.000    572.00    500.90
     .000259      170.      170.      170.         0         0         1      0.00    434.10    935.00

1490 NH CARD USED
3280 CROSS SECTION      300.00 EXTENDED        2.32 FEET

3470 ENCROACHMENT STATIONS=      340.0      860.0  TYPE=     1  TARGET=      520.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=        593.50 ELREA=        580.10

                    VALLEY SECTION A                                                       97

      300.00     21.31    593.31      0.00      0.00    593.45       .13       .08       .01    593.50
      11600.        0.     6428.     5172.        0.     1745.     3424.       38.        3.    580.10
         .03      0.00      3.68      1.51     0.000      .047      .100      .040    572.00    500.54
     .000307      300.      300.      300.         1         0         1      0.00    359.36    860.00

CCHV=     .500 CEHV=    1.000
1490 NH CARD USED

3470 ENCROACHMENT STATIONS=      428.5      665.0  TYPE=     1  TARGET=      276.000
  ELENCL=     595.20  ELENCR=     595.20
      858.00     22.43    593.53      0.00      0.00    593.72       .19       .21       .06    591.60
      11600.        0.    11600.        0.        0.     3311.        0.       92.        6.    595.20
         .07       .01      3.50      0.00      .040      .049      .100      .040    571.10    428.50
     .000506      558.      558.      538.         2         0         1      0.00    236.53    665.03

SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
      0.00      2.02      3.04      0.00    276.00      0.00   3014.10      0.00    571.10    571.10

1490 NH CARD USED
PRESSURE FLOW

    EGPRS     EGLWC     H3        QWEIR     QPR       BAREA     ELLC      ELTRD     CLASS
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   593.99    593.72     0.00       0.     11600.     3014.     592.60    595.20     10.00

 3470 ENCROACHMENT STATIONS=      428.5     665.0  TYPE=      1  TARGET=     276.000
  ELENCL=    595.20  ELENCR=     595.20

              BRIDGE SECTION B  CASS AVE.  UPSTREAM FACE                       98

    944.00    22.71    593.81     0.00      0.00    593.99       .18       .27      0.00    591.80
   11600.        0.    11600.        0.        0.    3377.        0.       99.        7.    595.20
       .08       .01      3.43      0.00      .050      .057      .100      .040    571.10    428.50
   .000647       86.       86.       86.         2         0         1      0.00    236.53    665.03

 1490 NH CARD USED
 3280 CROSS SECTION   1244.00 EXTENDED       .82 FEET

     SECNO     DEPTH     CWSEL     CRIWS     WSELK       EG        HV        HL     OLOSS  BANK ELEV
         Q      QLOB       QCH      QROB      ALOB      ACH      AROB       VOL       TWA  LEFT/RIGHT
      TIME      VLOB       VCH      VROB       XNL      XNCH      XNR       WTN     ELMIN      SSTA
     SLOPE     XLOBL      XLCH     XLOBR    ITRIAL      IDC     ICONT     CORAR    TOPWID     ENDST


 3470 ENCROACHMENT STATIONS=         .0    1425.0  TYPE=      1  TARGET=    1424.999

 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      594.80 ELREA=      582.20

   1244.00     22.72    594.12      0.00      0.00    594.16       .04       .10       .07    594.80
     9590.        0.     3245.     6345.        0.     1435.     4925.      134.       10.    582.20
       .13      0.00      2.26      1.29      .050      .059      .070      .040    571.40    725.10
   .000178      300.      300.      330.         2         0         1      0.00    699.90   1425.00

 CCHV=     .100 CEHV=      .300
 1490 NH CARD USED
 3280 CROSS SECTION   1650.00 EXTENDED       .90 FEET


 3470 ENCROACHMENT STATIONS=         .0    1425.0  TYPE=      1  TARGET=    1424.999

 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      595.20 ELREA=      562.60

              VALLEY SECTION C                                                 99

   1650.00     22.40    594.20      0.00      0.00    594.24       .05       .08       .00    595.20
     9590.        0.     3310.     6280.        0.     1407.     4727.      195.       17.    582.60
       .20      0.00      2.35      1.33      .050      .059      .070      .039    571.80    727.52
   .000196      406.      406.      435.         2         0         1      0.00    697.48   1425.00

 1490 NH CARD USED

 3470 ENCROACHMENT STATIONS=    1300.0    3600.0  TYPE=      1  TARGET=  -1300.000

              VALLEY SECTION D                                                100

   4670.00     20.62    594.82      0.00      0.00    594.87       .05       .63       .00    591.80
     9590.       59.     3573.     5958.      115.     1306.     5765.      648.       75.    582.80
       .70       .51      2.74      1.03      .060      .054      .106      .040    574.20   1313.42
   .000229     2900.     3010.     2950.         2         0         1      0.00    993.62   2307.03
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1490 NH CARD USED
3470 ENCROACHMENT STATIONS=         .0     2800.0  TYPE=       1  TARGET=     2799.999
OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      595.40 ELREA=        582.00

              VALLEY SECTION E                                                  101

   7680.00     19.82    595.12      0.00      0.00    595.13       .01       .25       .00    595.40
      9590.       0.     1164.     8426.        0.     1209.     9081.     1216.      142.    582.00
      1.55      0.00       .96       .93      .060      .065      .050      .041    575.30   1600.60
   .000046     2800.     3010.     2800.         2         0         1      0.00   1092.71   2693.30

 1490 NH CARD USED

 3470 ENCROACHMENT STATIONS=      1700.0     3200.0  TYPE=       1  TARGET=    -1700.000

              VALLEY SECTION F                                                  102

  10100.00     20.06    595.26      0.00      0.00    595.28       .03       .15       .00    591.00
     9590.      334.     2659.     6597.      570.     1537.     5906.     1709.      198.    593.60
      2.07       .59      1.73      1.12      .050      .052      .056      .041    575.20   1732.26
   .000092     2000.     2420.     2350.         2         0         1      0.00   1002.88   2735.14

 1490 NH CARD USED

              VALLEY SECTION G                                                  103

  11580.00     19.36    595.46      0.00      0.00    595.56       .11       .25       .02    589.10
     9590.      779.     5467.     3344.      556.     1746.     1954.     1918.      230.    589.00
      2.23      1.40      3.13      1.71      .050      .062      .050      .041    576.10   1380.32
   .000422     1480.     1480.     1480.         2         0         1      0.00    874.05   2254.37

 CCHV=     .500 CEHV=    1.000
 1490 NH CARD USED
    SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS  BANK ELEV
    Q         QLOB      QCH       QROB      ALOB        ACH      AROB       VOL       TWA  LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL        XNCH       XNR       WTN     ELMIN      SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL      IDC     ICONT     CORAR    TOPWID    ENDST

 3470 ENCROACHMENT STATIONS=      1300.0     2600.0  TYPE=       1  TARGET=    -1300.000
  11721.00     19.62    595.52      0.00      0.00    595.71       .19       .06       .09    592.60
     9590.      261.     6938.     2391.      457.     1699.     1940.     1931.      233.    592.80
      2.24       .57      4.08      1.23      .100      .050      .069      .041    575.90   1375.62
   .000445      141.      141.      141.         2         0         1      0.00    883.08   2258.70

 NORMAL BRIDGE,NRD=12 MIN ELTRD=  592.30 MAX ELLC=  592.00

 3470 ENCROACHMENT STATIONS=      1300.0     2600.0  TYPE=       1  TARGET=    -1300.000
  11722.00     19.74    595.64      0.00      0.00    595.75       .11       .00       .04    592.60
     9590.      621.     5196.     3772.      486.     1622.     2011.     1931.      233.    592.80
      2.24      1.28      3.20      1.88      .080      .050      .080      .041    575.90   1365.88
   .001363        1.        1.        1.         2         0         1    -90.00    901.79   2267.67
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NORMAL BRIDGE,NRD=12 MIN ELTRD=  592.30 MAX ELLC=  592.00

 3470 ENCROACHMENT STATIONS=     1300.0     2600.0  TYPE=      1  TARGET=    -1300.000

                      BRIDGE SECTION H  LITTLE ROAD  UPSTREAM FACE                 104

   11738.00     19.77    595.67      0.00      0.00    595.77      .11       .02       .00    592.60
    9590.        625.     5185.      3780.      490.     1623.     2020.     1933.      233.     592.80
      2.25       1.28      3.19      1.87      .080      .050      .080      .041    575.90   1364.77
   .001353        16.       16.       16.         0         0         1    -90.00    903.93   2268.69

 1490 NH CARD USED

 3470 ENCROACHMENT STATIONS=     1300.0     2600.0  TYPE=      1  TARGET=    -1300.000
   11739.00     19.78    595.68      0.00      0.00    595.78      .10       .00       .00    592.60
    9590.        625.     5210.      3755.      495.     1715.     2032.     1933.      233.     592.80
      2.25       1.26      3.04      1.85      .040      .058      .040      .041    575.90   1363.10
   .000329         1.        1.        1.         2         0         1      0.00    907.12   2270.23

 1490 NH CARD USED

 3470 ENCROACHMENT STATIONS=         .0     3350.0  TYPE=      1  TARGET=     3349.999

                      VALLEY SECTION I                                              105

   14670.00     21.10    596.40      0.00      0.00    596.45      .06       .65       .02    583.20
    9590.        322.     3886.      5382.      411.     1437.     5038.     2280.      286.     587.70
      2.69        .78      2.71      1.07      .090      .050      .086      .043    575.30   1880.04
   .000176      2850.     2940.     2600.         2         0         1      0.00    819.80   2699.84

 CCHV=     .100 CEHV=     .300
 1490 NH CARD USED

 3470 ENCROACHMENT STATIONS=         .0     1700.0  TYPE=      1  TARGET=     1699.999

                      VALLEY SECTION J                                              106

   17820.00     21.94    596.94      0.00      0.00    596.96      .03       .51       .00    596.40
    9590.          1.     2455.      7134.        6.     1284.     6868.     2804.      344.     586.70
      3.36        .16      1.91      1.04      .050      .062      .080      .045    575.00    849.29
   .000158      3150.     3150.     3000.         2         0         1      0.00    850.71   1700.00

 CCHV=     .300 CEHV=     .500
 1490 NH CARD USED
 3280 CROSS SECTION  19270.00 EXTENDED      2.16 FEET

 3470 ENCROACHMENT STATIONS=      405.0     1925.0  TYPE=      1  TARGET=     1520.000

                      VALLEY SECTION K                                              107

   19270.00     18.66    597.26      0.00      0.00    597.45      .20       .41       .08    584.90
    9590.        223.     4324.      5044.      165.      984.     1846.     2984.      362.     537.40
      3.48       1.35      4.39      2.73      .090      .056      .070      .045    578.60   1673.31
   .000670      1500.     1450.     1400.         2         0         1      0.00    251.69   1925.00

 CCHV=     .500 CEHV=    1.000
 1490 NH CARD USED
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3265 DIVIDED FLOW

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3470 ENCROACHMENT STATIONS= .0 1926.6 TYPE= 1 TARGET= 1926.599

19360.00	16.83	597.33	0.00	0.00	597.58	.25	.07	.05	597.40
9720.	0.	9720.	0.	0.	2414.	0.	2990.	362.	599.90
3.49	0.00	4.03	0.00	.090	.051	.070	.045	580.50	1700.00
.000927	90.	90.	90.	2	0.	1	0.00	214.60	1926.60

SPECIAL BRIDGE

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
0.00	1.82	3.04	0.00	226.60	0.00	2502.70	0.00	580.50	580.50

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS= 0.000 EGLWC= 597.580 ELLC= 597.800 PCWSE= 597.329 ELTRD= 599.000

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD=36 MIN ELTRD= 599.00 MAX ELLC= 597.80

3470 ENCROACHMENT STATIONS= .0 1926.6 TYPE= 1 TARGET= 1926.599

BRIDGE SECTION L HALL ROAD (M-59) UPSTREAM FACE 108

19401.00	16.87	597.37	0.00	0.00	597.62	.25	.04	.00	597.40
9720.	0.	9720.	0.	0.	2422.	0.	2992.	363.	599.90
3.49	0.00	4.01	0.00	.090	.051	.070	.045	580.50	1700.00
.000918	39.	39.	39.	2	0	1	0.00	214.60	1926.60

SUMMARY PRINTOUT FOR MULTIPLE PROFILES

NORTH BRANCH OF THE CLIN

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	HV	HL	OLOSS	QCH	DEPTH	TOPWID
0.00	170.00	0.00	0.00	572.00	6710.00	588.39	.09	0.00	0.00	3837.96	16.39	416.68
0.00	170.00	0.00	0.00	572.00	10200.00	592.09	.10	0.00	0.00	5278.26	20.09	429.94
0.00	170.00	0.00	0.00	572.00	11600.00	593.25	.10	0.00	0.00	5870.89	21.25	434.10
0.00	170.00	0.00	0.00	572.00	15500.00	596.25	.10	0.00	0.00	7057.61	24.25	670.00
300.00	300.00	0.00	0.00	572.00	6710.00	588.47	.11	.09	.01	4084.11	16.47	342.00
300.00	300.00	0.00	0.00	572.00	10200.00	592.16	.12	.08	.01	5749.18	20.16	355.20
300.00	300.00	0.00	0.00	572.00	11600.00	593.31	.13	.08	.01	6427.82	21.31	359.36
300.00	300.00	0.00	0.00	572.00	15500.00	596.30	.14	.08	.01	7949.77	24.30	520.00
858.00	558.00	0.00	0.00	571.10	6710.00	588.71	.14	.24	.03	6710.00	17.61	227.79
858.00	558.00	0.00	0.00	571.10	10200.00	592.37	.18	.21	.05	10200.00	21.27	233.62
858.00	558.00	0.00	0.00	571.10	11600.00	593.53	.19	.21	.06	11600.00	22.43	236.53
858.00	558.00	0.00	0.00	571.10	15500.00	596.49	.20	.19	.06	14702.86	25.39	1383.92
944.00	86.00	595.20	592.60	571.10	6710.00	588.77	.14	.06	.00	6710.00	17.67	227.79
944.00	86.00	595.20	592.60	571.10	10200.00	592.44	.18	.07	.00	10200.00	21.34	233.62
944.00	86.00	595.20	592.60	571.10	11600.00	593.81	.18	.27	0.00	11600.00	22.71	236.53
944.00	86.00	595.20	592.60	571.10	15500.00	596.84	.18	.33	0.00	14365.95	25.74	1391.93
1244.00	300.00	0.00	0.00	571.40	5250.00	589.04	.06	.15	.04	2584.23	17.64	490.98
1244.00	300.00	0.00	0.00	571.40	8260.00	592.78	.05	.14	.07	3044.65	21.38	659.76
1244.00	300.00	0.00	0.00	571.40	9590.00	594.12	.04	.10	.07	3245.29	22.72	699.90
1244.00	300.00	0.00	0.00	571.40	13000.00	597.13	.03	.07	.07	3321.01	25.73	1422.41
1650.00	406.00	0.00	0.00	571.80	5250.00	589.17	.07	.13	.00	2651.02	17.37	488.38
1650.00	406.00	0.00	0.00	571.80	8260.00	592.86	.05	.09	.00	3110.13	21.06	644.35
1650.00	406.00	0.00	0.00	571.80	9590.00	594.20	.05	.08	.00	3309.90	22.40	697.48
1650.00	406.00	0.00	0.00	571.80	13000.00	597.18	.03	.05	.00	3428.86	25.38	1421.98
4670.00	3010.00	0.00	0.00	574.20	5250.00	590.10	.06	.93	.00	2490.89	15.90	510.69
4670.00	3010.00	0.00	0.00	574.20	8260.00	593.55	.06	.69	.00	3317.71	19.35	786.20
4670.00	3010.00	0.00	0.00	574.20	9590.00	594.82	.05	.63	.00	3572.76	20.62	993.62
4670.00	3010.00	0.00	0.00	574.20	13000.00	597.58	.03	.40	.00	3530.75	23.38	2300.00
7680.00	3010.00	0.00	0.00	575.30	5250.00	590.59	.01	.43	.00	998.11	15.29	984.34
7680.00	3010.00	0.00	0.00	575.30	8260.00	593.88	.01	.28	.00	1096.46	18.58	1012.75
7680.00	3010.00	0.00	0.00	575.30	9590.00	595.12	.01	.25	.00	1164.38	19.82	1092.71
7680.00	3010.00	0.00	0.00	575.30	13000.00	597.78	.01	.18	.00	1316.03	22.48	2344.17
10100.00	2420.00	0.00	0.00	575.20	5250.00	590.86	.04	.29	.01	2183.30	15.66	734.27
10100.00	2420.00	0.00	0.00	575.20	8260.00	594.04	.03	.17	.00	2513.90	18.84	940.96
10100.00	2420.00	0.00	0.00	575.20	9590.00	595.26	.03	.15	.00	2658.79	20.06	1002.88
10100.00	2420.00	0.00	0.00	575.20	13000.00	597.89	.02	.12	.00	3026.03	22.69	1500.00
11580.00	1480.00	0.00	0.00	576.10	5250.00	591.22	.19	.47	.05	4701.92	15.12	366.45
11580.00	1480.00	0.00	0.00	576.10	8260.00	594.27	.13	.30	.03	5455.18	18.17	731.74
11580.00	1480.00	0.00	0.00	576.10	9590.00	595.46	.11	.25	.02	5466.60	19.36	874.05
11580.00	1480.00	0.00	0.00	576.10	13000.00	598.04	.05	.17	.01	4817.11	21.94	2413.23

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	HV	HL	OLOSS	QCH	DEPTH	TOPWID
11721.00	141.00	0.00	0.00	575.90	5250.00	591.31	.24	.10	.05	5073.03	15.41	310.22
11721.00	141.00	0.00	0.00	575.90	8260.00	594.35	.23	.07	.10	6710.91	18.45	740.11
11721.00	141.00	0.00	0.00	575.90	9590.00	595.52	.19	.06	.09	6938.01	19.62	883.08
11721.00	141.00	0.00	0.00	575.90	13000.00	598.08	.12	.03	.07	7039.79	22.18	1246.31
11722.00	1.00	592.30	592.00	575.90	5250.00	591.33	.23	.00	.00	5002.31	15.43	310.70
11722.00	1.00	592.30	592.00	575.90	8260.00	594.48	.14	.00	.04	5287.34	18.58	755.14
11722.00	1.00	592.30	592.00	575.90	9590.00	595.64	.11	.00	.04	5196.05	19.74	901.79
11722.00	1.00	592.30	592.00	575.90	13000.00	598.16	.07	.00	.03	4928.95	22.26	1257.61
11738.00	16.00	592.30	592.00	575.90	5250.00	591.34	.23	.01	.00	5000.80	15.44	311.38
11738.00	16.00	592.30	592.00	575.90	8260.00	594.51	.14	.03	.00	5268.98	18.61	757.90
11738.00	16.00	592.30	592.00	575.90	9590.00	595.67	.11	.02	.00	5185.24	19.77	903.93
11738.00	16.00	592.30	592.00	575.90	13000.00	598.17	.07	.01	.00	4923.42	22.27	1258.66
11739.00	1.00	0.00	0.00	575.90	5250.00	591.39	.20	.00	.02	4756.76	15.49	314.90
11739.00	1.00	0.00	0.00	575.90	8260.00	594.53	.13	.00	.01	5309.01	18.63	760.78
11739.00	1.00	0.00	0.00	575.90	9590.00	595.68	.10	.00	.00	5209.73	19.78	907.12
11739.00	1.00	0.00	0.00	575.90	13000.00	598.18	.06	.00	.00	4900.55	22.28	1258.75
14670.00	2940.00	0.00	0.00	575.30	5250.00	592.49	.05	.89	.07	2681.78	17.19	565.89
14670.00	2940.00	0.00	0.00	575.30	8260.00	595.37	.06	.73	.04	3566.07	20.07	722.05
14670.00	2940.00	0.00	0.00	575.30	9590.00	596.40	.06	.65	.02	3886.41	21.10	819.80
14670.00	2940.00	0.00	0.00	575.30	13000.00	598.65	.05	.45	.01	4217.28	23.35	3398.17
17820.00	3150.00	0.00	0.00	575.00	5250.00	593.10	.03	.59	.00	1886.02	18.10	821.20
17820.00	3150.00	0.00	0.00	575.00	8260.00	595.92	.03	.52	.00	2267.68	20.92	827.02
17820.00	3150.00	0.00	0.00	575.00	9590.00	596.94	.03	.51	.00	2455.28	21.94	850.71
17820.00	3150.00	0.00	0.00	575.00	13000.00	599.12	.03	.44	.00	2891.36	24.12	1631.52
19270.00	1450.00	0.00	0.00	578.60	5250.00	593.51	.13	.46	.05	2755.41	14.91	243.60
19270.00	1450.00	0.00	0.00	578.60	8260.00	596.26	.18	.41	.08	3852.12	17.66	249.53
19270.00	1450.00	0.00	0.00	578.60	9590.00	597.26	.20	.41	.08	4323.54	18.66	251.69
19270.00	1450.00	0.00	0.00	578.60	13000.00	599.41	.21	.39	.09	5200.23	20.81	1374.20
19360.00	90.00	0.00	0.00	580.50	5440.00	593.58	.18	.07	.04	5440.00	13.08	201.56
19360.00	90.00	0.00	0.00	580.50	8410.00	596.33	.23	.07	.05	8410.00	15.83	214.60
19360.00	90.00	0.00	0.00	580.50	9720.00	597.33	.25	.07	.05	9720.00	16.83	214.60
19360.00	90.00	0.00	0.00	580.50	13100.00	599.48	.31	.07	.10	12990.28	18.98	781.69
19401.00	39.00	599.00	597.80	580.50	5440.00	593.61	.17	.03	.00	5440.00	13.11	201.94
19401.00	39.00	599.00	597.80	580.50	8410.00	596.36	.23	.04	.00	8410.00	15.86	214.60
19401.00	39.00	599.00	597.80	580.50	9720.00	597.37	.25	.04	.00	9720.00	16.87	214.60
19401.00	39.00	599.00	597.80	580.50	13100.00	599.79	.29	.28	0.00	12838.33	19.29	976.36

SECTION NUMBER	DISCHARGE CFS	CWSEL	CWSEL DIFF EACH Q	CWSEL DIFF EACH SECTION	CWSEL-WSELK	TOPWID	T.W. DIFF	LENGTH
0.000	6710.000	588.390	0.000	0.000	0.000	415.680	0.000	170.000
0.000	10200.000	592.090	3.700	0.000	0.000	429.944	-13.264	170.000
0.000	11600.000	593.250	1.160	0.000	0.000	434.103	-17.423	170.000
0.000	15500.000	596.250	3.000	0.000	0.000	669.999	-253.319	170.000
300.000	6710.000	588.470	0.000	.080	0.000	341.995	0.000	300.000
300.000	10200.000	592.156	3.685	.066	0.000	355.202	-13.206	300.000
300.000	11600.000	593.314	1.158	.064	0.000	359.358	-17.362	300.000
300.000	15500.000	596.300	2.986	.050	0.000	519.999	-178.004	300.000
858.000	6710.000	588.709	0.000	.239	0.000	227.790	0.000	558.000
858.000	10200.000	592.371	3.661	.215	0.000	233.619	-5.828	558.000
858.000	11600.000	593.529	1.158	.215	0.000	236.532	-8.742	558.000
858.000	15500.000	596.493	2.964	.193	0.000	1383.922	-1156.132	558.000

944.000	6710.000	588.769	0.000	.060	0.000	227.790	0.000	86.000
944.000	10200.000	592.438	3.669	.066	0.000	233.618	-5.828	86.000
944.000	11600.000	593.810	1.372	.281	0.000	236.532	-8.742	86.000
944.000	15500.000	596.839	3.029	.346	0.000	1391.933	-1164.143	86.000
1244.000	5250.000	589.040	0.000	.270	0.000	490.984	0.000	300.000
1244.000	8260.000	592.778	3.738	.340	0.000	659.763	-168.779	300.000
1244.000	9590.000	594.120	1.342	.310	0.000	699.900	-208.917	300.000
1244.000	13000.000	597.132	3.012	.293	0.000	1422.414	-931.430	300.000
1650.000	5250.000	589.167	0.000	.127	0.000	488.381	0.000	406.000
1650.000	8260.000	592.863	3.696	.085	0.000	644.350	-155.969	406.000
1650.000	9590.000	594.197	1.334	.077	0.000	697.475	-209.094	406.000
1650.000	13000.000	597.181	2.984	.049	0.000	1421.975	-933.594	406.000
4670.000	5250.000	590.103	0.000	.937	0.000	510.689	0.000	3010.000
4670.000	8260.000	593.553	3.450	.690	0.000	786.200	-275.510	3010.000
4670.000	9590.000	594.821	1.268	.624	0.000	993.615	-482.926	3010.000
4670.000	13000.000	597.582	2.760	.401	0.000	2299.999	-1789.310	3010.000
7680.000	5250.000	590.586	0.000	.482	0.000	994.340	0.000	3010.000
7680.000	8260.000	593.884	3.298	.331	0.000	1012.748	-28.408	3010.000
7680.000	9590.000	595.117	1.233	.296	0.000	1092.705	-108.365	3010.000
7680.000	13000.000	597.782	2.664	.200	0.000	2344.171	-1359.831	3010.000
10100.000	5250.000	590.857	0.000	.272	0.000	734.263	0.000	2420.000
10100.000	8260.000	594.044	3.187	.161	0.000	940.961	-206.694	2420.000
10100.000	9590.000	595.258	1.213	.141	0.000	1002.876	-268.608	2420.000
10100.000	13000.000	597.891	2.633	.109	0.000	1499.999	-765.731	2420.000
11580.000	5250.000	591.216	0.000	.359	0.000	366.453	0.000	1480.000
11580.000	8260.000	594.271	3.055	.226	0.000	731.736	-365.283	1480.000
11580.000	9590.000	595.456	1.185	.198	0.000	874.052	-507.599	1480.000
11580.000	13000.000	598.044	2.588	.153	0.000	2413.233	-2046.780	1480.000
11721.000	5250.000	591.312	0.000	.096	0.000	310.225	0.000	141.000
11721.000	8260.000	594.345	3.033	.074	0.000	740.106	-429.881	141.000
11721.000	9590.000	595.517	1.172	.061	0.000	883.077	-572.853	141.000
11721.000	13000.000	598.078	2.561	.034	0.000	1246.314	-936.090	141.000
11722.000	5250.000	591.327	0.000	.015	0.000	310.702	0.000	1.000
11722.000	8260.000	594.479	3.151	.133	0.000	755.138	-444.436	1.000
11722.000	9590.000	595.643	1.165	.126	0.000	901.789	-591.087	1.000
11722.000	13000.000	598.161	2.517	.083	0.000	1257.607	-946.905	1.000
11738.000	5250.000	591.340	0.000	.013	0.000	311.376	0.000	16.000
11738.000	8260.000	594.510	3.170	.031	0.000	757.901	-446.525	16.000
11738.000	9590.000	595.666	1.156	.023	0.000	903.925	-592.549	16.000
11738.000	13000.000	598.173	2.507	.012	0.000	1258.656	-947.280	16.000
11739.000	5250.000	591.387	0.000	.046	0.000	314.901	0.000	1.000
11739.000	8260.000	594.529	3.142	.019	0.000	760.785	-445.884	1.000
11739.000	9590.000	595.680	1.150	.013	0.000	907.122	-592.221	1.000
11739.000	13000.000	598.179	2.500	.006	0.000	1258.750	-943.850	1.000
14670.000	5250.000	592.493	0.000	1.106	0.000	565.887	0.000	2940.000
14670.000	8260.000	595.370	2.877	.841	0.000	722.051	-156.164	2940.000
14670.000	9590.000	596.396	1.026	.716	0.000	819.798	-253.911	2940.000
14670.000	13000.000	598.654	2.258	.474	0.000	3098.174	-2532.287	2940.000
17820.000	5250.000	593.102	0.000	.608	0.000	821.203	0.000	3150.000
17820.000	8260.000	595.923	2.821	.553	0.000	827.016	-5.813	3150.000
17820.000	9590.000	596.936	1.013	.541	0.000	850.709	-29.506	3150.000
17820.000	13000.000	599.115	2.179	.461	0.000	1631.519	-810.316	3150.000
19270.000	5250.000	593.511	0.000	.410	0.000	243.600	0.000	1450.000

19270.000	8260.000	596.259	2.748	.336	0.000	249.534	-5.936	1450.000
19270.000	9590.000	597.258	.999	.322	0.000	251.693	-8.093	1450.000
19270.000	13000.000	599.413	2.155	.298	0.000	1374.201	-1130.602	1450.000
19360.000	5440.000	593.577	0.000	.065	0.000	201.557	0.000	90.000
19360.000	8410.000	596.327	2.750	.068	0.000	214.599	-13.042	90.000
19360.000	9720.000	597.329	1.001	.071	0.000	214.599	-13.043	90.000
19360.000	13100.000	599.484	2.156	.071	0.000	781.694	-580.137	90.000
19401.000	5440.000	593.614	0.000	.037	0.000	201.943	0.000	39.000
19401.000	8410.000	596.365	2.751	.038	0.000	214.599	-12.657	39.000
19401.000	9720.000	597.367	1.002	.039	0.000	214.599	-12.657	39.000
19401.000	13100.000	599.788	2.421	.304	0.000	976.364	-774.421	39.000

DATA FOR LAST CROSS SECTION

PROFILE	TYPE ENC	TARGET	TOP WIDTH AREA-ACRES	TOP WIDTH AREA-DIFF
1	0.000	1926.599	255.949	0.000
2	0.000	1926.599	323.982	68.033
3	0.000	1926.599	362.561	106.613
4	0.000	1926.599	846.647	590.698

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Clinton Twp

3) WATERCOURSE: North Branch Clinton River

4) DOCUMENT TYPE: Updated 100 yr Flood

00BREAK00

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1*********************************************
 *  HEC-2 WATER SURFACE PROFILES             *
 *                                           *
 *  Version   4.6.2;  May 1991               *
 *                                           *
 *  RUN DATE    09JAN94    TIME   15:23:41   *
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*  U.S. ARMY CORPS OF ENGINEERS
*  HYDROLOGIC ENGINEERING CENTER
*  609 SECOND STREET, SUITE D
*  DAVIS, CALIFORNIA 95616-4687
*          (916) 756-1104
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X      X  XXXXXXX   XXXXX           XXXXX
X      X  X        X     X         X     X
X      X  X        X                     X
XXXXXXX   XXXX     X         XXXXX  XXXXX
X      X  X        X               X
X      X  X        X     X         X
X      X  XXXXXXX   XXXXX          XXXXXXX
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THIS RUN EXECUTED 09JAN94   15:23:41

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HEC-2 WATER SURFACE PROFILES

Version   4.6.2,  May 1991
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T1 CLINTON TOWNSHIP FLOOD INSURANCE STUDY
T2 UPDATED 100-YEAR FLOOD   STS CONSULTANTS LTD.   12/93 MMW
T3 NORTH BRANCH OF THE CLINTON RIVER (NATURAL FLOOD PROFILE)

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-1.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	593.25	0.0

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	1.0	0.0	-1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

J3 VARIABLE CODES FOR SUMMARY PRINTOUT

150.0	110.0	115.0	200.0	0.0	0.0	0.0	0.0	0.0	0.0

NC	.07	.07	.04	.10	0.30	0.0	0.0	0.0	0.0	0.0
NH	5.0	.04	500.0	.07	540.0	.045	607.0	.07	615.0	.10
NH	1388.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
QT	2.0	11600.0	11600.0							
X1	0.0	39.0	540.0	607.0	0.0	0.0	0.0	0.0	0.0	0.0
X3	0.0	0.0	0.0	265.0	0.0	935.0	0.0	0.0	0.0	0.0
GR	599.2	0.0	595.5	100.0	592.6	200.0	592.5	300.0	593.1	346.0
GR	593.0	400.0	593.5	500.0	588.2	519.0	585.2	527.0	582.9	533.0
GR	578.3	540.0	574.7	540.0	573.8	545.0	573.1	550.0	572.5	555.0
GR	572.1	560.0	572.1	565.0	572.1	570.0	572.0	575.0	572.0	580.0
GR	572.2	590.0	573.1	595.0	574.2	600.0	575.1	607.0	577.0	611.0

GR	580.1	615.0	579.7	650.0	578.5	653.0	580.8	700.0	577.3	725.0
GR	579.3	800.0	582.4	900.0	581.9	940.0	580.8	1000.0	580.9	1000.0
GR	582.4	1100.0	583.0	1200.0	590.2	1300.0	591.0	1388.0	0.0	0.0

NH	5.0	.04	500.0	.07	540.0	.045	607.0	.07	615.0	.10
NH	1388.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
X1	300.0	0.0	0.0	0.0	300.0	300.0	300.0	0.0	0.0	0.0
X3	0.0	0.0	0.0	340.0	0.0	860.0	0.0	0.0	0.0	0.0

NC	0.0	0.0	0.0	.50	1.0	0.0	0.0	0.0	0.0	0.0
NH	5.0	.04	428.5	.05	548.3	.045	580.189	.05	665.032	.09
NH	1446.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
X1	858.0	51.0	500.0	776.0	558.0	538.0	558.0	.857	0.0	0.0
X3	10.0	0.0	0.0	0.0	0.0	0.0	0.0	595.3	595.3	0.0
GR	599.2	0.0	595.5	100.0	592.6	200.0	592.5	300.0	593.1	346.0
GR	593.0	400.0	593.0	468.0	591.8	468.5	591.8	500.0	580.5	500.0
GR	579.9	520.0	580.1	540.0	580.3	566.3	592.1	566.3	592.1	569.7
GR	580.4	569.7	580.3	580.0	580.7	600.0	578.9	606.0	574.2	609.0
GR	573.6	620.0	572.9	630.0	572.7	636.3	592.3	636.3	592.3	639.7

GR	571.1	639.7	573.0	650.0	573.7	660.0	575.1	668.0	582.5	677.0
GR	581.4	700.0	581.6	706.3	592.5	706.3	592.5	709.7	581.1	709.7
GR	581.1	720.0	581.0	740.0	580.7	760.0	581.1	776.0	581.1	808.0
GR	582.4	900.0	581.9	940.0	580.8	1000.0	582.4	1100.0	583.0	1200.0
GR	590.2	1300.0	591.0	1388.0	591.2	1400.0	592.8	1500.0	594.4	1600.0
GR	595.8	1688.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

SB	0.0	2.02	3.04	0.0	276.0	0.0	3014.1	0.0	571.1	571.1
NH	3.0	.05	548.2	.045	580.2	.10	1446.6	0.0	0.0	0.0
X1	944.0	51.0	500.0	776.0	86.0	86.0	86.0	.857	0.0	0.0
X2	0.0	0.0	1.0	592.6	595.5	0.0	0.0	0.0	.857	0.0
X3	10.0	0.0	0.0	0.0	0.0	0.0	0.0	595.5	595.5	0.0
X4	2.0	581.1	664.946	581.1	692.542					
BT	27.0	0.0	599.2	599.2	100.0	595.5	595.5	200.0	595.9	592.6
BT	300.0	596.2	592.5	400.0	596.5	593.0	468.0	596.6	593.0	468.5
BT	599.5	591.8	500.0	599.5	591.8	566.3	599.7	592.1	569.7	599.7
BT	592.1	636.3	599.9	592.3	639.7	599.9	592.3	706.3	600.1	592.5
BT	709.7	600.1	592.5	775.9	600.3	592.6	776.0	600.3	581.1	808.0
BT	600.5	581.1	808.1	597.7	581.1	900.0	597.4	582.4	1000.0	596.9
BT	580.8	1100.0	596.5	582.4	1200.0	596.1	583.0	1300.0	595.6	590.2
BT	1400.0	595.5	591.2	1500.0	595.5	592.8	1600.0	595.7	594.4	1688.0
BT	595.8	595.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GR	599.2	0.0	595.5	100.0	592.6	200.0	592.5	300.0	593.1	346.0
GR	593.0	400.0	593.0	468.0	591.8	468.5	591.8	500.0	580.5	500.0
GR	579.9	520.0	580.1	540.0	580.3	566.3	592.1	566.3	592.1	569.7
GR	580.4	569.7	580.3	580.0	580.7	600.0	578.9	606.0	574.2	609.0
GR	573.6	620.0	572.9	630.0	572.7	636.3	592.3	636.3	592.3	639.7
GR	571.1	639.7	573.0	650.0	573.7	660.0	575.1	668.0	582.5	677.0
GR	581.4	700.0	581.6	706.3	592.5	706.3	592.5	709.7	581.1	709.7
GR	581.1	720.0	581.0	740.0	580.7	760.0	581.1	776.0	581.1	808.0
GR	582.4	900.0	581.9	940.0	580.8	1000.0	582.4	1100.0	583.0	1200.0
GR	590.2	1300.0	591.0	1388.0	591.2	1400.0	592.8	1500.0	594.4	1600.0
GR	595.8	1688.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

NH	6.0	.05	729.0	.09	754.0	.055	802.0	.09	812.0	.07
NH	1429.0	.05	2029.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
QT	2.0	9590.0	9590.0	0.0						
ET	0.0	0.0	1.4							
X1	1244.0	34.0	754.0	802.0	300.0	330.0	300.0	0.0	-.40	0.0
GR	599.6	0.0	596.4	4.0	596.9	28.0	594.7	129.0	593.5	229.0

GR	593.2	329.0	593.7	429.0	594.4	529.0	595.4	629.0	595.2	720.0
GR	594.0	729.0	575.2	754.0	574.3	759.0	573.1	769.0	571.8	779.0
GR	572.1	789.0	573.5	799.0	575.4	802.0	582.6	812.0	583.3	829.0
GR	581.0	835.0	584.5	929.0	584.5	1029.0	583.0	1129.0	583.7	1179.0
GR	589.8	1229.0	591.9	1329.0	594.0	1429.0	592.6	1529.0	592.9	1629.0
GR	590.6	1729.0	588.4	1829.0	590.8	1929.0	593.3	2029.0	0.0	0.0
NC	0.0	0.0	0.0	.10	.30	0.0	0.0	0.0	0.0	0.0
NH	6.0	.05	729.0	.09	754.0	.055	802.0	.09	812.0	.07
NH	1429.0	.05	2400.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

X1	1650.0	34.0	754.0	802.0	406.0	435.0	406.0	0.0	0.0	0.0	
GR	599.6	0.0	596.4	4.0	596.9	28.0	594.7	129.0	593.5	229.0	
GR	593.2	329.0	593.7	429.0	594.4	529.0	595.4	629.0	595.2	720.0	594.3
GR	594.0	729.0	575.2	754.0	574.3	759.0	573.1	769.0	571.8	779.0	
GR	572.1	789.0	573.5	799.0	575.4	802.0	582.6	812.0	583.3	829.0	
GR	581.0	835.0	584.5	929.0	584.5	1029.0	583.0	1129.0	583.7	1179.0	
GR	589.8	1229.0	591.9	1329.0	594.0	1429.0	592.6	1529.0	592.9	1629.0	
GR	590.6	1729.0	588.4	1829.0	590.8	1929.0	593.3	2029.0	594.3	2400.0	
NH	7.0	.05	1300.0	.06	1400.0	.09	1421.0	.045	1460.0	.09	
NH	1481.0	.11	1915.0	.05	3600.0	0.0	0.0	0.0	0.0	0.0	
X1	4670.0	50.0	1421.0	1460.0	2900.0	2950.0	3010.0	0.0	0.0	0.0	
GR	600.1	0.0	598.9	100.0	598.2	200.0	598.9	285.0	598.8	300.0	
GR	598.0	400.0	597.5	500.0	596.2	600.0	594.8	700.0	594.2	800.0	594.8
GR	593.8	900.0	593.9	1000.0	593.8	1100.0	594.6	1200.0	595.0	1300.0	
GR	594.6	1330.0	591.8	1400.0	583.9	1415.0	575.8	1421.0	574.8	1425.0	
GR	574.2	1435.0	574.4	1445.0	575.0	1455.0	575.9	1460.0	580.0	1473.0	
GR	582.8	1481.0	583.4	1485.0	583.3	1500.0	582.4	1600.0	582.4	1700.0	
GR	583.4	1800.0	581.6	1865.0	583.6	1900.0	590.6	1915.0	593.7	2000.0	
GR	592.8	2100.0	594.0	2200.0	594.8	2300.0	595.1	2400.0	595.5	2600.0	
GR	595.5	2700.0	595.4	2800.0	595.3	2900.0	595.6	3000.0	595.6	3100.0	
GR	596.0	3200.0	596.0	3300.0	595.8	3400.0	595.8	3500.0	596.0	3600.0	

NH	6.0	.05	700.0	.06	1600.0	.09	1638.0	.055	1670.0	.09
NH	1685.0	.05	4000.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
X1	7680.0	51.0	1638.0	1670.0	2800.0	2800.0	3010.0	0.0	0.0	0.0
GR	601.9	0.0	599.5	100.0	598.4	200.0	597.9	300.0	597.3	400.0
GR	597.1	500.0	597.2	600.0	597.5	700.0	597.3	800.0	598.3	900.0
GR	597.6	1000.0	597.8	1100.0	596.2	1200.0	596.5	1216.0	593.9	1300.0
GR	594.4	1400.0	594.6	1500.0	595.4	1600.0	578.9	1635.0	576.1	1638.0
GR	575.4	1641.0	575.3	1650.0	575.5	1660.0	575.8	1670.0	576.3	1673.0
GR	582.0	1685.0	583.7	1700.0	585.7	1800.0	585.7	1900.0	585.6	2100.0
GR	585.3	2200.0	585.6	2300.0	585.1	2400.0	583.7	2500.0	583.0	2544.0
GR	591.4	2600.0	594.2	2618.0	595.2	2700.0	595.5	2800.0	595.5	2900.0
GR	595.4	3000.0	594.7	3100.0	594.5	3200.0	594.4	3300.0	594.7	3400.0
GR	594.9	3500.0	595.2	3600.0	595.5	3700.0	595.9	3800.0	596.3	3900.0
GR	596.6	4000.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

NH	6.0	.05	1967.0	.06	2009.0	.05	2062.0	.06	2070.0	.08
NH	2100.0	.055	3200.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
X1	10100.	45.0	2009.0	2062.0	2000.0	2350.0	2420.0	0.0	0.0	0.0
GR	597.2	0.0	596.6	100.0	596.8	200.0	596.5	300.0	596.5	400.0
GR	595.9	500.0	595.5	600.0	595.3	700.0	595.3	800.0	594.5	900.0
GR	595.1	1000.0	595.9	1100.0	596.3	1130.0	595.3	1200.0	594.5	1300.0
GR	595.1	1400.0	595.7	1500.0	595.8	1600.0	596.0	1700.0	593.7	1800.0
GR	591.7	1900.0	591.0	1967.0	584.0	2000.0	577.5	2009.0	575.5	2020.0
GR	575.2	2030.0	575.3	2040.0	575.3	2050.0	577.4	2062.0	583.6	2070.0
GR	586.3	2100.0	586.9	2200.0	586.7	2300.0	586.2	2400.0	585.1	2500.0
GR	584.1	2600.0	587.2	2680.0	590.6	2700.0	596.3	2743.0	597.6	2800.0

GR	597.3	2900.0	597.3	2970.0	597.3	3000.0	596.8	3100.0	597.2	3200.0

NH	5.0	05	1600.0	.11	1613.0	.055	1679.0	.11	1710.0	.05
NH	2600.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
X1	11580.	36.0	1613.0	1679.0	1480.0	1480.0	1480.0	0.0	0.0	0.0
GR	599 3	0 0	598.4	100.0	597.2	200.0	596.6	300 0	596.4	400.0
GR	596.4	500.0	596.4	600.0	595.6	700.0	596.3	800.0	596.3	900.0
GR	596.3	1000.0	595.8	1100.0	596.0	1200.0	596.5	1300.0	595.2	1400.0
GR	592.8	1500.0	592.3	1550.0	588.1	1600.0	577.3	1613.0	576.7	1623.0
GR	576 1	1635.0	576.8	1645.0	577.2	1655.0	576.9	1665 0	577.4	1679.0
GR	583.4	1686.0	584.6	1700.0	589.0	1710.0	588.9	1733 0	589.2	1755.0
GR	588 6	1800 0	590.6	1900.0	592.7	2000.0	593.7	2130 0	596.1	2300.0
GR	598.5	2600 0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NC	0 0	0.0	0.0	50	1.0	0.0	0.0	0.0	0.0	0.0
NH	4 0	.10	1600.0	05	1700.0	10	1900.0	.04	2600.0	0.0
X1	11721.	40 0	1600.0	1700.0	141.0	141.0	141.0	0.0	0.0	0.0
GR	599 3	0.0	598.4	100.0	597.2	200 0	596.6	300.0	596.4	400.0
GR	596 4	600 0	595.6	700.0	596.3	800.0	596.3	1000.0	595.8	1100.0
GR	596 0	1200 0	596.5	1300.0	595.2	1400.0	592.8	1500.0	592.3	1550.0
GR	592 6	1600 0	586.7	1600 0	586.7	1602.0	578.6	1602.0	577.3	1605.0
GR	576 5	1608 0	576.3	1614.0	576.1	1620.0	576.2	1630.0	575.9	1640.0
GR	576.3	1650 0	576.6	1660.0	576.8	1666.0	583.8	1681.0	582.8	1599 0
GR	591.9	1700 0	592.8	1700 0	592.7	1703.0	589.2	1755 0	588.6	1800 0
GR	590 6	1900 0	592.7	2000 0	593.7	2130.0	596.1	2300 0	598.5	2500.0
NC	08	08	.05	0.0	0.0	0.0	0.0	0.0	0.0	0.0
X1	11738	0 0	0.0	0.0	17.0	17.0	17.0	0.0	0.0	0.0
NH	5 0	04	1600.0	.09	1605.0	.05	1660.0	.09	1700.0	.04
NH	2600 0	0 0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
X1	11739	0 0	0.0	0.0	1.0	1.0	1.0	0.0	0.0	0.0
NH	8 0	03	1200.0	.04	1860.0	.09	1956.0	.054	1960.0	.05
NH	2023 0	.05	2033.0	.09	2454.0	.04	3600.0	0.0	0.0	0.0
X1	14670.	49 0	1960.0	2023.0	2850.0	2600.0	2940.0	0.0	0.0	0.0
GR	602.9	0 0	601.9	6.0	598.1	100.0	598.6	200.0	597.5	300.0
GR	597.8	400.0	599.6	500.0	598.5	600.0	598.3	700.0	598.1	800.0
GR	598.3	900.0	598.1	1000.0	598.3	1100.0	597.5	1200.0	597.5	1300.0
GR	597 5	1400.0	597.5	1500.0	597.7	1600.0	598.7	1700.0	598.5	1800.0
GR	597 5	1860.0	595.3	1900.0	583.2	1956.0	578.3	1960.0	578.2	1966.0
GR	577 2	1976.0	577.4	1986.0	575.6	1996.0	575.3	2006.0	576.3	2016.0
GR	577.7	2023 0	587.7	2033.0	586.4	2100.0	585.4	2200.0	584.8	2300.0
GR	582 6	2400 0	590.7	2454.0	594.0	2500.0	595.1	2600.0	596.4	2700.0
GR	596.9	2800 0	597.1	2900.0	597.4	3000.0	597.5	3100.0	597.5	3200.0
GR	597.1	3300.0	597.5	3400.0	597.5	3500.0	596.9	3600.0	0.0	0.0
NC	0.0	0.0	0.0	0.1	0.3	0.0	0.0	0.0	0.0	0.0
NH	7 0	08	400.0	.05	872.0	.094	906.0	.055	945.0	.09
NH	958.0	.08	1000.0	.05	2900.0	0.0	0.0	0.0	0.0	0.0
X1	17820.	40 0	906.0	945.0	3150.0	3000.0	3150.0	0.0	0.0	0.0
GR	599 8		598.8	100.0	599.0	200.0	597.6	300.0	597.9	400.0
GR	598 3	426.0	597.8	500.0	598.0	600.0	598.2	700.0	598.1	800.0
GR	596 4	872.0	582.8	900.0	579.2	906.0	577.7	912.0	575.0	920.0
GR	575 2	930.0	576.7	940.0	578.9	945.0	586.7	958.0	588.1	968.0

GR	584.7	1000.0	588.3	1100.0	589.5	1200.0	589.7	1300.0	587.3	1400.0
GR	586 2	1500.0	586.8	1600.0	588.1	1700.0	588.5	1800.0	590.0	1900.0
GR	593.5	2000.0	597.0	2100.0	597.8	2200.0	597.8	2300.0	595.1	2400.0
GR	596.0	2500.0	597.3	2600.0	597.8	2700.0	598.2	2800.0	598.1	2900.0

NC				.30	.50					
NH	6.0	.05	1200.0	.09	1711.0	.05	1748.0	.09	1758.0	.07
NH	2000 0	.05	3600.0							
X1	19270.	48.0	1700 0	1758.0	1500.0	1400.0	1450.0	0.0	0.0	0.0
GR	607.1	0.0	602.4	100.0	600.6	200.0	599.5	300.0	598.3	400.0
GR	599.1	500.0	599.7	600.0	598.9	700.0	598.1	732.0	598.4	800.0
GR	599.1	900.0	597.8	1000.0	597.9	1100.0	598 6	1200.0	598.1	1300.0
GR	598.0	1400.0	598.3	1500.0	599.8	1600.0	600.3	1620.0	597.4	1673.0
GR	584.9	1700.0	579.2	1711.0	578 9	1720.0	578.6	1730.0	578.9	1740.0
GR	579.5	1748.0	587.4	1758.0	585.0	1800.0	585.6	1873.0	588.0	1878.0
GR	587.4	1900.0	587.6	2000.0	588.6	2100.0	589.0	2200.0	589.0	2300.0
GR	592.6	2400.0	597.7	2500.0	597.8	2600.0	598.4	2700.0	598.8	2800.0
GR	597.9	2900.0	598.0	3000.0	597 2	3100.0	595.7	3200.0	597.3	3300.0
GR	597.3	3400.0	596.4	3500.0	595.1	3600.0	0.0	0.0	0.0	0.0

NC				.50	1.0					
NH	5.0	05	1647 0	.094	1708.0	.05	1897.0	.09	1926.6	.06
NH	3600.0									
QT	2.0	9720 0	9720.0							
X1	19360.	64.0	1700.0	1926.6	90 0	90.0	90.0			
X3	0.0	0.0	0 0	1700.0	0.0	1926.6	0.0	0.0	0.0	0.0
X4	1.0	587.5	1941.0							
GR	605.8	0.0	602.9	100.0	601.9	200.0	601.1	300.0	600.3	400.0
GR	599 7	500.0	599.2	600.0	599.0	700.0	599.0	800.0	599.0	900.0
GR	599.6	1100.0	600.2	1400.0	600 4	1600.0	600.4	1647.0	597.4	1700.0
GR	594.0	1700.0	593.0	1708.0	586 3	1726.0	582.3	1736.1	583.5	1736.1
GR	583 5	1736 6	597 7	1736.7	597.7	1739.6	583.5	1739.6	583.5	1740.1
GR	581.5	1740.1	580.8	1750.0	580.5	1770.0	581.0	1780.0	581.4	1786.1
GR	583 5	1786.1	583.5	1786.6	597.8	1786.6	597.8	1789.6	583.5	1789.6
GR	585.6	1800.0	586.6	1820.0	586.7	1836.6	597 8	1836.6	597.8	1839.6
GR	585.9	1839.7	586.2	1860.0	586.1	1875.0	585.9	1886.6	597.7	1886.6
GR	597.7	1889.6	584.5	1889.6	585.6	1897.0	594.4	1919.0	595.3	1926.6
GR	587.4	1926.6	587 4	1926.7	587.4	1926.8	587.6	1973.0	589.0	2173.0
GR	592.6	2373.0	600 2	2530.0	600.2	2800.0	600.4	2900.0	600 5	3000.0
GR	600 2	3300 0	600.0	3400.0	600.1	3500.0	601.1	3600.0	0.0	0.0

SB	0 0	1.82	3.04	0.0	226.6	0.0	2502.7	0.0	580.5	580.5
X1	19401.	0.0	0.0	0.0	39.0	39.0	39.0	0.0	0.0	0.0
X2	0.0	0.0	1.0	597.8	599.0					
X3	0.0	0.0	0 0	1700.0	0.0	1926.6	0.0	0.0	0.0	0.0
BT	37.0	0.0	603.8	570.0	100.0	602.9	570.0	200.0	601.9	570.0
BT	400.0	600.3	570.0	500.0	599.7	570.0	600.0	599.2	570.0	700.0
BT	599.0	570.0	900.0	599.0	570.0	1100.0	599.6	570.0	1400.0	600.2
BT	570.0	1600.0	600.4	570.0	1700.0	600.5	597.4	1700.0	601.2	597.7
BT	1736.6	601.2	597.7	1739.6	601.2	597.7	1786.6	601.3	597.8	1789.6
BT	601.3	597.8	1836.6	601.3	597.8	1839.6	601.3	597.8	1886.6	601.2
BT	597.7	1889.6	601.2	597.7	1897.0	601.2	597.7	1919.0	601.2	597.7
BT	1926.6	601.2	597.7	1926.6	600.5	595.3	1941.0	600.5	587.5	1973.0
BT	600.5	570.0	2173.0	600.1	570.0	2373.0	599.9	570.0	2530.0	600.2

BT	570.0	2800.0	600.2	570.0	2900.0	600.4	570.0	3000.0	600.5	570.0
BT	3300.0	600.2	570.0	3400.0	600.0	570.0	3500.0	600.0	570.0	3600.0
BT	601.1	570.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


 *PROF 1
0

 CCHV=      .100 CEHV=      .300
 1490 NH CARD USED
 *SECNO  .000

 3265 DIVIDED FLOW

 3280 CROSS SECTION       .00 EXTENDED      2.25 FEET


 3470 ENCROACHMENT STATIONS=      265.0      935.0  TYPE=      1  TARGET=      670.000
        .000     21 25    593.25       .00    593.25    593.37       .12       .00       .00    578.30
     11600.0     340.1    5287.1    5972.8     305.3    1367.5    4380.1        .0        .0    575.10
         .00      1 11      3.87      1.36      .068      .045      .099      .000    572.00    265.00
     .000266         0        0.        0.         0         0         0       .00    619.10    935.00


 1490 NH CARD USED
 *SECNO 300.000

 3265 DIVIDED FLOW

 3280 CROSS SECTION    300.00 EXTENDED      2.32 FEET


 3470 ENCROACHMENT STATIONS=      340.0      860.0  TYPE=      1  TARGET=      520.000
     300.000     21.31    593.31       .00       .00    593.47       .16       .09       .01    578.30
     11600.0     358.8    5825.1    5416.1     271.1    1372.2    3551.8      38.7       3.8    575.10
         .03      1.32      4.25      1.52      .069      .045      .098      .000    572.00    340.00
     .000319      300.      300.      300.         1         0         0       .00    483.47    860.00


 CCHV=      .500 CEHV=     1.000
 1490 NH CARD USED
 *SECNO 858 000
 1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

 3302 WARNING   CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =    .70
```



```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      595.30 ELREA=      595.30

     858.000     22.46    593.56       .00       .00    593.75       .19       .24       .03    591.80
```

```
   11600.0        .0   11600.0        .0        .0    3317.0        .0      92.4       8.4    581.10
       .07       .00      3.50       .00      .000      .049      .000      .000    571.10    428.50
   .000652      558.      558.      538.         2         0         0       .00    236.53    665.03


SPECIAL BRIDGE

SB  XK         XKOR      COFQ      RDLEN      BWC       BWP      BAREA      SS       ELCHU      ELCHD
      .00      2.02      3.04       .00    276.00       .00   3014.10       .00    571.10     571.10

1490 NH CARD USED
*SECNO 944.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
PRESSURE FLOW

 EGPRS      EGLWC        H3       QWEIR       QPR       BAREA   TRAPEZOID      ELLC      ELTRD     WEIRLN
                                                                  AREA
    594.02    593.75       .00        0.    11600.     3014.     5934.     592.60    595.50         0.


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=        595.50 ELREA=        595.50

   944.000     22.74    593.84       .00       .00    594.02       .18       .27       .00    591.80
   11600 0        .0   11600.0        .0        .0    3367.4        .0      99.0       8.8    581.10
        08       .00      3.44       .00      .000      .066      .000      .000    571.10    428.50
   .001150        86       86.       86.         2         0         0       .00    236.53    665.03


1490 NH CARD USED
*SECNO 1244 000

3265 DIVIDED FLOW

3280 CROSS SECTION   1244.00 EXTENDED      1.26 FEET


3302 WARNING.  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.52

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    SECNO      DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q          QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME       VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE      XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


  1244.000     22.76    594.16       .00       .00    594.19       .03       .10       .08    574.80
    9590.0     288.4    2372.1    6929.5     581.8    1032.8    6950.0     142.5      15.9    575.00
        15        50      2.30      1.00      .075      .055      .066      .000    571.40    140.57
   .000124      300.      300.      330.         2         0         0       .00   1708.75   2029.00
                                                                                  ~1000

CCHV=      .100 CEHV=      .300
1490 NH CARD USED
*SECNO 1650.000

3265 DIVIDED FLOW
```

3280 CROSS SECTION 1650.00 EXTENDED .91 FEET

1650.000	22.41	594.21	.00	.00	594.25	.04	.06	.00	575 20
9590.0	242.2	2484.3	6863.6	443.6	1016.2	6524.8	224.1	32.3	575.40
.23	.55	2.44	1.05	.081	.055	.067	.000	571.80	169.45
.000143	406.	406.	435.	2	0	0	.00	1634.67	2029.00

~1350

1490 NH CARD USED
*SECNO 4670.000

3265 DIVIDED FLOW

4670.000	20 52	594.72	.00	.00	594.79	.08	.53	.01	575 80
9590 0	352 1	2878.1	6359.8	621.3	780.6	6006.9	746.0	137.5	575.90
.68	.57	3.69	1.06	.072	.045	.105	.000	574.20	713.41
.000231	2900	3010.	2950.	2	0	0	.00	1485.39	2289.94

1490 NH CARD USED
*SECNO 7680.000

3265 DIVIDED FLOW

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.21

7680.000	19.74	595.04	.00	.00	595.06	.01	.25	.01	576 10
9590.0	174 0	840.7	8575.3	505.4	625.4	9439.4	1327.2	245.6	575 80
1.52	.34	1.34	.91	.086	.055	.051	.000	575.30	1263.13
.000047	2800	3010.	2800.	2	0	0	.00	1873.99	3547.04

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

1490 NH CARD USED
*SECNO 10100.000

3265 DIVIDED FLOW

10100.000	19.98	595.18	.00	.00	595.21	.03	.15	.00	577.50
9590.0	737 4	2128.1	6724.5	1071.6	1027.9	5972.8	1825.1	329.8	577.40
2.02	.69	2.07	1.13	.055	.050	.056	.000	575.20	814.76
.000094	2000.	2420.	2350.	2	0	0	.00	1393.39	2734.57

1490 NH CARD USED
*SECNO 11580.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .46

11580.000	19.26	595.36	.00	.00	595.51	.14	.26	.03	577.30
9590.0	971.8	4845.5	3772.7	700.6	1222.0	2253.0	2033.1	368.1	577.40
2.17	1.39	3.97	1.67	.063	.055	.058	.000	576.10	1387.52
.000440	1480.	1480.	1480.	2	0	0	.00	860.22	2247.74

```
CCHV=      .500 CEHV=     1.000
1490 NH CARD USED
*SECNO 11721.000
 11721.000      19.53     595.43       .00       .00    595.62       .19       .07       .04    592.60
    9590.0      269.1     6797.5    2523.4     438.2    1690.6    1892.1    2046.4     370.9    592.80
      2.18        .61       4.02      1.33      .100      .049      .069      .000    575.90   1382.26
   .000536       141.       141.      141.         2         0         0       .00    870.32   2252.59


*SECNO 11738.000
 11738.000      19.54     595.44       .00       .00    595.63       .19       .01       .01    592.60
    9590.0      355.3     6937.3    2297.4     440.0    1691.4    1896.6    2048.0     371.2    592.80
      2.18        .81       4.10      1.21      .080      .050      .080      .000    575.90   1381.63
   .000591        17.        17.       17.         0         0         0       .00    871.54   2253.17


1490 NH CARD USED
*SECNO 11739.000
1
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    SECNO     DEPTH      CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB       QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB       VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL      XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW

 11739.000      19 70     595.60       .00       .00    595.69       .09       .00       .05    592.60
    9590.0      719.7     4448.4    4422.0     476.7    1707.8    1988.1    2048.1     371.3    592.80
      2.18       1 51       2.60      2.22      .040      .072      .040      .000    575.90    699.68
   .000483         1.         1.        1.         2         0         0       .00    896.41   2264.76


1490 NH CARD USED
*SECNO 14670.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.66

 14670.000      21.10     596.40       .00       .00    596.46       .06       .75       .01    578.30
    9590.0      427.2     3533.2    5629.7     473.9    1237.1    5175.1    2392.3     424.0    577.70
      2.63        .90       2.86      1.09      .081      .050      .085      .000    575.30   1880.03
   .000176      2850.      2940.     2600.         2         0         0       .00    819.84   2699.87


CCHV=      .100 CEHV=      .300
1490 NH CARD USED
*SECNO 17820.000

3265 DIVIDED FLOW


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.78

 17820.000      21.72     596.72       .00       .00    596.74       .01       .28       .00    579.20
    9590.0      144.4     1162.8    8282.9     296.0     791.2    9312.3    2992.4     502.6    578.90
      3.51        .49       1.47       .89      .094      .055      .052      .000    575.00    858.31
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```
    .000056      3150.      3150.      3000.          2          0          0        .00   1449.52   2555.63

CCHV=      .300 CEHV=      .500
1490 NH CARD USED
*SECNO 19270.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW

1
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

3280 CROSS SECTION  19270.00 EXTENDED      1.74 FEET

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =    .59

  19270.000      18.24     596.84        .00        .00     596.87        .03        .12        .01     584.90
     9590.0       99.2     1653.5     7837.3      154.0      959.7     5921.4     3274.1      543.8     587.40
       3.79        .64       1.72       1.32       .090       .068       .058       .000     578.60    1674.21
    .000160      1500.      1450.      1400.          2          0          0        .00    1105.28    3600.00

CCHV=      .500 CEHV=     1.000
1490 NH CARD USED
*SECNO 19360.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =    .32

3470 ENCROACHMENT STATIONS=      1700.0     1926.6  TYPE=       1  TARGET=       226.600
  19360.000      16.37     596.87        .00        .00     597.15        .27        .03        .24     597.40
     9720.0          0     9720.0         .0         .0     2316.5         .0     3283.7      545.1 100000.00
       3.80        .00       4.20        .00       .000       .052       .000       .000     580.50    1700.00
    .001582        90.        90.        90.          2          0          0        .00     214.69    1926.60

SPECIAL BRIDGE

SB  XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
       .00       1.82       3.04        .00     226.60        .00    2502.70        .00     580.50     580.50

*SECNO 19401.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS=       .000  EGLWC=     597.148  ELLC=     597.800  PCWSE=     596.874  ELTRD=     599.000

3265 DIVIDED FLOW
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```
1
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    SECNO       DEPTH       CWSEL       CRIWS       WSELK       EG          HV          HL          OLOSS       L-BANK ELEV
    Q           QLOB        QCH         QROB        ALOB        ACH         AROB        VOL         TWA         R-BANK ELEV
    TIME        VLOB        VCH         VROB        XNL         XNCH        XNR         WTN         ELMIN       SSTA
    SLOPE       XLOBL       XLCH        XLOBR       ITRIAL      IDC         ICONT       CORAR       TOPWID      ENDST


 3370 NORMAL BRIDGE, NRD=  37 MIN ELTRD=   599.00 MAX ELLC=   597.80


 3470 ENCROACHMENT STATIONS=      1700.0      1926.6  TYPE=       1  TARGET=       226.600
  19401.000      16 44      596.94         .00         .00      597.21         .27         .06         .00      597.40
     9720 0         .0      9720.0          .0          .0      2330.7          .0      3285.8       545.3 100000.00
       3.80         00        4.17         .00        .000        .052        .000        .000      580.50     1700.00
    .001556        39.         39.         39.           2           0           0         .00      214.69     1926.60

1
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 T1 CLINTON TOWNSHIP FLOOD INSURANCE STUDY
 T2 UPDATED 100-YEAR FLOOD   STS CONSULTANTS LTD.   12/93 MMW
 T3 NORTH BRANCH OF THE CLINTON RIVER - FLOODWAY RUN

 J1  ICHECK      INQ         NINV        IDIR        STRT        METRIC      HVINS       Q           WSEL        FQ

     -1.0         3 0         0.0         0.0         0.0         0.0         0.0         0.0      593.35         0.0

 J2  NPROF       IPLOT       PRFVS       XSECV       XSECH       FN          ALLDC       IBW         CHNIM       ITRACE

    15.0         0.0        -1.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0



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    SECNO       DEPTH       CWSEL       CRIWS       WSELK       EG          HV          HL          OLOSS       L-BANK ELEV
    Q           QLOB        QCH         QROB        ALOB        ACH         AROB        VOL         TWA         R-BANK ELEV
    TIME        VLOB        VCH         VROB        XNL         XNCH        XNR         WTN         ELMIN       SSTA
    SLOPE       XLOBL       XLCH        XLOBR       ITRIAL      IDC         ICONT       CORAR       TOPWID      ENDST

  *PROF 2
 0
  CCHV=      .100 CEHV=      .300
  1490 NH CARD USED
  *SECNO  .000

  3265 DIVIDED FLOW

  3280 CROSS SECTION       .00 EXTENDED       2.35 FEET
```

```
3470 ENCROACHMENT STATIONS=      265.0      935.0  TYPE=      1  TARGET=      670.000
     .000      21.35     593.35       .00     593.35     593.47       .12        .00        .00     578.30
  11600.0      351.9     5270.1    5977.9      328.7     1374.1    4412.9         .0         .0     575.10
      .00       1.07       3.84      1.35       .067       .045      .099       .000     572.00     265.00
  .000260         0.         0.        0.          0          0         0        .00     639.46     935.00


1490 NH CARD USED
*SECNO 300.000

3265 DIVIDED FLOW

3280 CROSS SECTION    300.00 EXTENDED      2.42 FEET


3470 ENCROACHMENT STATIONS=      340.0      860.0  TYPE=      1  TARGET=      520.000
  300.000      21.41     593.41       .00        .00     593.57       .16        .09        .01     578.30
  11600.0      367.2     5811.2    5421.6      288.1     1378.8    3576.6       39.1        3.9     575.10
      .03       1.27       4.21      1.52       .069       .045      .098       .000     572.00     340.00
  .000312       300.       300.      300.          1          0         0        .00     503.46     860.00


CCHV=      500 CEHV=    1.000
1490 NH CARD USED
*SECNO 858 000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3302 WARNING·  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .70

1
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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG        HV         HL        OLOSS     L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH       AROB       VOL       TWA       R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH      XNR        WTN       ELMIN     SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC       ICONT      CORAR     TOPWID    ENDST


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      595.30 ELREA=      595.30

  858.000      22.55     593.65       .00        .00     593.84       .19        .24        .03     591.80
  11600.0         .0    11600.0        .0         .0     3339.1        .0       93.3        8.6     581.10
      .07        .00       3.47       .00       .000       .049      .000       .000     571.10     428.50
  .000638       558.       558.      538.          2          0         0        .00     236.53     665.03


SPECIAL BRIDGE

SB  XK        XKOR       COFQ      RDLEN      BWC       BWP       BAREA      SS        ELCHU      ELCHD
     .00       2.02       3.04       .00     276.00       .00    3014.10       .00     571.10     571.10

1490 NH CARD USED
*SECNO 944.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
PRESSURE FLOW


 EGPRS      EGLWC       H3        QWEIR      QPR       BAREA   TRAPEZOID     ELLC      ELTRD      WEIRLN
                                                                AREA
   594.11     593.84      .00        0.     11600.     3014.     5934.     592.60     595.50        0.
```

```
3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       595.50 ELREA=       595.50

   944.000      22.83     593.93        .00        .00     594.11        .18        .28        .00     591.80
   11600.0         .0    11600.0         .0         .0     3390.0         .0       99.9        9.1     581.10
       .08        .00       3.42        .00       .000       .066       .000       .000     571.10     428.50
   .001124        86.        86.        86.          2          0          0        .00     236.53     665.03


1490 NH CARD USED
*SECNO 1244.000
 2800 NAT Q1=     8622.46  WSELK=      594.16  ENC Q1=     8622.46  WSELK=      594.26  RATIO=      .0000
 NAT Q1=     8807.  RATIOS LOB, CH, ROB=     .0317    .2440    .7242  WSEL=      594.26

3265 DIVIDED FLOW

3280 CROSS SECTION    1244.00 EXTENDED       1.35 FEET

1
   09JAN94      15 23:41                                                                                   PAGE    17

     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3302 WARNING.  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.49


3470 ENCROACHMENT STATIONS=       406.0     1951.8  TYPE=       4  TARGET=         .021
  1244.000      22.35     594.25        .00     594.16     594.28         03        .10        .07     574.80
    9590.0      207.7     2393.7     6988.6      339.4     1037.2     6882.0      142.4       15.0     575 00
       .15         61       2.31       1.02       .086       .055       .066       .000     571.40     405.99
   .000124        300       300.       330.          2          0          0        .00 .  1375.83    1951.78


CCHV=       100 CEHV=       .300
1490 NH CARD USED
*SECNO 1650.000
 2800 NAT Q1=     8013.30  WSELK=      594.21  ENC Q1=     8013.30  WSEL=      594.31  RATIO=      .0000
 NAT Q1=     8184   RATIOS LOB, CH, ROB=     .0265    .2556    .7179  WSEL=      594.31
3280 CROSS SECTION    1650.00 EXTENDED       1.01 FEET


3470 ENCROACHMENT STATIONS=       737.6  -  1943.4  TYPE=       4  TARGET=         .021
  1650.000      22.51     594.30        .00     594.21     594.34        .04        .06        .00     575.20
    9590.0      165.0     2504.8     6920.2      212.4     1020.6     6459.2      221.2       27.8     575.40
       .23        .78       2.45       1.07       .090       .055       .067       .000     571.80     737.56
   .000144       406.       406.       435.          0          0          0        .00    1205.86    1943.42


1490 NH CARD USED
*SECNO 4670.000
 2800 NAT Q1=     6306.49  WSELK=      594.72  ENC Q1=     6306.49  WSEL=      594.82  RATIO=      .0000
 NAT Q1=     6424.  RATIOS LOB, CH, ROB=     .0399    .2971    .6630  WSEL=      594.82

3265 DIVIDED FLOW
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3470 ENCROACHMENT STATIONS=     1018.1    2101.5  TYPE=      4  TARGET=          .018
  4670.000       20.61     594 81       .00    594.72    594.89       .08       .53       .01    575.80
    9590 0       299.2     2904.2    6386.6     454.7     784.2    5904.0     724.4     103.1    575.90
       .67         .66      3.70      1.08      .077      .045      .106      .000    574.20   1018.06
   .000232       2900.     3010.     2950.         2         0         0       .00   1021.95   2101.49


1490 NH CARD USED
1
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


*SECNO 7680.000
 2800 NAT Q1=    13961.18  WSELK=      595.04  ENC Q1=   13961.18  WSEL=     595.14  RATIO=     .0000
 NAT Q1=   14210    RATIOS LOB, CH, ROB=    .0187    .0869    .8945  WSEL=     595.14

3302 WARNING   CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.21


3470 ENCROACHMENT STATIONS=     1624.7    2593.2  TYPE=      4  TARGET=          .018
  7680 000       19.83     595 13       .00    595.04    595.15       .01       .26       .01    576.10
    9590 0        88.0      848.7    8653.3     195.4     628.4    9239.6    1280.8     167.3    575.80    1638   1670
      1.49          45       1.35       .94      .090      .055      .051      .000    575.30   1624.68
   .000047       2800.      3010.     2800.         2         0         0       .00    968.50   2593.18


1490 NH CARD USED
*SECNO 10100.000
 2800 NAT Q1=     9893.56  WSELK=      595.18  ENC Q1=    9893.56  WSEL=     595.28  RATIO=     .0000
 NAT Q1=   10075    RATIOS LOB, CH, ROB=    .0791    .2198    .7011  WSEL=     595.28

3470 ENCROACHMENT STATIONS=     1847.5    2692.6  TYPE=      4  TARGET=          .018
 10100.000       20.08     595.28       .00    595.18    595.31       .03       .15       .00    577.50
    9590 0       684.6     2145.9    6759.5     811.7    1033.3    5918.8    1758.9     215.5    577.40
      1.98         .84       2.08      1.14      .056      .050      .056      .000    575.20   1847.47
   .000094       2000.      2420.     2350.         1         0         0       .00    845.18   2692.65


1490 NH CARD USED
*SECNO 11580.000
 2800 NAT Q1=     4570.09  WSELK=      595.36  ENC Q1=    4570.09  WSEL=     595.46  RATIO=     .0000
 NAT Q1=    4673.  RATIOS LOB, CH, ROB=    .1034    .4986    .3980  WSEL=     595.46

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .46


3470 ENCROACHMENT STATIONS=     1496.5    2105.6  TYPE=      4  TARGET=          .022
 11580.000       19.35     595.45       .00    595.36    595.60       .15       .26       .04    577.30
    9590.0       902.7     4895.2    3792.1     582.6    1228.0    2151.0    1958.1     240.3    577.40
      2.12        1.55       3.99      1.76      .064      .055      .058      .000    576.10   1496.54
   .000442       1480.      1480.     1480.         2         0         0       .00    609.04   2105.59


CCHV=      .500 CEHV=     1.000
1
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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


1490 NH CARD USED
*SECNO 11721.000
 2800 NAT Q1=    4142.54  WSELK=      595.43  ENC Q1=    4142.54  WSELK=     595.53  RATIO=    .0000
 NAT Q1=    4230.  RATIOS LOB, CH, ROB=     .0295   .7009   .2696  WSEL=     595.53

3470 ENCROACHMENT STATIONS=     1514.0     2129.5  TYPE=      4  TARGET=          .021
 11721.000      19 62     595.52       .00     595.43     595.71        .19        .07        .04     592.60
    9590.0      187 0     6870.1    2532.9      263.0     1699.5     1823.8     1970.7      242.2     592.80
      2.13         71       4.04      1.39       .100       .049       .070       .000     575.90    1514.00
   .000538       141.       141.      141.          0          0          0        .00     615.53    2129.54


*SECNO 11738 000
 2800 NAT Q1=    3945 39  WSELK=      595.44  ENC Q1=    3945.39  WSEL=      595.54  RATIO=    .0000
 NAT Q1=    4022   RATIOS LOB, CH, ROB=     .0390   .7167   .2443  WSEL=     595.54

3470 ENCROACHMENT STATIONS=     1500.0     2100.8  TYPE=      4  TARGET=          .019
 11738.000      19.63     595.53       .00     595.44     595.73        .20        .01        .01     592.60
    9590.0      282.4     7014.7    2292.9      303.1     1700.6     1772.5     1972.1      242.5     592.80
      2.13         93       4.12      1.29       .080       .050       .080       .000     575.90    1499.99
   .000593        17.        17.       17.          0          0          0        .00     600.82    2100.82


1490 NH CARD USED
*SECNO 11739.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
 2800 NAT Q1=    4364.64  WSELK=      595.60  ENC Q1=    4364.64  WSEL=      595.70  RATIO=    .0000
 NAT Q1=    4484   RATIOS LOB, CH, ROB=     .0781   .4559   .4660  WSEL=     595.70

3470 ENCROACHMENT STATIONS=     1482.3     2126.3  TYPE=      4  TARGET=          .027
 11739.000      19 79     595.69       .00     595.60     595.78        .09        .00        .05     592.60
    9590.0      635 0     4499.1    4455.9      366.5     1716.7     1890.9     1972.2      242.5     592.80
      2.13       1 73       2.62      2.36       .040       .072       .040       .000     575.90    1482.33
   .000485          1         1.        1.          2          0          0        .00     643.92    2126.25


1490 NH CARD USED
*SECNO 14670.000
 2800 NAT Q1=    7233.21  WSELK=      596.40  ENC Q1=    7233.21  WSEL=      596.50  RATIO=    .0000
 NAT Q1=    7345   RATIOS LOB, CH, ROB=     .0448   .3659   .5893  WSEL=     596.50

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.66
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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3470 ENCROACHMENT STATIONS=     1927.4     2560.7  TYPE=      4  TARGET=          .015
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```
 14670.000      21.20    596.50       .00    596.40    596.56       .06       .76       .02    578.30
    9590 0      362.7    3563.6    5663.6     355.0    1243.4    5104.3    2304.5     281.7    577.70
      2.57       1.02      2.87      1.11      .079      .050      .085      .000    575.30   1927.38
   .000176      2850.     2940.     2600.         2         0         0       .00    633.36   2560.75


CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO 17820.000
 2800 NAT Q1=   12852.23  WSELK=     596.72  ENC Q1=   12852.23  WSEL=     596.82  RATIO=    .0000
 NAT Q1=   13098.  RATIOS LOB, CH, ROB=    .0151   .1200   .8650  WSEL=    596.82

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.78


3470 ENCROACHMENT STATIONS=      897.3    2003.3  TYPE=      4  TARGET=          .019
 17820.000      21.82    596.82       .00    596.72    596.84       .02       .28       .00    579.20
    9590.0       71 1    1170.9    8348.0     131.2     795.1    9093.8    2884.7     341.8    578.90
      3.43        .54      1.47       .92      .094      .055      .052       000    575.00    897.29
   .000056      3150.     3150.     3000.         2         0         0       .00   1106.02   2003.30


CCHV=      300 CEHV=     .500
1490 NH CARD USED
*SECNO 19270 000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
 2800 NAT Q1=    7586.13  WSELK=     596.84  ENC Q1=    7586.13  WSEL=     596.94  RATIO=    .0000
 NAT Q1=     7735   RATIOS LOB, CH, ROB=    .0104   .1708   .8188  WSEL=    596.94
3280 CROSS SECTION  19270.00 EXTENDED      1.84 FEET


3302 WARNING.  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .59


3470 ENCROACHMENT STATIONS=     1699.1    2436.8  TYPE=      4  TARGET=          .019
 19270.000      18.34    596.94       .00    596.84    596.97       .03       .12       .01    584.90
    9590.0        2.1    1671.4    7916.5      11.0     965.3    5728.9    3154.6     371.5    587.40
      3.70        .19      1.73      1.38      .090      .068      .058      .000    578.60   1699.07
   .000160      1500.     1450.     1400.         2         0         0       .00    737.75   2436.82

1
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   SECNO      DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
   Q          QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
   TIME       VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
   SLOPE      XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


CCHV=      500 CEHV=     1.000
1490 NH CARD USED
*SECNO 19360.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .33


3470 ENCROACHMENT STATIONS=     1700.0    1926.6  TYPE=      1  TARGET=      226.600
```

19360.000	16.47	596.97	.00	596.87	597.24	.27	.03	.24	597.40
9720.0	.0	9720.0	.0	.0	2337.4	.0	3164.0	372.5	100000.00
3.70	.00	4.16	.00	.000	.052	.000	.000	580.50	1700.00
.001544	90.	90.	90.	2	0	0	.00	214.69	1926.60

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	00	1.82	3.04	.00	226.60	.00	2502.70	.00	580.50	580 50

*SECNO 19401.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS= .000 EGLWC= 597.393 ELLC= 597.800 PCWSE= 596.971 ELTRD= 599.000

3265 DIVIDED FLOW

3370 NORMAL BRIDGE, NRD= 37 MIN ELTRD= 599.00 MAX ELLC= 597.80

3470 ENCROACHMENT STATIONS= 1700.0 1926.6 TYPE= 1 TARGET= 226.600

19401.000	16 54	597.04	.00	596.94	597.30	.27	.06	.00	597.40
9720.0	0	9720.0	.0	.0	2351.2	.0	3166.1	372.7	100000.00
3.71	00	4.13	.00	.000	.052	.000	.000	580.50	1700.00
.001519	39	39.	39.	2	0	0	.00	214.69	1926.60

THIS RUN EXECUTED 09JAN94 15:23:56

****
HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

BRANCH OF THE CLINTON R

SUMMARY PRINTOUT TABLE 110

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENC
	.000	593.25	.00	593.37	619.10	340.08	5287.10	5972.83	670.00	265.00	540.00	607.00	935.0
	.000	593 35	.00	593.47	639.46	351.94	5270.15	5977.91	670.00	265.00	540.00	607.00	935.0
	300.000	593 31	.00	593.47	483.47	358.83	5825.09	5416.08	520.00	340.00	540.00	607.00	860.0
	300.000	593.41	.00	593.57	503.46	367.17	5811.22	5421.61	520.00	340.00	540.00	607.00	860.0
*	858.000	593.56	.00	593.75	236.53	.00	11600.00	.00	.00	.00	428.50	665.03	.0

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENC
*	858.000	593.65	.00	593.84	236.53	.00	11600.00	.00	.00	.00	428.50	665.03	.0
	944.000	593.84	.00	594.02	236.53	.00	11600.00	.00	.00	.00	428.50	665.03	.0
	944.000	593.93	.00	594.11	236.53	.00	11600.00	.00	.00	.00	428.50	665.03	.0
*	1244.000	594.16	.00	594.19	1708.75	288.45	2372.09	6929.46	.00	.00	754.00	802.00	.0
*	1244.000	594.25	.09	594.28	1375.83	207.71	2393.66	6988.63	.02	405.99	754.00	802.00	1951.7
	1650.000	594.21	.00	594.25	1634.67	242.16	2484.26	6863.58	.00	.00	754.00	802.00	.0
	1650.000	594.30	.09	594.34	1205.86	165.00	2504.83	6920.18	.02	737.56	754.00	802.00	1943.4
	4670.000	594.72	.00	594.79	1485.39	352.13	2878.12	6359.75	.00	.00	1421.00	1460.00	.0
	4670.000	594.81	.09	594.89	1021.95	299.19	2904.21	6386.60	.02	1018.06	1421.00	1460.00	2101.4
*	7680.000	595.04	.00	595.06	1873.99	174.01	840.72	8575.27	.00	.00	1638.00	1670.00	.0
*	7680.000	595.13	.09	595.15	968.50	87.98	848.71	8653.31	.02	1624.68	1638.00	1670.00	2593.1
	10100.000	595.18	.00	595.21	1393.39	737.44	2128.08	6724.49	.00	.00	2009.00	2062.00	.0
	10100.000	595.28	.09	595.31	845.18	684.59	2145.94	6759.48	.02	1847.47	2009.00	2062.00	2692.6
*	11580.000	595.36	.00	595.51	860.22	971.77	4845.52	3772.71	.00	.00	1613.00	1679.00	.0
*	11580.000	595.45	.09	595.60	609.04	902.71	4895.16	3792.13	.02	1496.54	1613.00	1679.00	2105.5
	11721.000	595.43	.00	595.62	870.32	269.14	6797.50	2523.37	.00	.00	1600.00	1700.00	.0
	11721.000	595.52	.09	595.71	615.53	187.00	6870.10	2532.90	.02	1514.00	1600.00	1700.00	2129.5

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENC
	11738.000	595.44	.00	595.63	871.54	355.31	6937.34	2297.35	.00	.00	1600.00	1700.00	.0
	11738.000	595.53	.09	595.73	600.82	282.38	7014.67	2292.95	02	1499.99	1600.00	1700.00	2100.8
	11739.000	595.60	.00	595.69	896.41	719.65	4448.38	4421.97	00	.00	1600.00	1700.00	.0
	11739.000	595.69	.09	595.78	643.92	634.96	4499.10	4455.95	.03	1482.33	1600.00	1700.00	2126.2
*	14670.000	596.40	.00	596.46	819.84	427.18	3533.16	5629.66	.00	.00	1960.00	2023.00	.0
*	14670.000	596.50	.10	596.56	633.36	362.75	3563.64	5663.61	.02	1927.38	1960.00	2023.00	2560.7
*	17820.000	596.72	.00	596.74	1449.52	144.35	1162.79	8282.85	.00	.00	906.00	945.00	.0
*	17820.000	596.82	.10	596.84	1106.02	71.09	1170.89	8348.02	.02	897.29	906.00	945.00	2003.3
*	19270.000	596.84	.00	596.87	1105.28	99.15	1653.50	7837.35	.00	.00	1700.00	1758.00	.0
*	19270.000	596.94	.10	596.97	737.75	2.09	1671.43	7916.48	.02	1699.07	1700.00	1758.00	2436.8
*	19360.000	596.87	.00	597.15	214.69	.00	9720.00	.00	226.60	1700.00	1700.00	1926.60	1926.6
*	19360.000	596.97	.10	597.24	214.69	.00	9720.00	.00	226.60	1700.00	1700.00	1926.60	1926.6
	19401.000	596.94	.00	597.21	214.69	.00	9720.00	.00	226.60	1700.00	1700.00	1926.60	1926.6
	19401.000	597.04	.10	597.30	214.69	.00	9720.00	.00	226.60	1700.00	1700.00	1926.60	1926.6

BRANCH OF THE CLINTON R

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K

	.000	.00	.00	.00	572.00	11600.00	593.25	.00	593.37	2.66	3.87	6052.85	7116.5
	000	.00	.00	.00	572.00	11600.00	593.35	.00	593.47	2.60	3.84	6115.76	7197.7
	300.000	300.00	.00	.00	572.00	11600.00	593.31	.00	593.47	3.19	4.25	5195.04	6496.5
	300.000	300.00	.00	.00	572.00	11600.00	593.41	.00	593.57	3.12	4.21	5243.50	6564.1
*	858.000	558.00	.00	.00	571.10	11600.00	593.56	.00	593.75	6.52	3.50	3317.01	4543.7
*	858.000	558 00	.00	.00	571.10	11600.00	593.65	.00	593.84	6.38	3.47	3339.05	4594.2
	944.000	86.00	595.50	592.60	571.10	11600.00	593.84	.00	594.02	11.50	3.44	3367.39	3421.1
	944.000	86.00	595.50	592.60	571.10	11600.00	593.93	.00	594.11	11.24	3.42	3390.04	3459.6
*	1244.000	300.00	.00	.00	571.40	9590.00	594.16	.00	594.19	1.24	2.30	8564.60	8622.4
*	1244.000	300.00	.00	.00	571.40	9590.00	594.25	.00	594.28	1.24	2.31	8258.59	8604.6
	1650.000	406 00	.00	.00	571.80	9590.00	594.21	.00	594.25	1.43	2.44	7984.61	8013.3
	1650 000	406 00	.00	.00	571.80	9590.00	594.30	.00	594.34	1.44	2.45	7692.19	8004.7
	4670.000	3010.00	.00	.00	574.20	9590.00	594.72	.00	594.79	2.31	3.69	7408.74	6306.4
	4670 000	3010.00	.00	.00	574.20	9590.00	594.81	.00	594.89	2.32	3.70	7142.86	6297.4
*	7680.000	3010.00	.00	.00	575.30	9590.00	595.04	.00	595.06	.47	1.34	10570.18	13961.1
*	7680 000	3010 00	.00	.00	575.30	9590.00	595.13	.00	595.15	.47	1.35	10063.33	13939.6
	10100.000	2420 00	.00	.00	575.20	9590.00	595.18	.00	595.21	.94	2.07	8072.29	9893.5
	10100 000	2420.00	.00	.00	575.20	9590.00	595.28	.00	595.31	.94	2.08	7763.79	9896.2
*	11580 000	1480 00	.00	.00	576.10	9590.00	595.36	.00	595.51	4.40	3.97	4175.56	4570.0
*	11580.000	1480 00	.00	.00	576.10	9590.00	595.45	.00	595.60	4.42	3.99	3961.69	4560.8
	11721.000	141 00	.00	.00	575.90	9590.00	595.43	.00	595.62	5.36	4.02	4020.81	4142.5
	11721.000	141 00	.00	.00	575.90	9590.00	595.52	00	595.71	5.38	4.04	3786.27	4134.8
	11738.000	17 00	.00	.00	575.90	9590.00	595.44	00	595.63	5.91	4.10	4027.99	3945.3
	11738.000	17 00	.00	.00	575.90	9590.00	595.53	.00	595.73	5.93	4.12	3776.19	3937.4
	11739.000	1 00	.00	.00	575.90	9590.00	595.60	.00	595.69	4.83	2.60	4172.64	4364.6
	11739.000	1 00	.00	.00	575.90	9590.00	595.69	.00	595.78	4.85	2.62	3974.08	4352.8
*	14670.000	2940 00	.00	.00	575.30	9590.00	596.40	.00	596.46	1.76	2.86	6886.12	7233.2
*	14670.000	2940 00	.00	.00	575.30	9590.00	596.50	.00	596.56	1.76	2.87	6702.75	7231.9
*	17820.000	3150 00	.00	.00	575.00	9590.00	596.72	.00	596.74	.56	1.47	10399.55	12852.2
*	17820.000	3150.00	.00	.00	575.00	9590.00	596.82	.00	596.84	.56	1.47	10020.07	12868.1
*	19270.000	1450.00	.00	.00	578.60	9590.00	596.84	.00	596.87	1.60	1.72	7035.02	7586.1
*	19270.000	1450.00	.00	.00	578.60	9590.00	596.94	.00	596.97	1.60	1.73	6705.15	7578.5

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
*	19360.000	90.00	.00	.00	580.50	9720.00	596.87	.00	597.15	15.82	4.20	2316.47	2443.5
*	19360.000	90 00	.00	.00	580.50	9720.00	596.97	.00	597.24	15.44	4.16	2337.36	2473.8
	19401.000	39.00	599.00	597.80	580.50	9720.00	596.94	.00	597.21	15.56	4.17	2330.67	2464.1
	19401.000	39 00	599.00	597.80	580.50	9720.00	597.04	.00	597.30	15.19	4.13	2351.17	2493.9

BRANCH OF THE CLINTON R

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	.000	11600.00	593.25	.00	.00	.00	619.10	.00
	.000	11600.00	593.35	.10	.00	.00	639.46	.00
	300.000	11600.00	593.31	.00	.06	.00	483.47	300.00
	300.000	11600.00	593.41	.10	.06	.00	503.46	300.00
*	858.000	11600.00	593.56	.00	.24	.00	236.53	558.00
*	858.000	11600.00	593.65	.09	.24	.00	236.53	558.00
	944.000	11600.00	593.84	.00	.28	.00	236.53	86.00
	944.000	11600.00	593.93	.10	.28	.00	236.53	86.00
*	1244.000	9590.00	594.16	.00	.33	.00	1708.75	300.00
*	1244.000	9590.00	594.25	.09	.32	.09	1375.83	300.00
	1650.000	9590.00	594.21	.00	.05	.00	1634.67	406.00
	1650.000	9590.00	594.30	.09	.05	.09	1205.86	406.00
	4670.000	9590.00	594.72	.00	.50	.00	1485.39	3010.00
	4670.000	9590.00	594.81	.09	.51	.09	1021.95	3010.00
*	7680.000	9590.00	595.04	.00	.32	.00	1873.99	3010.00
*	7680.000	9590.00	595.13	.09	.32	.09	968.50	3010.00
	10100.000	9590.00	595.18	.00	.14	.00	1393.39	2420.00
	10100.000	9590.00	595.28	.09	.14	.09	845.18	2420.00
*	11580.000	9590.00	595.36	.00	.18	.00	860.22	1480.00
*	11580.000	9590.00	595.45	.09	.18	.09	609.04	1480.00
	11721.000	9590.00	595.43	.00	.07	.00	870.32	141.00
	11721.000	9590.00	595.52	.09	.07	.09	615.53	141.00
	11738.000	9590.00	595.44	.00	.01	.00	871.54	17.00
	11738.000	9590.00	595.53	.09	.01	.09	600.82	17.00
	11739.000	9590.00	595.60	.00	.16	.00	896.41	1.00
	11739.000	9590.00	595.69	.09	.16	.09	643.92	1.00
*	14670.000	9590.00	596.40	.00	.80	.00	819.84	2940.00
*	14670.000	9590.00	596.50	.10	.81	.10	633.36	2940.00
*	17820.000	9590.00	596.72	.00	.32	.00	1449.52	3150.00
*	17820.000	9590.00	596.82	.10	.33	.10	1106.02	3150.00
*	19270.000	9590.00	596.84	.00	.12	.00	1105.28	1450.00
*	19270.000	9590.00	596.94	.10	.12	.10	737.75	1450.00

SECNO Q CWSEL DIFWSP DIFWSX DIFKWS TOPWID XLCH

*	19360.000	9720.00	596.87	.00	.03	.00	214.69	90.00
*	19360.000	9720.00	596.97	.10	.03	.10	214.69	90.00
	19401.000	9720.00	596.94	.00	.07	.00	214.69	39.00
	19401.000	9720.00	597.04	.10	.06	.10	214.69	39.00

SUMMARY OF ERRORS AND SPECIAL NOTES

WARNING SECNO= 858.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 858.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 1244.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 1244.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 7680.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 7680.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 11580.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 11580.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 14670.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 14670.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 17320.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 17320.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 19270.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 19270.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 19360.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 19360.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

Floodway width summary: BRANCH OF THE CLINTON R
Profile No. 2

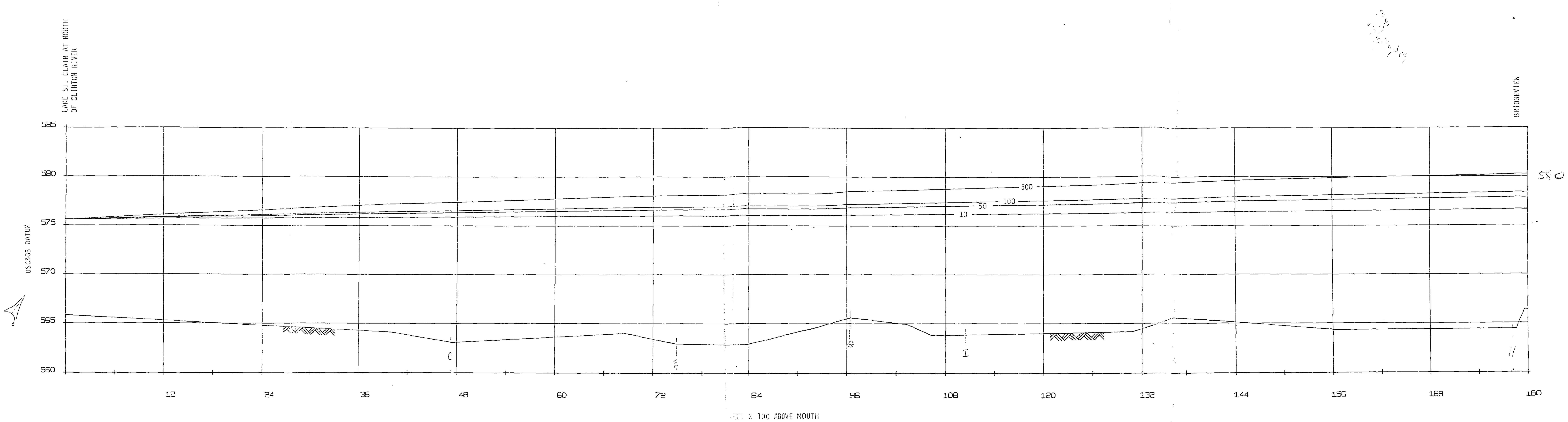
Section Number	Elevation Increase	Top Width	Left Encroach Station	Left Sta Distance From Center	Center Station	Right Sta Distance From Center	Right Encroach Station
.000	.10	670.00	265.00	308.50	573.50	361.50	935.00
300.000	.10	520.00	340.00	233.50	573.50	286.50	860.00
858.000	*** Encroachments not set ***						
944.000	*** Encroachments not set ***						
1244.000	.09	1545.79	405.99	372.01	778.00	1173.78	1951.78
1650.000	.09	1205.86	737.56	40.44	778.00	1165.42	1943.42
4670.000	.09	1083.42	1018.06	422.44	1440.50	660.99	2101.49
7680.000	.09	968.50	1624.68	29.32	1654.00	939.18	2593.18
10100.000	.09	845.18	1847.47	188.03	2035.50	657.15	2692.65
11580.000	.09	609.04	1496.54	149.46	1646.00	459.59	2105.59
11721.000	.09	615.53	1514.00	136.00	1650.00	479.54	2129.54
11738.000	.09	600.82	1499.99	150.01	1650.00	450.82	2100.82

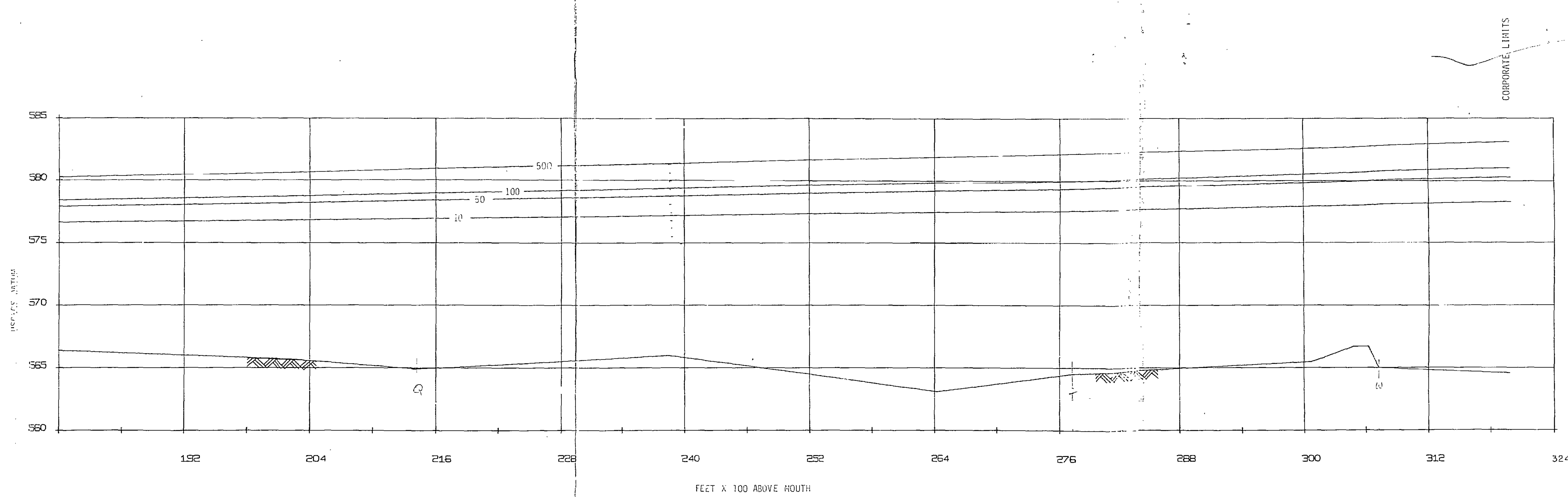
11739.000	.09	643.92	1482.33	167.67	1650.00	476.26	2126.26
14670.000	.10	633.36	1927.38	64.12	1991.50	569.25	2560.75
17820.000	.10	1106.02	897.29	28.21	925.50	1077.81	2003.31
19270.000	.10	737.75	1699.07	29.93	1729.00	707.82	2436.82
19360.000	.10	226.60	1700.00	113.30	1813.30	113.30	1926.60
19401.000	.10	226.60	1700.00	113.30	1813.30	113.30	1926.60

FLOODWAY DATA, BRANCH OF THE CLINTON R
PROFILE NO 2

STATION	------- FLOODWAY ------- WIDTH	SECTION AREA	MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
.000	670.	6116.	1.9	593.4	593.3	.1
300.000	520.	5244.	2.2	593.4	593.3	.1
858.000	237.	3339.	3.5	593.7	593.6	.1
944.000	237	3390.	3.4	593.9	593.8	.1
1244.000	1546	8259.	1.2	594.3	594.2	.1
1650.000	1206	7692.	1.2	594.3	594.2	.1
4670.000	1083	7143.	1.3	594.8	594.7	.1
7680.000	969	10063.	1.0	595.1	595.0	.1
10100.000	845	7764.	1.2	595.3	595.2	.1
11580.000	509	3962.	2.4	595.5	595.4	.1
11721.000	615.	3786.	2.5	595.5	595.4	.1
11738.000	601	3776.	2.5	595.5	595.4	.1
11739.000	644.	3974.	2.4	595.7	595.6	.1
14670.000	633	6703.	1.4	596.5	596.4	.1
17820.000	1106	10020.	1.0	596.8	596.7	.1
19270.000	738	6705.	1.4	596.9	596.8	.1
19360.000	227	2337.	4.2	597.0	596.9	.1
19401.000	227	2351.	4.1	597.0	596.9	.1

100-YEAR OF LAKE ST. CLAIR 578.5





RECEIVED
MAY 17 1977
WATER MANAGEMENT

DRAWN:
DESIGN:
CHECKED:
DATE COMPLETED:
FINAL:
PRELIMINARY:

SCALE: VERT. 1" = 5'
HORIZ. 1" = 600'

REVISIONS	MARK	BULLETIN	DATE	MARK	BULLETIN	DATE	MARK	BULLETIN	DATE

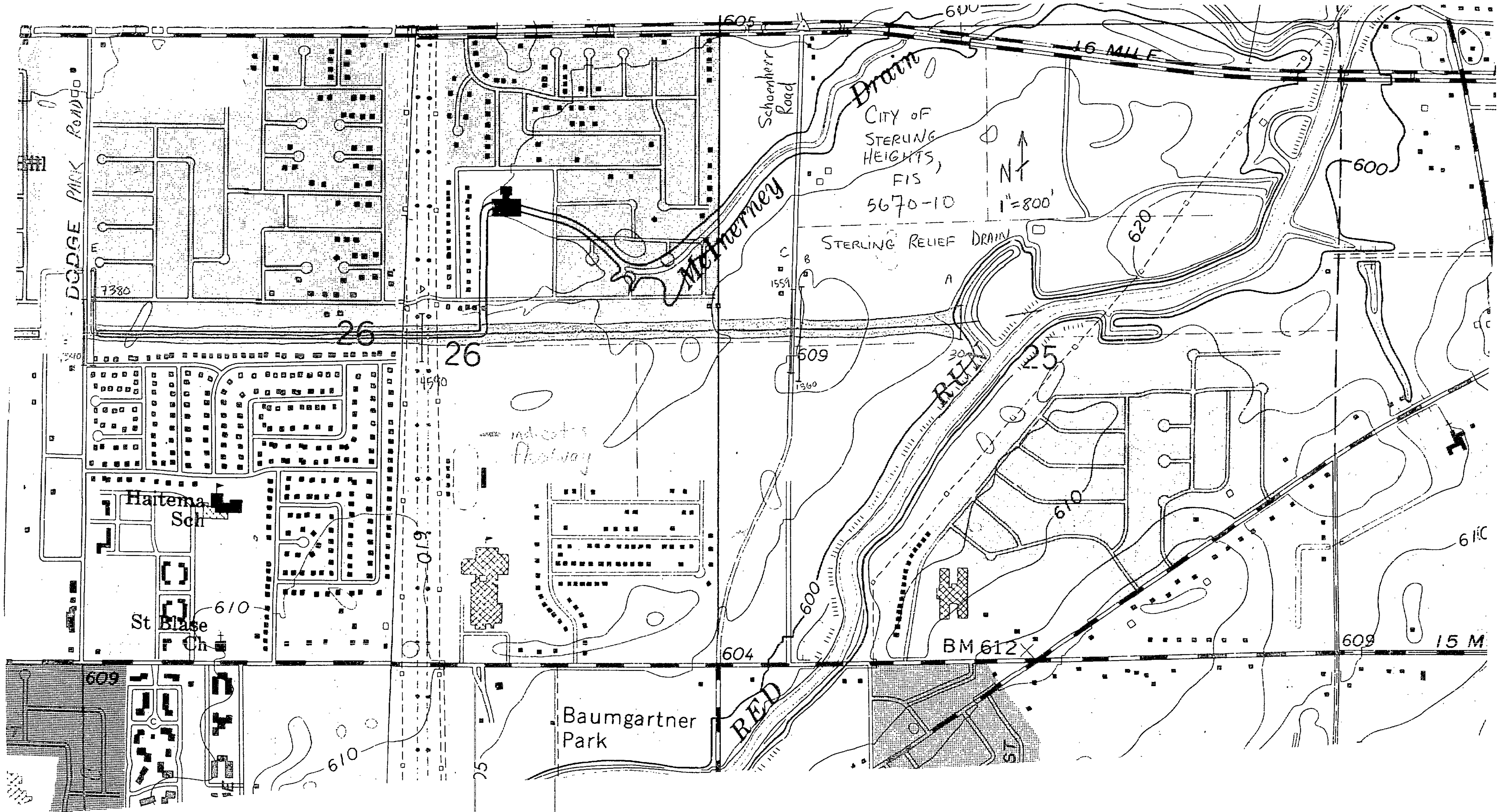
JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS
PONTIAC, MICHIGAN

NOTE: INFORMATION ON THIS SHEET COMES IN PART FROM THE HARRISON TOWNSHIP FLOOD INSURANCE STUDY, DETROIT DISTRICT, U.S. ARMY CORPS OF ENGINEERS

CLINTON TOWNSHIP FLOOD INSURANCE STUDY
CLINTON RIVER
PROJECT MANAGER - WILLIAM C. ROSSOW

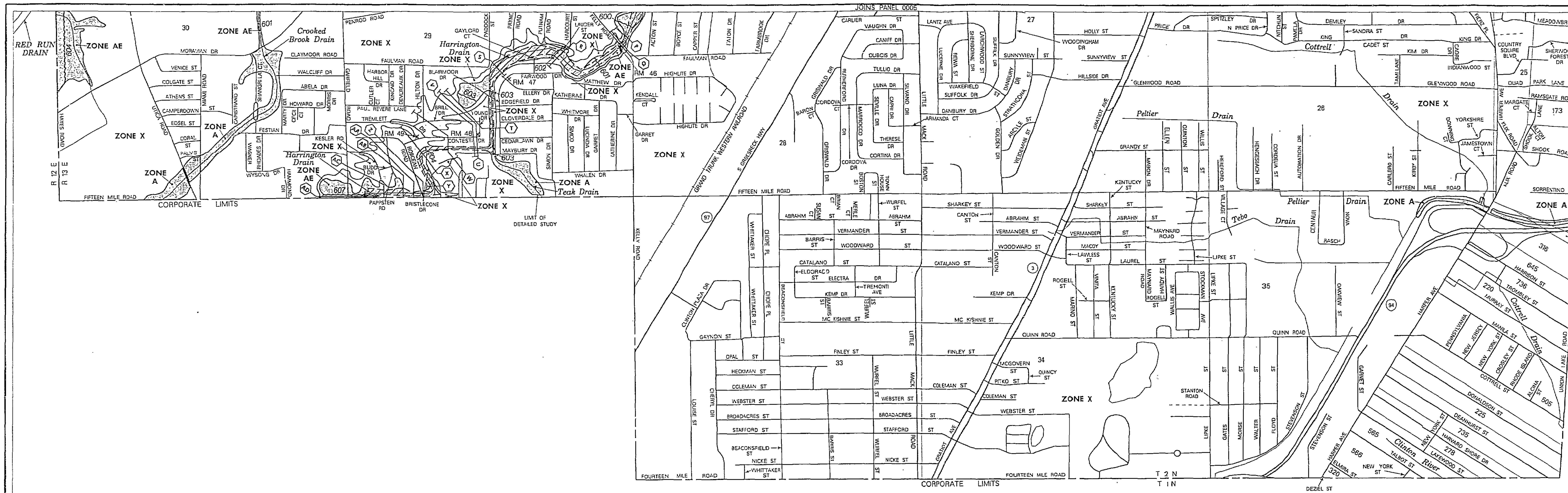
JOB NO. 5670-02
DATE ISSUED 5-11-77
SHEET NO. 1

Sheet # 1 of 10



16 MILE
DODGE PARK ROAD
Schoenherr Road
McInerney Drain
CITY OF STERLING HEIGHTS, FIS 5670-10
N
1"=800'
STERLING RELIEF DRAIN
RED RUN
26
26
25
Haitema Sch
St Blase Ch
Baumgartner Park
BM 612
15 M
605
600
620
609
610
604
7380
1559
1960
1590

PLAT LIMITS
PREL. PLAT
FILE NO. 5.2859-12
780372
WATERCOURSE: MILLER DR.
& M. BR. CLINTON RI.
4-21-78
0+00 & M.BR. CLINTON RIVER
HEYDENREICH ROAD
DRIVEWAY (ILL.)
DUNHAM ROAD
PROPOSED NORTH NEWTOWN CIRCLE
100 YEAR STAGE
N. BR. CLINTON RIVER
FIS Q100 620 cfs
FIS Q 430 cfs
Channel Bottom
J&A'S DATA
ZEIMET & WOZNIAK'S DATA
595
590
585
580
575
0
20
40
60
80
100
Feet x 100 Above Mouth



ELEVATION REFERENCE MARKS
PANEL 5 OF 10

REFERENCE MARK	ELEVATION IN FT. (NGVD)[1]	DESCRIPTION OF LOCATION
RM 1	599.09	Railroad spike in north side of power pole located approximately 28 feet south of road opposite house No. 9505 Hall Road, approximately 2,500 feet east of Romeo Plank Road.
RM 2	597.84	Railroad spike in south side of telephone pole located approximately 1,300 feet south of Hall Road, approximately 24 feet east of Romeo Plank Road at house No. 44500.
RM 3	594.14	Chiseled square on northwest corner of top step of northwest wing wall of Romeo Plank Road bridge over Gloede Ditch.
RM 4	597.27	Macon County benchmark No. CL-35 located approximately 60 feet west of Romeo Plank Road, approximately 33 feet south of Nineteen Mile Road.
RM 5	598.16	Railroad spike in north side of power pole located approximately 100 feet east of house No. 18900 Cass Avenue, approximately 28 feet south of road approximately 1,300 feet southeast of Nineteen Mile Road.
RM 6	596.82	Railroad spike in northeast side of telephone pole located approximately 25 feet northeast of Cass Avenue at house No. 19585, approximately 1,800 feet northwest of Heydenreich Road.
RM 7	596.91	Railroad spike in east side of power pole on southeast corner of Cass Avenue and Clinton River Road intersection.
RM 8	596.78	Chiseled square centered on top of concrete headwall for crossing culvert under Heydenreich Road located approximately 52 feet south of Hall Road, approximately 18 feet west of Heydenreich Road.
RM 9	598.44	PK nail in east side of 12-inch ash located approximately 26 feet west of Heydenreich Road opposite house No. 44460, approximately 1,500 feet south of Hall Road.
RM 10	596.36	Chiseled cross on top of first stepdown on northwest corner in abutment of Dunham Road bridge over Miller Drain.
RM 11	597.49	Large nail in west side of power pole located approximately 18 feet east of Heydenrrich Road, approximately 25 feet south of house No. 42375, approximately 1,400 feet south of Dunham Road.
RM 12	586.05	Chiseled square on southeast corner of northeast concrete wing wall at Heydenreich Road bridge over Miller Drain.
RM 13	601.06	U.S. Army Corps of Engineers disk located at north end of east abutment of Hall Road bridge over Clinton River North Branch.
RM 14	598.45	Railroad spike in north side of power pole located approximately 60 feet south of Hall Road at house No. 21960, approximately 1,100 feet west of Elizabeth Road.
RM 15	598.96	PK nail in west side of power pole located approximately 1,500 feet south of Hall Road, approximately 18 feet east of road at house No. 44492 Elizabeth Road.
RM 16	597.44	Brass disk in concrete post stamped "Macomb County Road Commission SN 46" located approximately 55 feet east of Little Road at house No. 43700, approximately 350 feet north of Dunham Road.
RM 17	598.35	Railroad spike in south side of power pole located approximately 27 feet north of Dunham Road at house No. 21081, approximately 2,600 feet east of Heydenreich Road.
RM 18	598.48	Chiseled cross on west bolt of fire hydrant located approximately 100 feet north of house No. 43305 Little Road, approximately 700 feet south of Dunham Road.
RM 19	600.67	Chiseled cross on west bolt of fire hydrant located approximately 50 feet south of house No. 42142 Little Road, approximately 18 feet east of road, approximately 2,800 feet north of Cass Avenue.
RM 20	600.61	Chiseled cross on top of southwest bolt at northwest corner of concrete guardrail located at Cass Avenue bridge over Clinton River North Branch.
RM 21	600.56	U.S. Army Corps of Engineers tablet in southeast wing wall on Hayes Road bridge over Clinton River.
RM 22	606.67	Railroad spike in north side of power pole located approximately 200 feet east of Utica Road, approximately 50 feet west of house No. 15577 Millar Road, approximately 24 feet north of road.
RM 23	602.27	Bolt spike in southeast side of power pole located approximately 21 feet northwest of road at house No. 15879 Millar Road, approximately 1,300 feet east of Utica Road.

[1]National Geodetic Vertical Datum of 1929

ELEVATION REFERENCE MARKS
PANEL 5 OF 10

REFERENCE MARK	ELEVATION IN FT. (NGVD)[1]	DESCRIPTION OF LOCATION
RM 24	600.14	Railroad spike in northeast side of power pole located approximately 200 feet west of house No. 16237 Millar Road, approximately 21 feet northwest of road.
RM 25	602.15	Chiseled cross on top of bolt on south side of fire hydrant located approximately 22 feet south of road opposite house No. 16435 Millar Road, approximately 1,500 feet west of Garfield Road.
RM 26	603.19	Chiseled cross on top of bolt on south side of fire hydrant located approximately 30 feet north of Clinton River Road, approximately 250 feet east of entrance to Chateau Estates Mobile Home Park.
RM 27	599.79	Railroad spike in east side of power pole located at Garfield Road approximately 150 feet south of Clinton River Road.
RM 28	606.38	PK nail in south side of 20-inch oak tree at north end of Woodcrest Boulevard, north of Mattison Street.
RM 29	598.26	PK nail in northeast side of power pole located approximately 20 feet southeast of house No. 17750 Clinton River Road, approximately 650 feet southwest of Seventeen Mile Road.
RM 30	600.56	Chiseled cross on top of bolt on southwest side of fire hydrant located approximately 33 feet north of Clinton River Road, approximately 300 feet east of cemetery entrance.
RM 31	597.96	Large nail in northwest side of power pole located approximately 18 feet southeast of Clinton River Road, approximately 1,600 feet north of Romeo Plank Road.
RM 32	594.45	Chiseled cross on top of bolt on east side of fire hydrant located approximately 37 feet west of Clinton River Road at house No. 19443, approximately 2,600 feet south of Canal Road.
RM 33	590.68	Chiseled square on northwest corner of west concrete headwall at canal on Clinton River Road located approximately 150 feet south of Canal Road.
RM 34	583.74	Chiseled square centered in top concrete wall at northeast corner of Moravian Drive bridge over the Clinton River.
RM 35	599.91	Chiseled square on northwest corner at north end of west concrete walkway located at Groesbeck Highway bridge over the Clinton River.
RM 36	590.73	Chiseled square on southeast corner of concrete headwall of storm sewer located approximately 150 feet east of gaging station and approximately 65 feet northeast of Wellington Crescent.
RM 37	585.57	Railroad spike in northeast side of power pole located approximately 1,000 feet southeast of Avery Street, approximately 18 feet northeast of South River Road and approximately 200 feet northwest of house No. 24625.
RM 38	594.80	Chiseled cross centered in concrete wall at southwest corner of Harper Avenue bridge over Clinton River Spillway.
RM 39	590.99	Chiseled square centered on top of concrete wall northwest corner of westbound Metropolitan Beach Parkway bridge over Clinton River Spillway.
RM 40	601.30	Chiseled square centered in top of southwest wing wall at Harrington Boulevard bridge over Harrington Drain.
RM 41	615.82	Railroad spike in north side of power pole located approximately 23 feet south of Harrington Boulevard, approximately 12 feet east of Drake Road.
RM 42	621.73	Chiseled cross on top of bolt on south side of fire hydrant located on Moravian Drive, approximately 51 feet southwest of Delta Drive approximately 21 feet southeast of Moravian Drive.
RM 43	608.62	Chiseled cross on top of bolt on southwest side of fire hydrant located approximately 1,000 feet south of Moravian Drive, approximately 50 feet southeast of house No. 19720 Millar Road, approximately 18 feet south from road centerline.
RM 44	599.25	Chiseled cross on south rim of manhole casting located approximately 5 feet east of Millar Road and approximately 8 feet north of North Nunnaley Drive.
RM 45	600.56	Chiseled cross on north rim of manhole casting located approximately 1,230 feet south of South Nunnaley Drive and approximately 27 feet west of Acton Street.

[1]National Geodetic Vertical Datum of 1929

ELEVATION REFERENCE MARKS
PANEL 10 OF 10

REFERENCE MARK	ELEVATION IN FT. (NGVD)[1]	DESCRIPTION OF LOCATION
RM 46	604.58	Chiseled cross centered in middle of southwest concrete guardrail at Kelly Road bridge over Harrington Drain.
RM 47	605.08	Chiseled cross on east rim of gatewell casting on most easterly corner of Fairwood Drive and Ellery Drive.
RM 48	606.10	Chiseled cross on north rim of manhole casting on northwest corner of Contesti Drive and Young Drive.
RM 49	604.28	Railroad spike in south side of power pole on northwest corner of Contesti Drive and Tremlett Drive.

[1]National Geodetic Vertical Datum of 1929

LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD

ZONE A	No base flood elevations determined.
ZONE AE	Base flood elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE A99	To be protected from 100-year flood by Federal flood protection system under construction; no base flood elevations determined.
ZONE V	Coastal flood with velocity hazard (wave action); no base flood elevations determined.
ZONE VE	Coastal flood with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

ZONE X	Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.

OTHER AREAS

ZONE X	Areas determined to be outside 500-year floodplain.
ZONE D	Areas in which flood hazards are undetermined.

UNDEVELOPED COASTAL BARRIERS*

Identified 1983 — Identified 1990 or Later — Otherwise Protected Areas Identified 1991 or Later

*Coastal barrier areas are normally located within or adjacent to Special Flood Hazard Areas.

Floodplain Boundary
Floodway Boundary
Zone D Boundary
Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zones.
513 — Base Flood Elevation Line Elevation in Feet**
A — A Cross Section Line
(EL 987) Base Flood Elevation in Feet Where Uniform Within Zone**
RM7 x Elevation Reference Mark
• M1.5 River Mile

**Referenced to the National Geodetic Vertical Datum of 1929

NOTES

This map is for use in administering the National Flood Insurance Program; it does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size, or all planimetric features outside Special Flood Hazard Areas. The community map repository should be consulted for possible updated flood hazard information prior to use of this map for property purchase or construction purposes

Coastal base flood elevations apply only landward of 0.0' National Geodetic Vertical Datum of 1929 (NGVD), and include the effects of wave action; these elevations may also differ significantly from those developed by the National Weather Service for hurricane evacuation planning.

Areas of special flood hazard (100-year flood) include Zones A, AE, AH, AO, A99, V, and VE.

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures.

Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the Federal Emergency Management Agency.

Floodway widths in some areas may be too narrow to show to scale. Floodway widths are provided in the Flood Insurance Study Report.

For adjoining map panels see separately printed Map Index.

NOTE: The coordinate system used for the production of this Flood Insurance Rate Map (FIRM) is Universal Transverse Mercator (UTM), North American Datum of 1927 (NAD27), Clarke 1866 spheroid. Differences in the datum and spheroid used in the production of FIRMs for adjacent communities may result in slight positional differences in map features at the community boundaries. These differences do not affect the accuracy of the information shown on the FIRM.

ATTENTION: Flood elevations on this map are referenced to the National Geodetic Vertical Datum of 1929. These flood elevations must be compared to structure and ground elevations referenced to the same datum. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, contact the National Geodetic Survey at the following address:

Vertical Network Branch, N/CG13
National Geodetic Survey, NOAA
Silver Spring Metro Center 3
1315 East-West Highway
Silver Spring, Maryland 20910
(301) 713-3191

BASE MAP SOURCE: Planimetric base map files were prepared by the Michigan Department of Natural Resources. These files were compiled at a scale of 1:24,000 from U.S. Geological Survey 7.5-Minute Series Topographic Maps. Additional information may have been derived from other sources. Users of this FIRM should be aware that minor adjustments may have been made to specific base map features.

MAP REPOSITORY

INITIAL IDENTIFICATION:

FLOOD HAZARD BOUNDARY MAP REVISIONS:

FLOOD INSURANCE RATE MAP EFFECTIVE:

FLOOD INSURANCE RATE MAP REVISIONS:

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at (800) 638-6620.

APPROXIMATE SCALE
1000 0 1000 FEET

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

TOWNSHIP OF
CLINTON,
MICHIGAN
MACOMB COUNTY

PANEL 10 OF 10
(SEE MAP INDEX FOR PANELS NOT PRINTED)

PRELIMINARY

JUL 22 1997

COMMUNITY - PANEL NUMBER
260121 0010 E

MAP REVISED:

Federal Emergency Management Agency

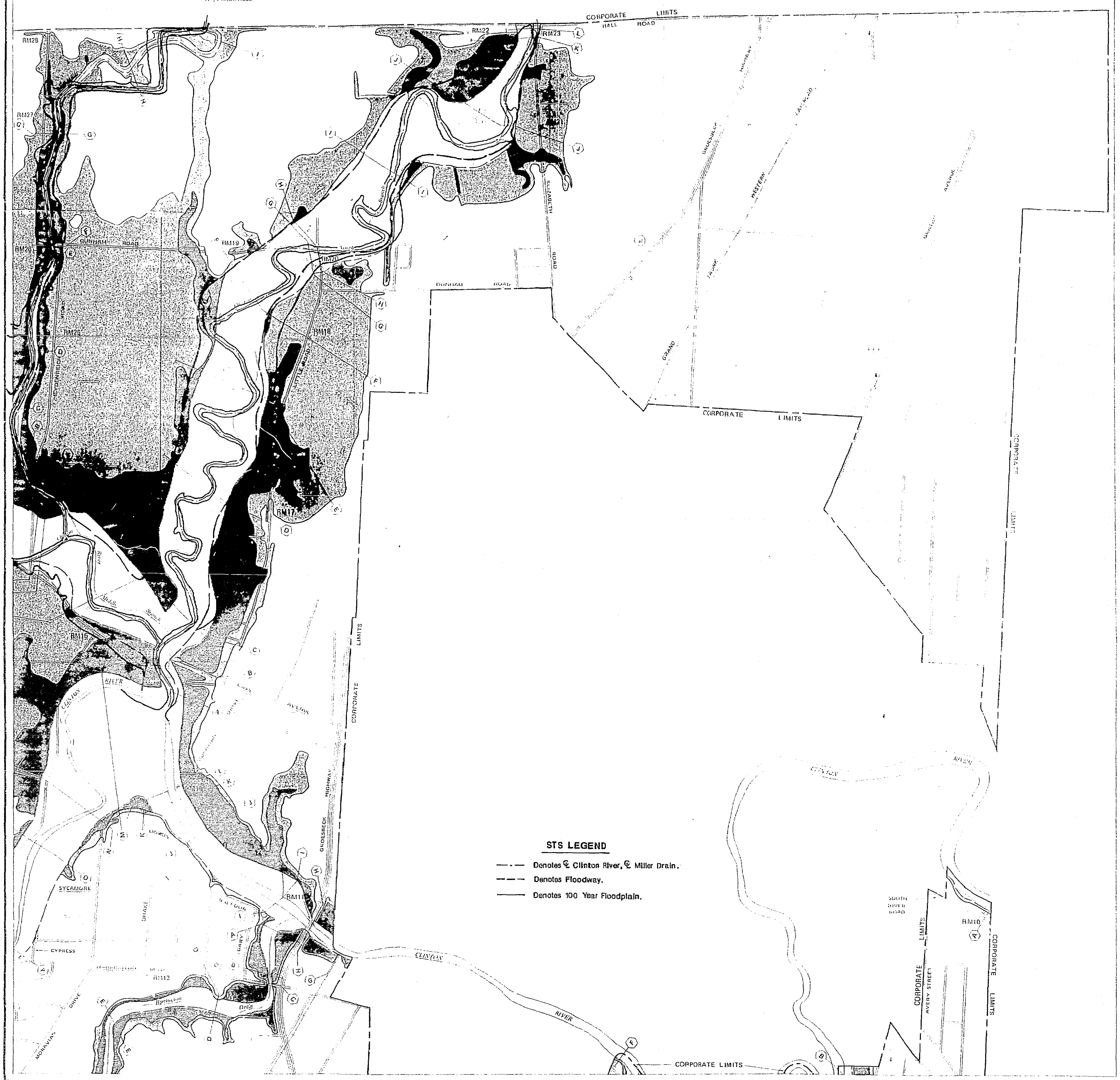
DEWBERRY & DAVIS
E FRAME

ELEVATION REFERENCE MARKS

REFERENCE MARKS	ELEVATION FEET (NGVD)	DESCRIPTION OF LOCATION
RM 10	585.57	Railroad spike in northeast side of power pole located approximately 1000 feet southeast of Avery Street, 18 feet northeast of South River Road and 200 feet northwest of house No. 24625.
RM 11	599.91	Chiseled square on the northwest corner at the north end of east concrete walkway located at Groesbeck Highway bridge over the Clinton River.
RM 12	615.92	Railroad spike in north side of power pole located approximately 23 feet south of Harrington Boulevard, 12 feet east of Drake Road.
RM 13	593.74	Chiseled square centered in top concrete wall at northeast corner of Moravian Drive bridge over Clinton River.
RM 14	600.61	Chiseled cross on top of southwest bolt at northeast corner of concrete guard rail located at Cass Avenue bridge over North Branch Clinton River.
RM 15	596.91	Railroad spike in east side of power pole on southeast corner of Cass Avenue and Clinton River Road intersection.
RM 16	590.68	Chiseled square on northwest corner of the east concrete headwall at the canal on Clinton River Road located approximately 150 feet south of Canal Road.
RM 17	600.67	Chiseled cross on west bolt of fire hydrant located approximately 50 feet south of house No. 42142 Little Road, 18 feet east of road, 2800 feet north of Cass Avenue.
RM 18	598.48	Chiseled cross on west bolt of fire hydrant located approximately 100 feet north of house No. 43305 Little Road, 700 feet south of Dunham Road.
RM 19	598.35	Railroad spike in south side of power pole located 27 feet north of Dunham Road at house No. 21061, about 2600 feet east of Heydenreich Road.

ELEVATION REFERENCE MARKS

REFERENCE MARKS	ELEVATION FEET (NGVD)	DESCRIPTION OF LOCATION
RM 20	597.44	Brass disk in concrete post stamped "Macomb County Road Commission BM 46" located 55 feet east of Little Road at house No. [illegible], [illegible] feet north of Dunham Road.
RM 21	598.96	PK nail in west side of power pole located approximately 1500 feet south of Hall Road, 18 feet east of road at house No. 44492 Elizabeth Road.
RM 22	598.45	Railroad spike in north side of power pole located approximately [illegible] south of Hall Road at house No. 21[illegible], about 11[illegible] feet west of Elizabeth Road.
RM 23	601.06	U.S. Army Corps of Engineers disk located [illegible] Hall Road bridge over Clinton River North Branch.
RM 24	586.05	Chiseled square [illegible] southeast corner of the northeast concrete [illegible] at the Heydenreich Road bridge over Miller Drain.
RM 25	597.49	Large nail in west side of power pole [illegible] 18 feet east of Heydenreich Road [illegible] house No. 42[illegible], about 1400 feet south of Dunham Road.
RM 26	595.36	Chiseled cross on top of first stepdown on northwest corner [illegible] Dunham Road bridge over Miller Drain.
RM 27	598.44	PK nail in east side of 12-inch ash located 26 feet west of Heydenreich Road opposite house No. 44480, about 1500 feet south of Hall Road.
RM 28	596.79	Chiseled square centered on top of concrete headwall for crossing culvert under Heydenreich Road located approximately 52 feet south of Hall Road 18 feet west of Heydenreich Road.
RM 29	601.00	Chiseled square centered in the top of southwest wingwall at Harrington Boulevard bridge over Harrington Drain.



KEY TO MAP

500-Year Flood Boundary
100-Year Flood Boundary
FLOODWAY FRINGE
FLOODWAY
100 Year Flood Boundary
500 Year Flood Boundary
Approximate 100-Year Flood Boundary
Cross Section Line
Elevation Reference Mark RM7
River Mile M1.5

NOTES TO USER

Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the Federal Insurance Administration.

This map was prepared to support minimum flood plain management regulations; it may not show all areas subject to flooding in the community or all planimetric features outside special flood hazard areas.

For adjoining map panels [illegible] Map Panels.

NATIONAL FLOOD INSURANCE PROGRAM

FLOODWAY

FLOOD BOUNDARY AND FLOODWAY MAP

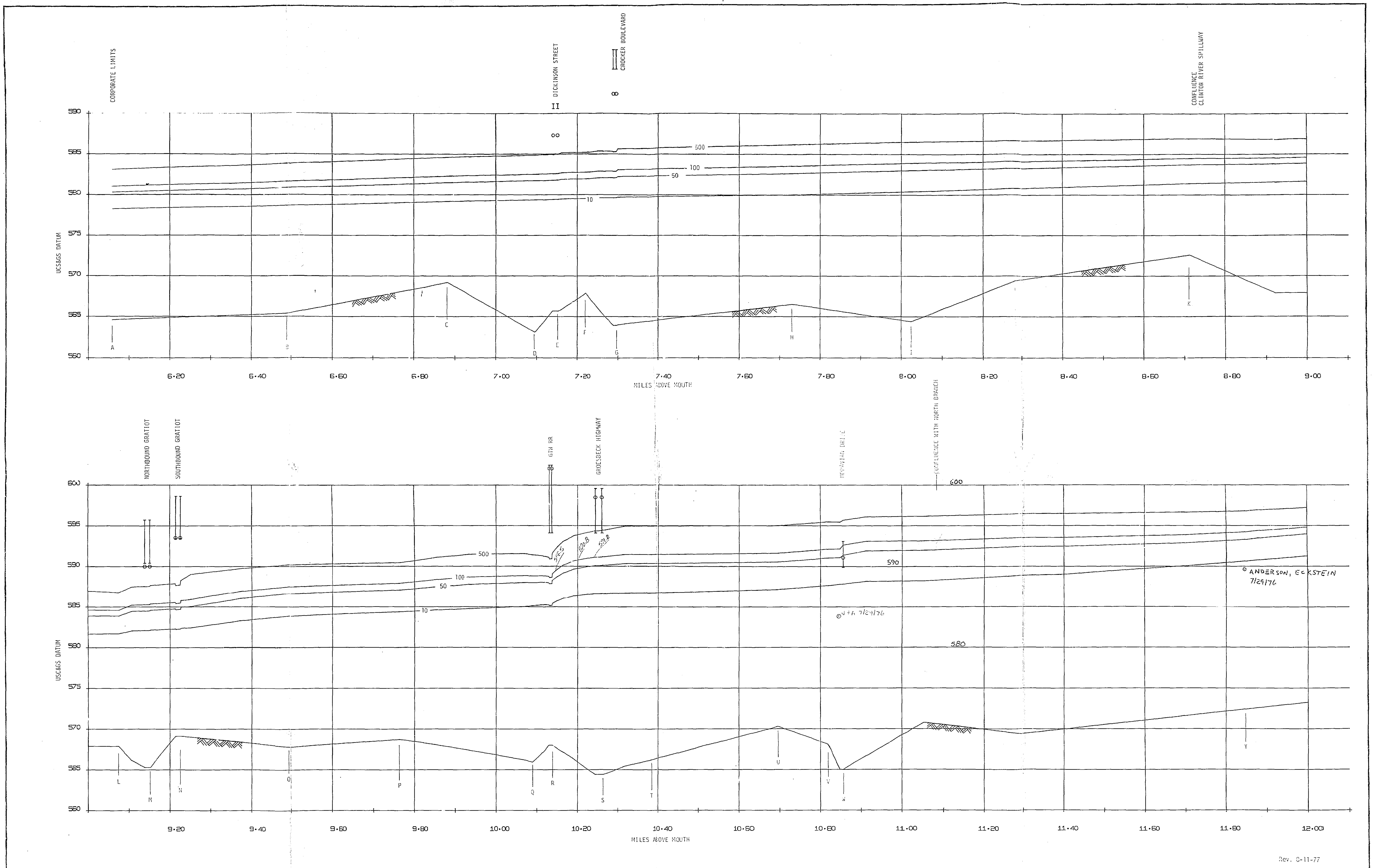
TOWNSHIP OF CLINTON, MICHIGAN
MACOMB COUNTY

PANEL 10 OF 20

COMMUNITY-PANEL NUMBER
260121 0010 B

EFFECTIVE DATE:
AUGUST 1, 1979

U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
FEDERAL INSURANCE ADMINISTRATION

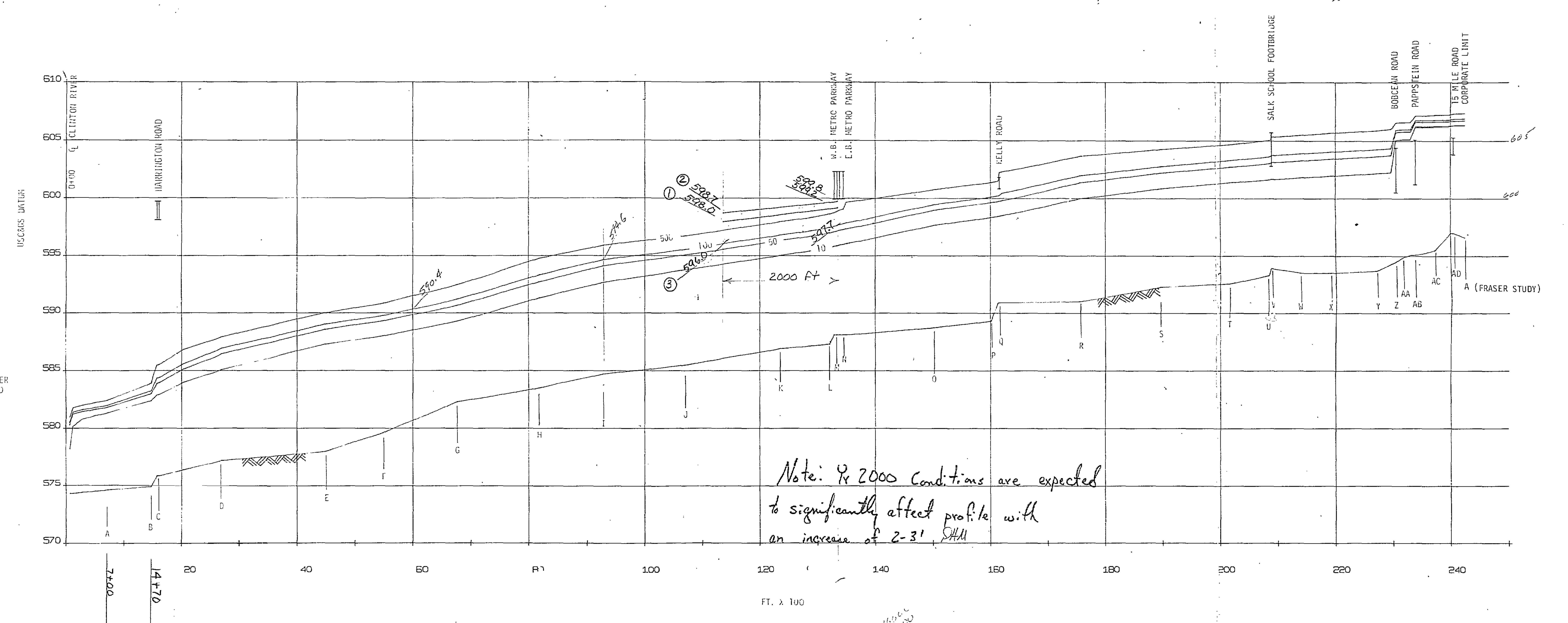


VERT. 1" = 5'
SCALE:
HORIZ. 1" = 0.1 MI.

REVISIONS	JOHNSON & ANDERSON, INC. CONSULTING ENGINEERS PONTIAC, MICHIGAN	CLINTON RIVER	CLINTON TOWNSHIP FLOOD INSURANCE STUDY PROJECT MANAGER - WILLIAM C. ROSSOW	JOB NO. 5670-02 DATE ISSUED 5-13-77 SHEET NO. 2

R. CARROLL, INC.

NOTE: IN THE FINAL REPORT, CLINTON RIVER FLOOD ELEVATIONS WILL BE EXTENDED HORIZONTALLY UPSTREAM UNTIL THE CORRESPONDING HARRINGTON DRAIN PROFILES ARE INTERSECTED.



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MAR 9 1977
WATER MANAGEMENT

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FINAL:
PRELIMINARY:

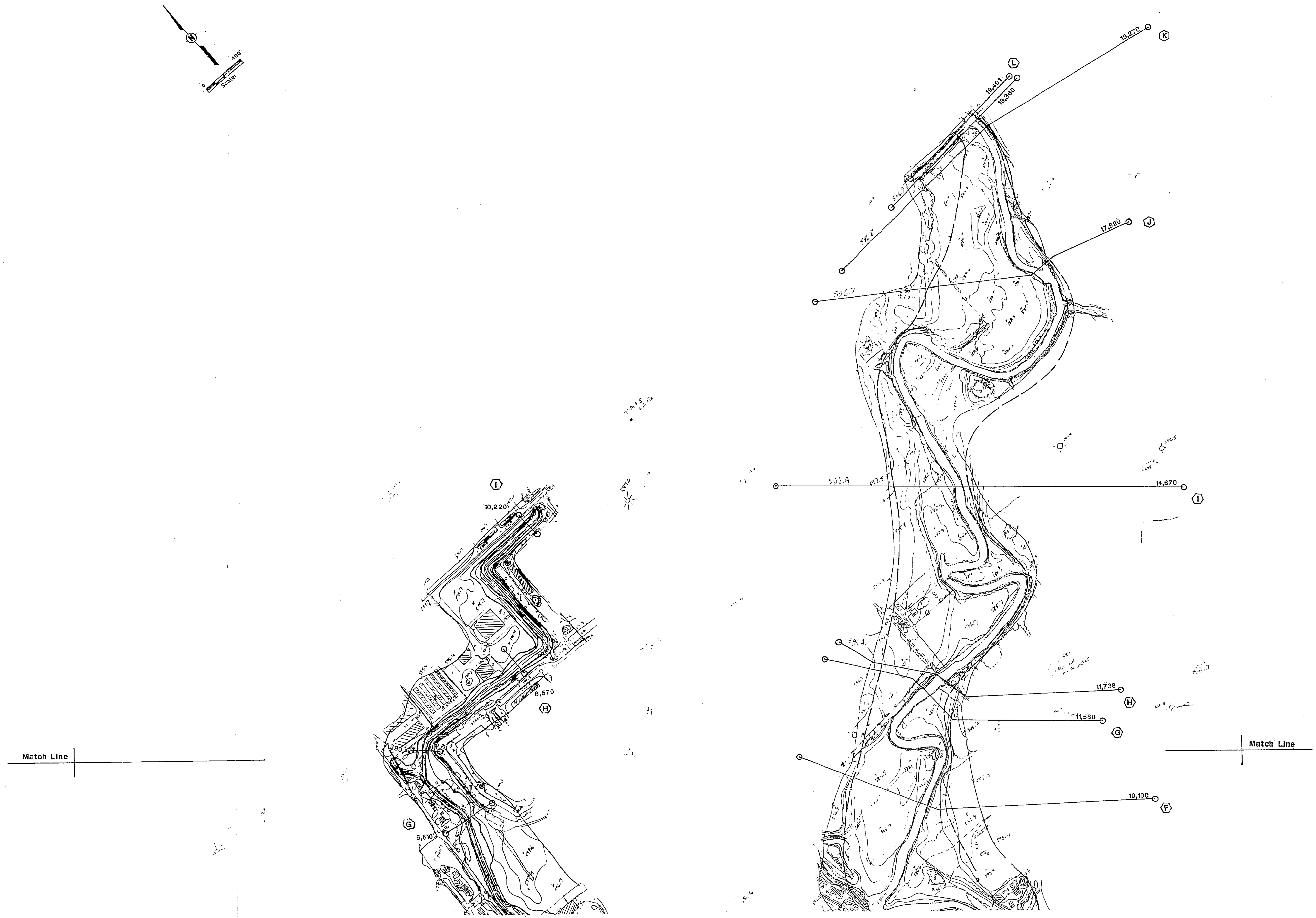
REVISIONS	MARK	BULLETIN	DATE	MARK	BULLETIN	DATE	MARK	BULLETIN	DATE

JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS
PONTIAC, MICHIGAN

SCALE: VERT. 1" = 5' HORIZ. 1" = 1000'

CLINTON TOWNSHIP FLOOD INSURANCE STUDY
HARRINGTON DRAIN
PROJECT MANAGER WILLIAM ROSSOW

JOB NO. 5670-02
DATE ISSUED 2-18-77
SHEET NO. 1



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CHECKED BY		DATE	
APPROVED BY		DATE	
CADFILE			

REVISION NO	DESCRIPTION	DATE	BY

FLOOD INSURANCE STUDY
WORK MAP
CLINTON TOWNSHIP
MACOMB COUNTY, MICHIGAN.

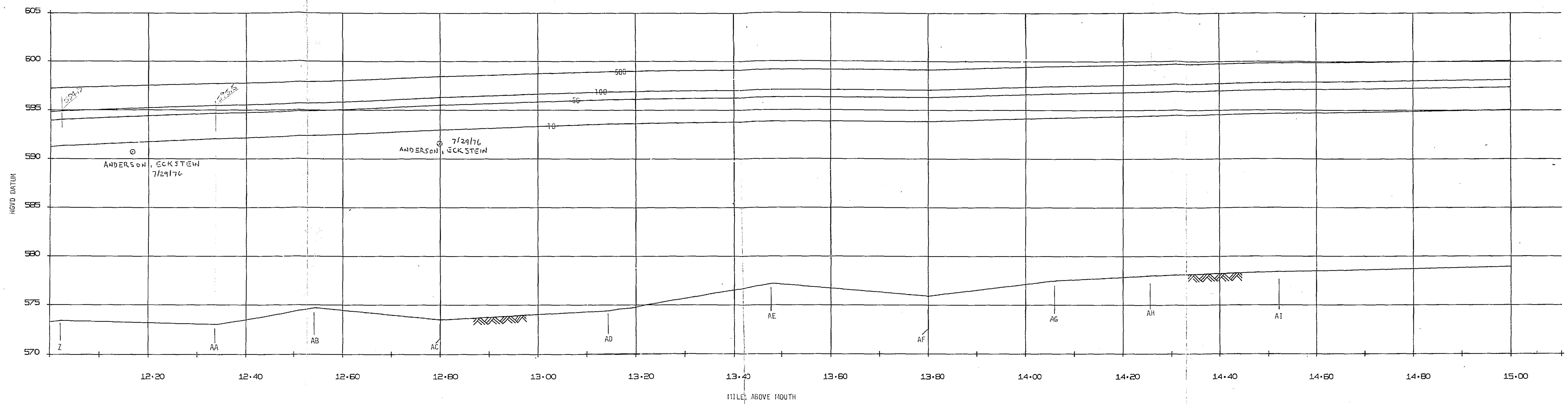
STS Consultants Ltd.
Consulting Engineers

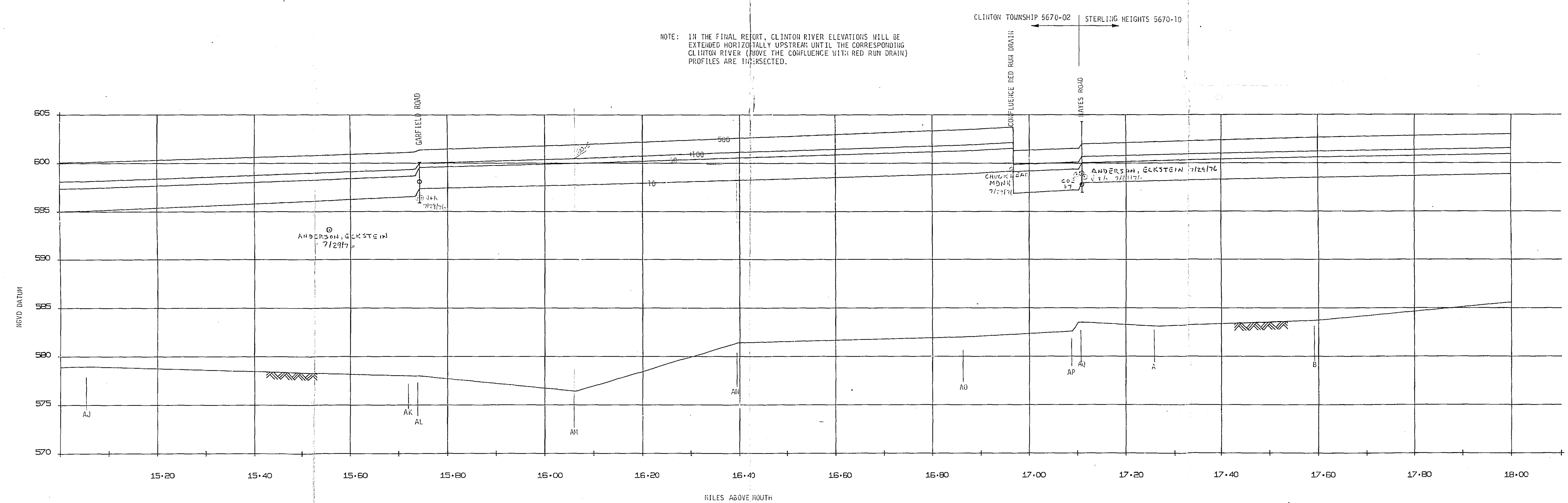
STS PROJECT NUMBER
7'18681

STS PROJECT FILE

SCALE
1" = 400'

SHEET NUMBER
1 OF 2





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SCALE: VERT. 1" = 5'
HORIZ. 1" = 0.1 MI.

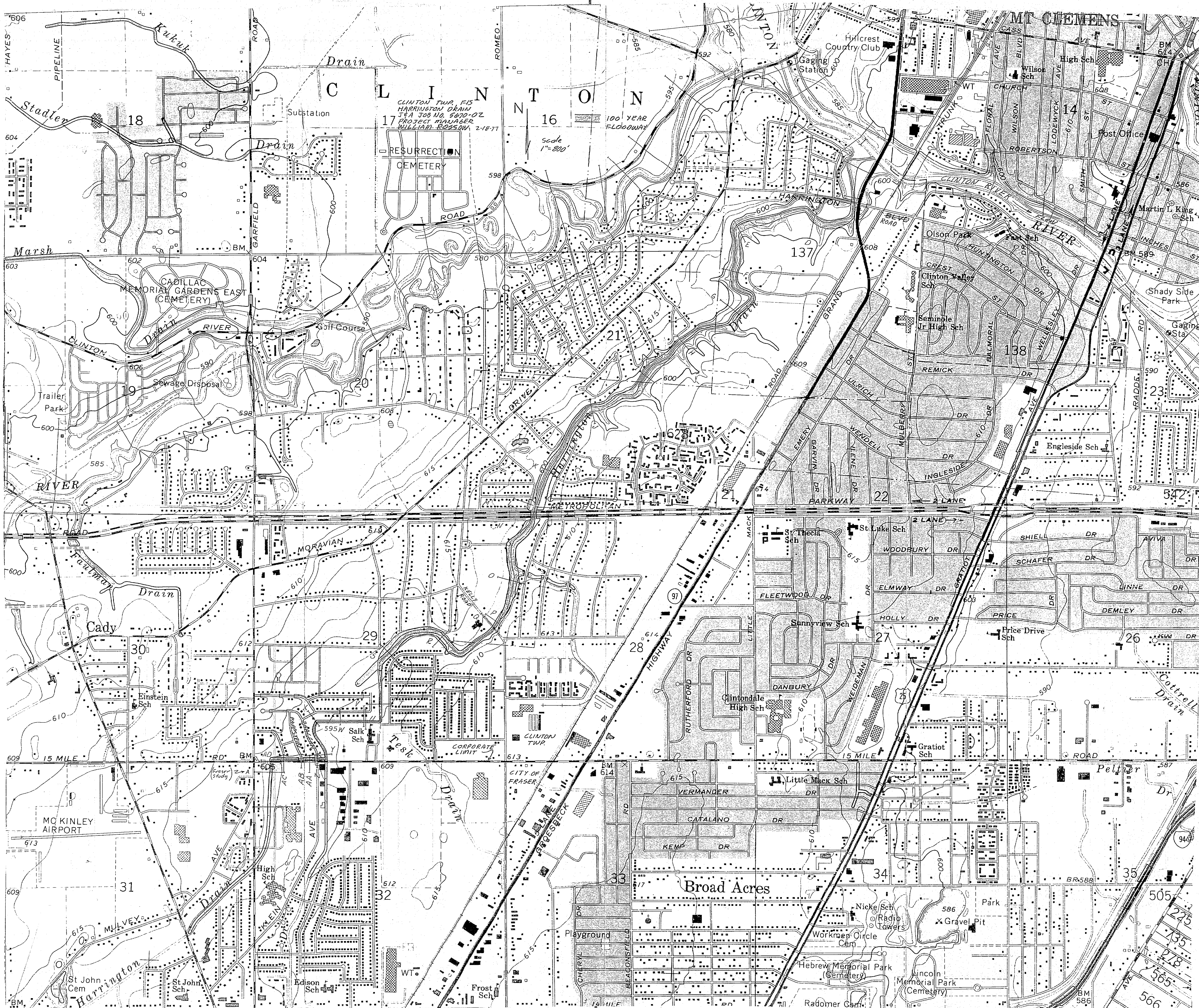
REVISIONS	MARK	BULLETIN	DATE	MARK	BULLETIN	DATE	MARK	BULLETIN	DATE

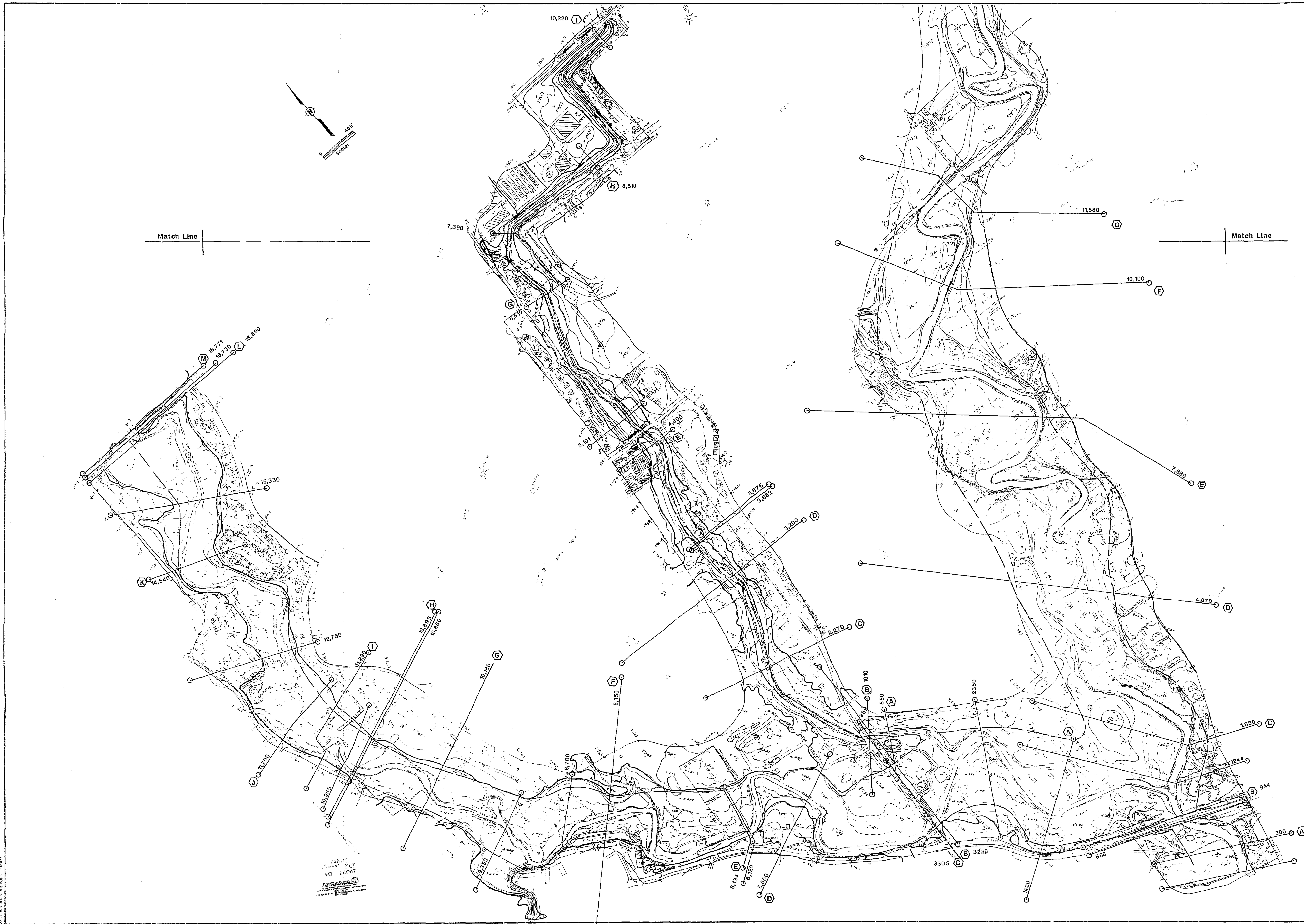
JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS
PONTIAC, MICHIGAN

CLINTON RIVER

CLINTON TOWNSHIP, CITY OF STERLING HEIGHTS
FLOOD INSURANCE STUDY
PROJECT MANAGER - WILLIAM C. ROSSOW

JOB NO. 5670-02 5670-10
DATE ISSUED 8-16-77
SHEET NO. 3


MT CLEMENS
CLINTON
CLINTON TWP. F15
HARRINGTON DRAIN
J&A JOB NO. 5670-02
PROJECT MANAGER
WILLIAM ROSSOW 2-18-77
100 YEAR FLOODWAY
Scale 1"=800'
Kukuk Drain
Stadler Drain
Marsh
Substation
RESURRECTION CEMETERY
CADILLAC MEMORIAL GARDENS EAST (CEMETERY)
Golf Course
Sewage Disposal
Trailer Park
CLINTON RIVER
Hillcrest Country Club
Gaging Station
Wilson Sch
High Sch
Post Office
Martin L King Sch
Olson Park
Fast Sch
Clinton Valley Sch
Seminole Jr High Sch
Shady Side Park
Gaging Sta
Engleside Sch
HARRINGTON
GRAND
MORAVIAN
METROPOLITAN PARKWAY
Faulman Drain
Cady
Einstein Sch
Salk Sch
Tesk Drain
CLINTON TWP.
CORPORATE LIMIT
CITY OF FRASER
HIGHWAY
GROESBECK
St Thecla Sch
St Luke Sch
Sunnyview Sch
Price Drive Sch
Clintondale High Sch
Gratiot Sch
Little Mack Sch
Cottrell Drain
Peltier Dr
15 MILE RD
MC KINLEY AIRPORT
High Sch
Broad Acres
Playground
Nicke Sch
Radio Towers
Gravel Pit
Park
Workmen Circle Cem
Hebrew Memorial Park (Cemetery)
Lincoln Memorial Park (Cemetery)
Radomer Cem
St John Cem
St John Sch
Edison Sch
Frost Sch
MULVEY
Harrington Drain
VERMANDER DR
CATALANO DR
KEMP DR
ELMWAY DR
HOLLY DR
FLEETWOOD DR
DANBURY
WOODBURY DR
SCHAFER DR
SHIELL DR
LINNE DR
DEMLEY DR
PRICE
GRATIOT
REMICK DR
ULRICH DR
INGLESIDE DR
WELLESLEY
BALMORAL
HUNTINGTON
CREST
ROBERTSON
CHURCH
CASS AVE



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APPROVED BY DATE

CADFILE

FLOOD INSURANCE STUDY
WORK MAP
CLINTON TOWNSHIP
MACOMB COUNTY, MICHIGAN.

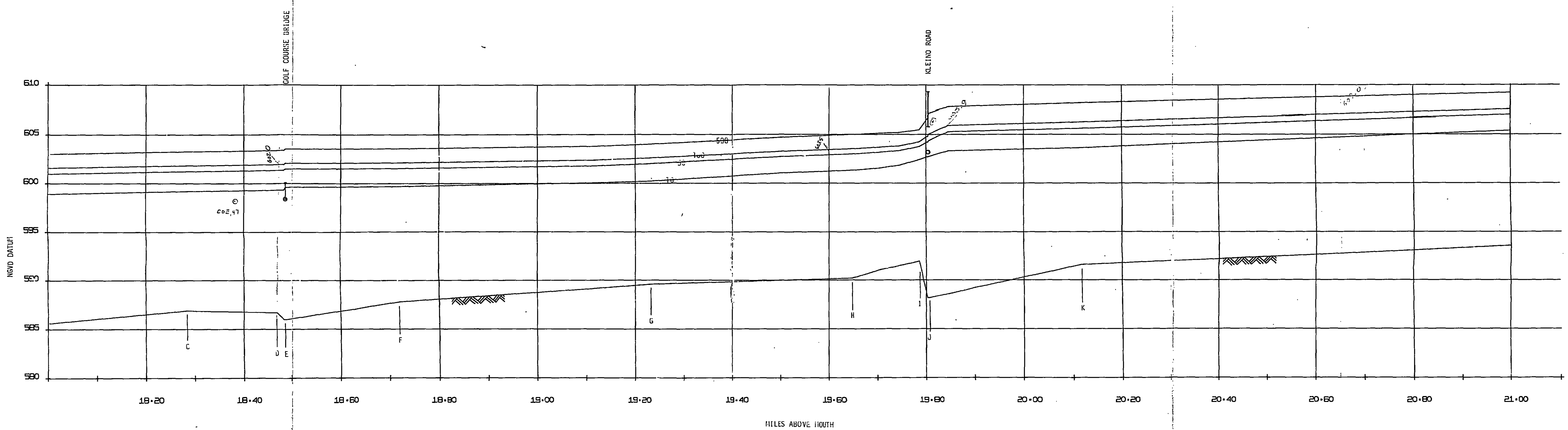
STS Consultants Ltd.
Consulting Engineers

STS PROJECT NUMBER
718681

STS PROJECT FILE

SCALE
1" = 400'

SHEET NUMBER
2 OF 2.



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SCALE: VERT. 1" = 5'
HORIZ. 1" = 0.1 MI.

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JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS
PONTIAC, MICHIGAN

CLINTON RIVER

CITY OF STERLING HEIGHTS
FLOOD INSURANCE STUDY
PROJECT MANAGER - WILLIAM C. ROSSOW

JOB NO. 5670-10
DATE ISSUED 8-18-77
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4 of 10

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WATER MANAGEMENT

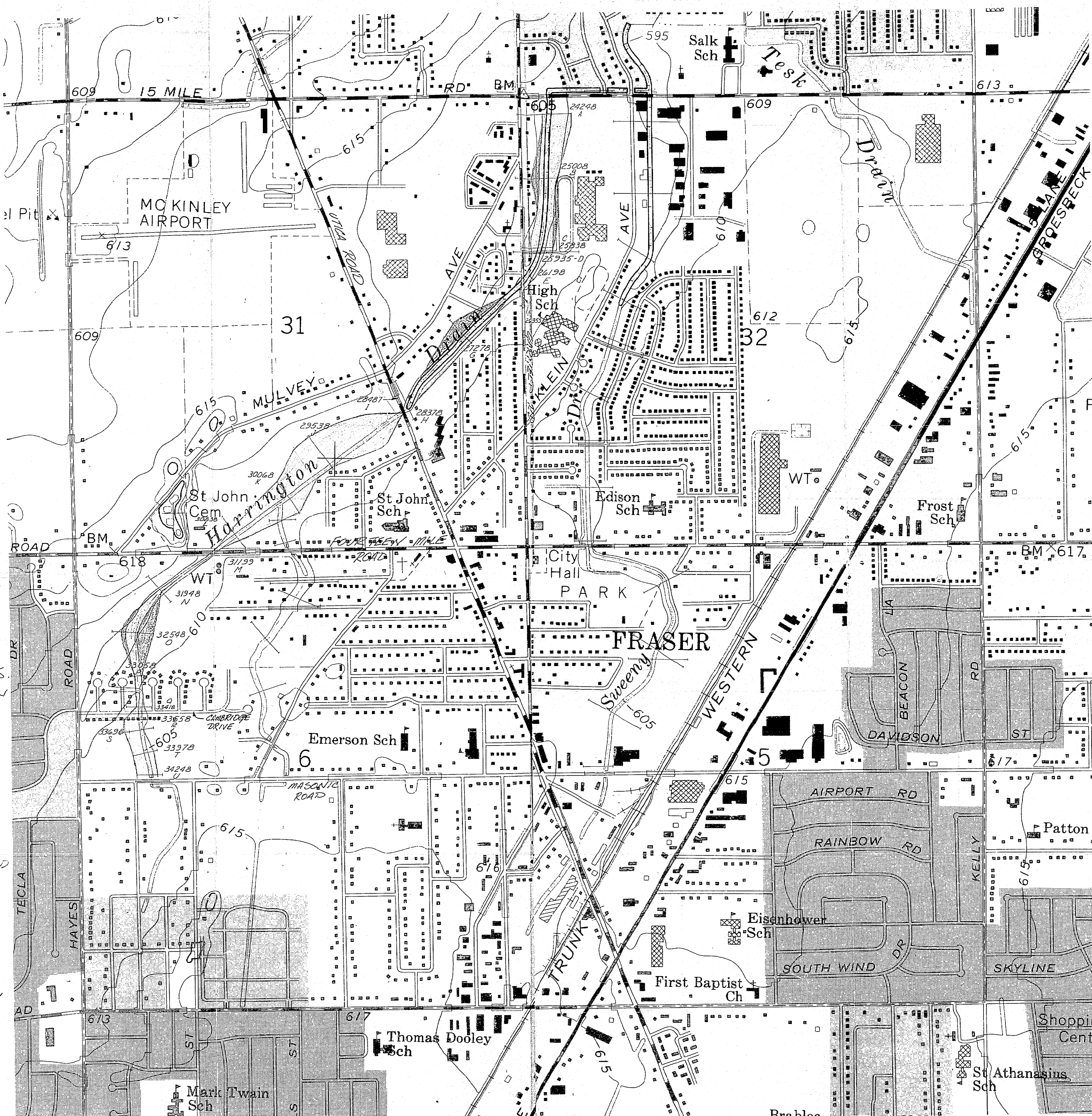
CITY OF
FRASER F.I.S.
HARRINGTON DRAIN
J&A Job No.
5670-04-1
Project Mngr.
William Rossow

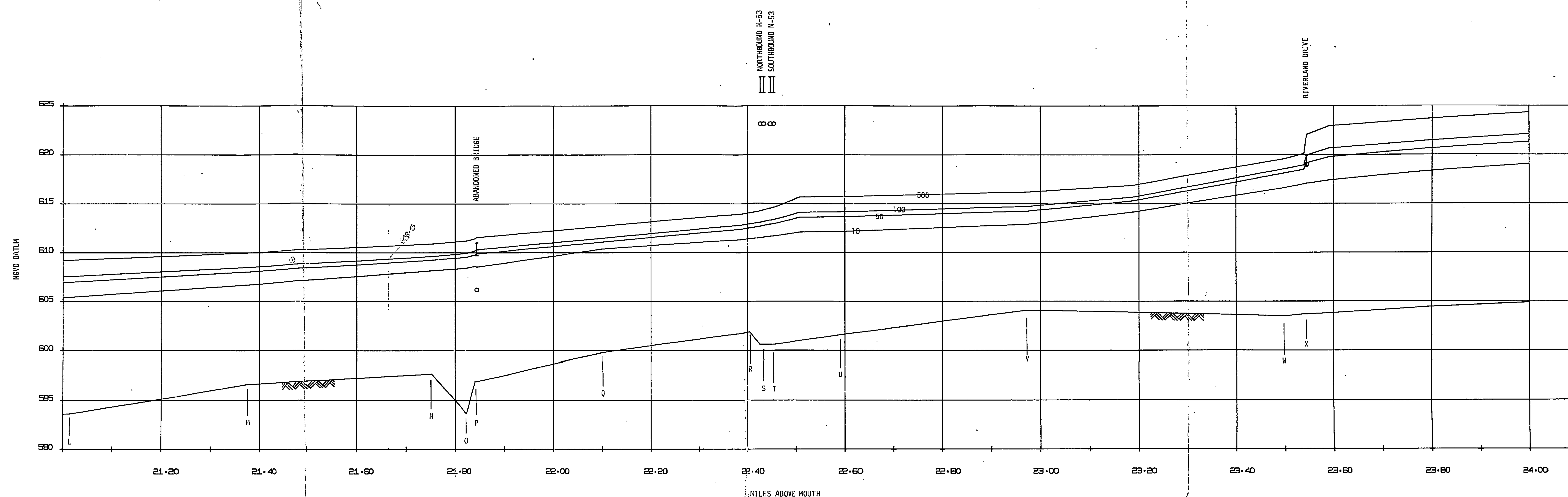
SCALE: 1" = 500'

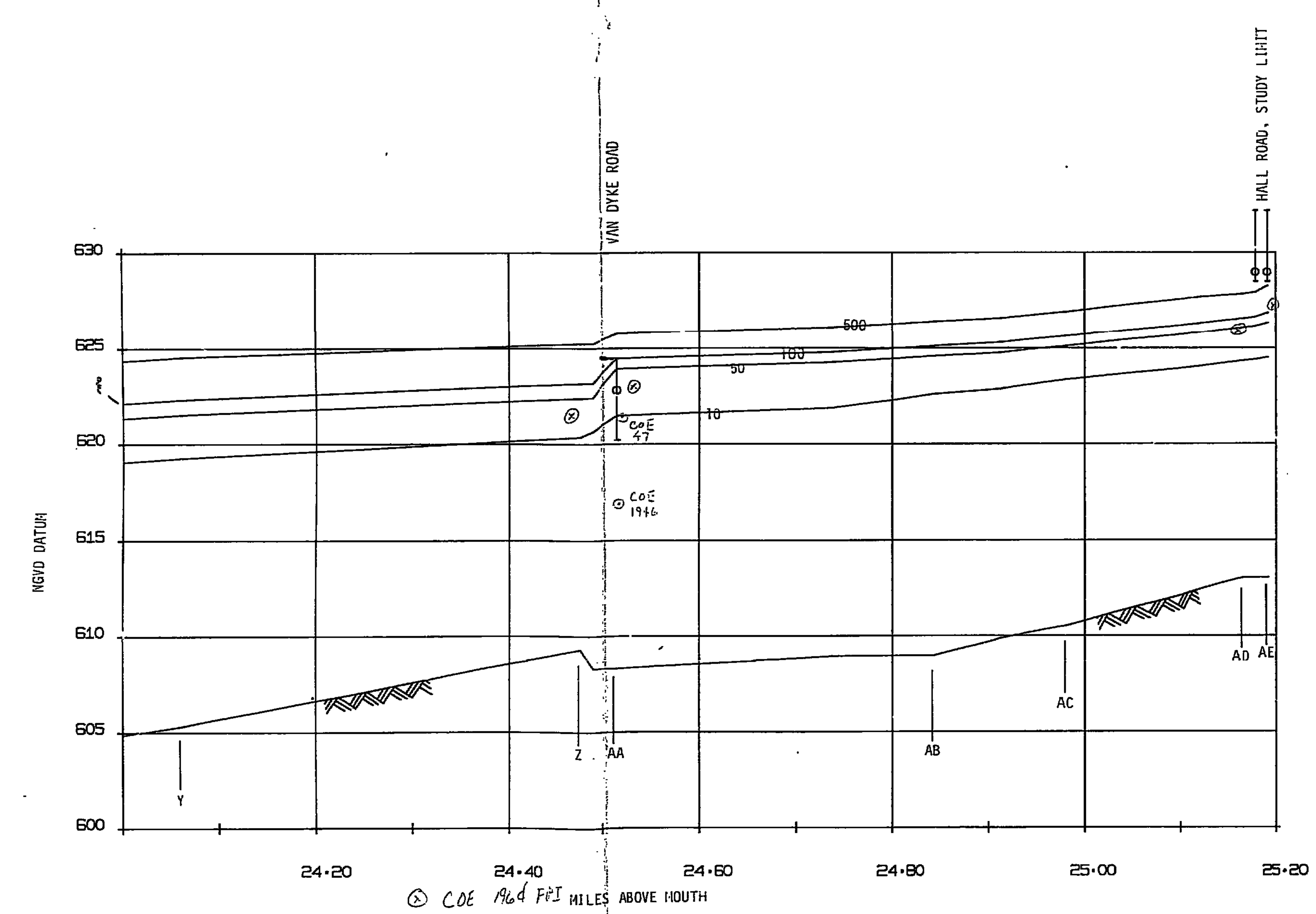
— INDICATES
100 YEAR
ENCROACHED
FLOODWAY

NORTH

— INDICATES
100 YR
NATURAL
FLOODWAY







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JOHNSON & ANDERSON, INC.
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PONTIAC, MICHIGAN

CLINTON RIVER

CITY OF STERLING HEIGHTS
FLOOD INSURANCE STUDY
PROJECT MANAGER - WILLIAM C. ROSSOW

SCALE: VERT. 1" = 5'
HORIZ. 1" = 0.1 MI.

JOB NO. 5670-10
DATE ISSUED 8-18-77
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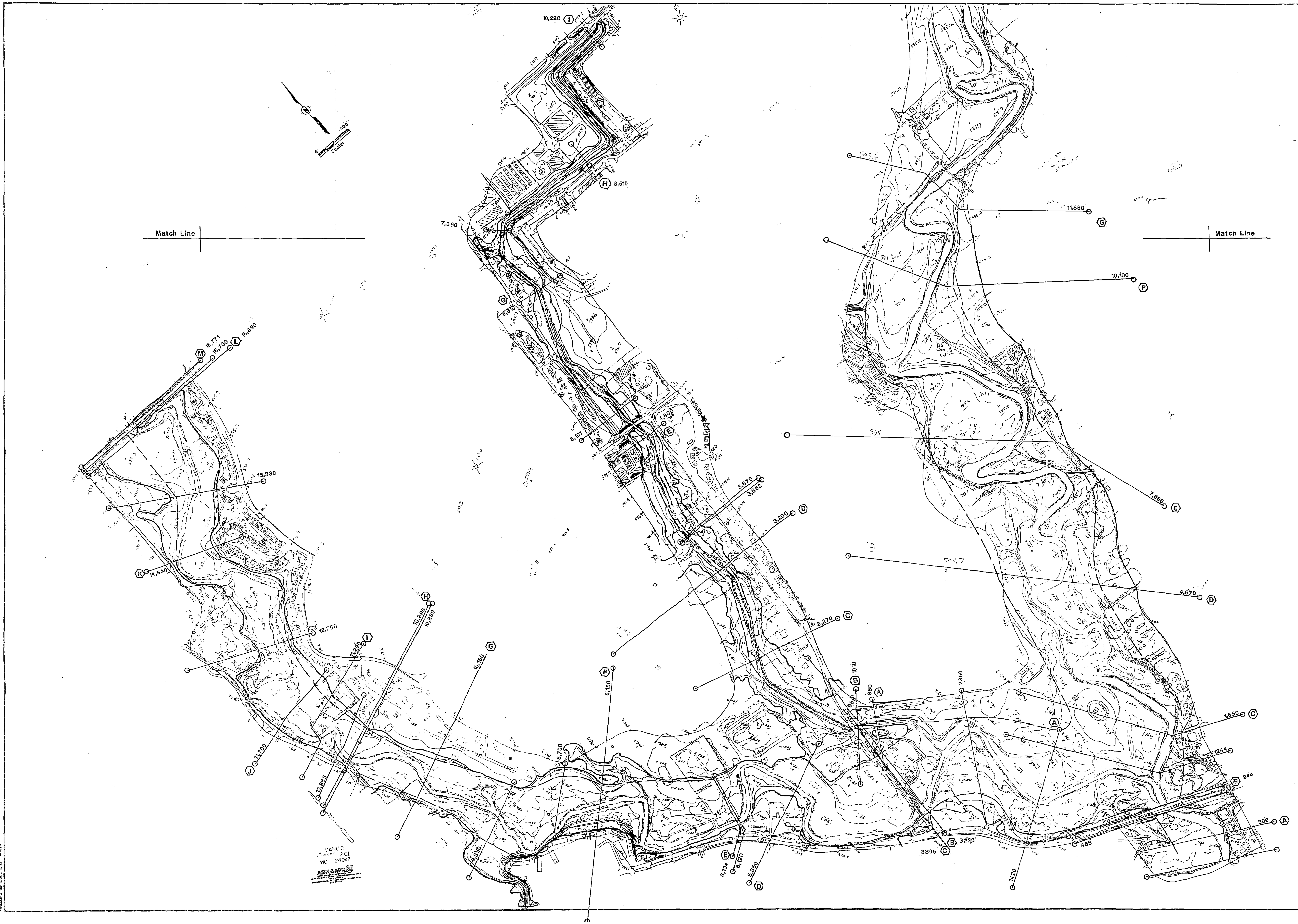

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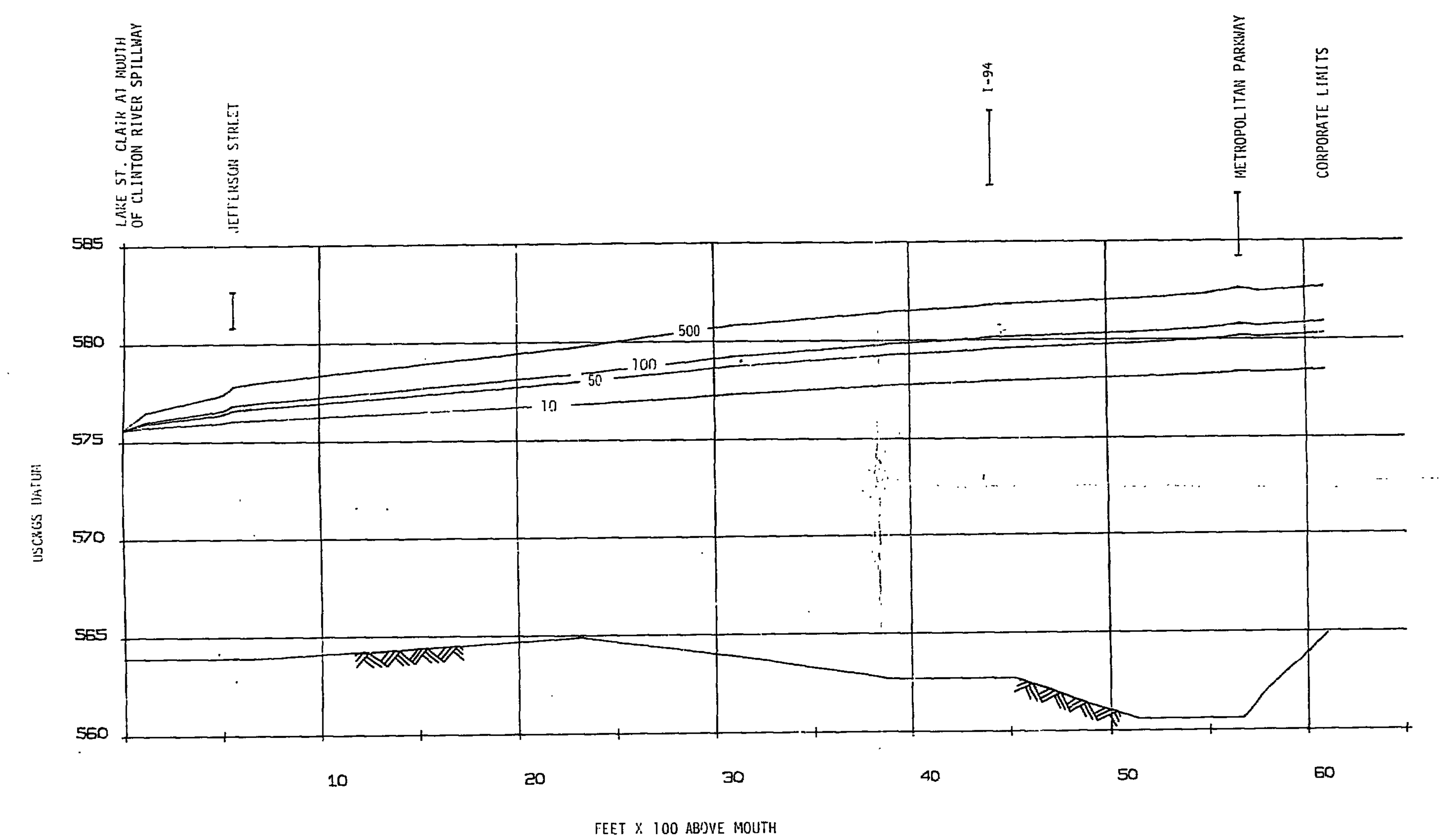
FLOOD INSURANCE STUDY
WORK MAP
CLINTON TOWNSHIP,
MACOMB COUNTY, MICHIGAN.

STS Consultants Ltd.
Consulting Engineers

STS PROJECT NUMBER	718681
STS PROJECT FILE	
SCALE	1" = 400'
SHEET NUMBER	2 OF 2



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REVISIONS	MARK	BULLETIN	DATE	MARK	BULLETIN	DATE	MARK	BULLETIN	DATE

JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS
PONTIAC, MICHIGAN

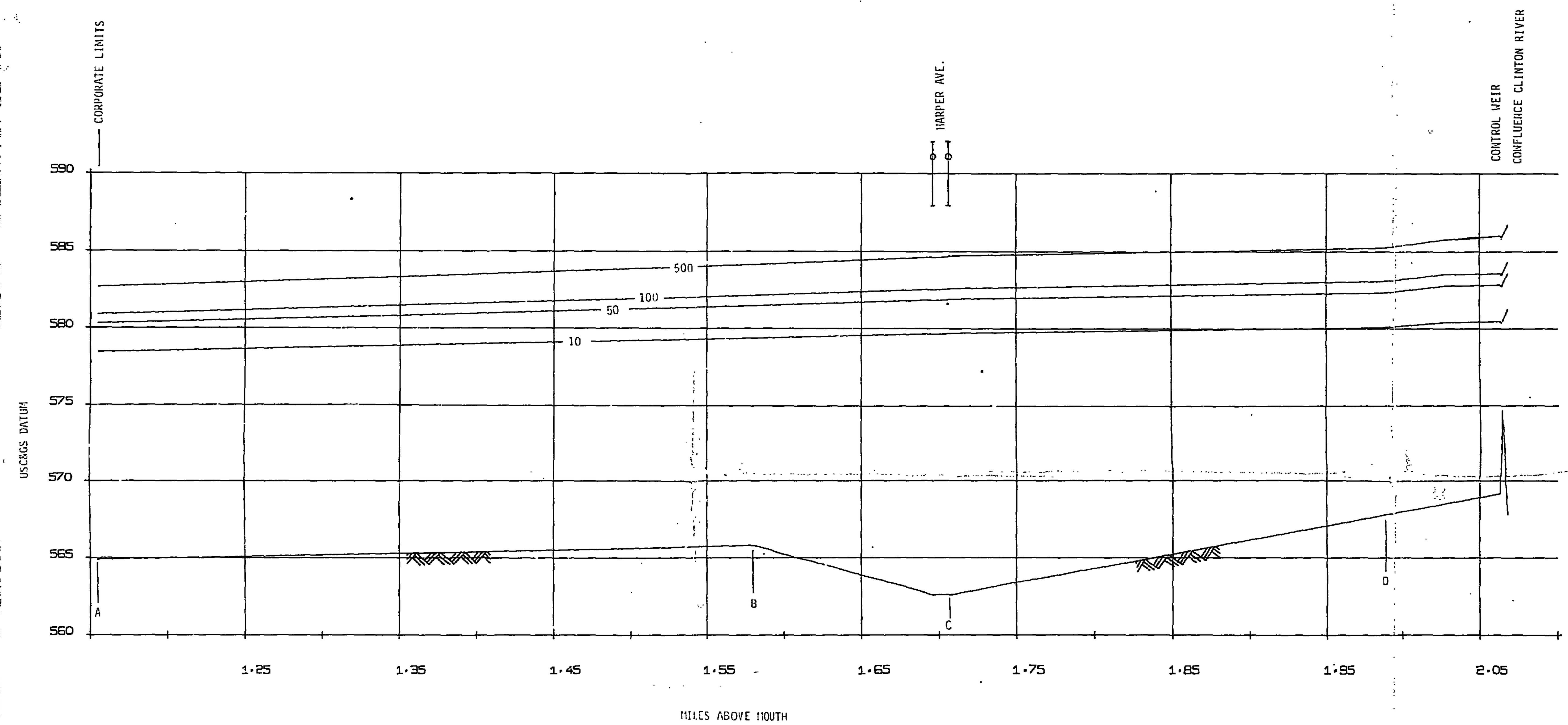
NOTE: INFORMATION ON THIS SHEET COMES IN PART FROM THE HARRISON TOWNSHIP FLOOD INSURANCE STUDY, DETROIT DISTRICT, U.S. ARMY CORPS OF ENGINEERS

SCALE: VERT. 1" = 5'
HORIZ. 1" = 500'

CLINTON TOWNSHIP FLOOD INSURANCE STUDY
CLINTON RIVER SPILLWAY
PROJECT MANAGER - WILLIAM C. ROSSOW

JOB NO. 5670-02
DATE ISSUED 5-11-77
SHEET NO. 1

6 of 10



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WATER MANAGEMENT

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REVISIONS	MARK	BULLETIN	DATE	MARK	BULLETIN	DATE	MARK	BULLETIN	DATE

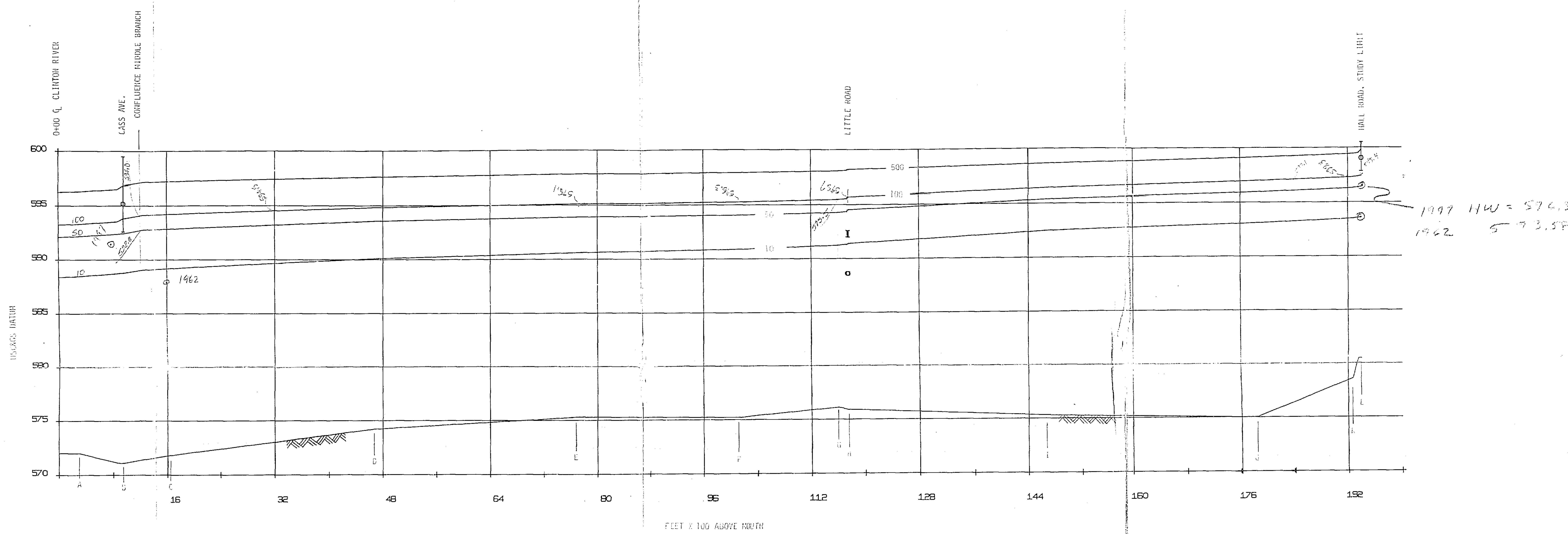
SCALE: VERT. 1" = 5'
HORIZ. 1" = .05 MI

JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS
PONTIAC, MICHIGAN

CLINTON TOWNSHIP FLOOD INSURANCE STUDY
CLINTON RIVER SPILLWAY
PROJECT MANAGER - WILLIAM C. ROSSOW

JOB NO. 5670-02
DATE ISSUED 5-11-77
SHEET NO. 2

7 of 10



Rev. 8-11-77

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DESIGN:
CHECKED:
DATE COMPLETED:
FINAL:
PRELIMINARY:

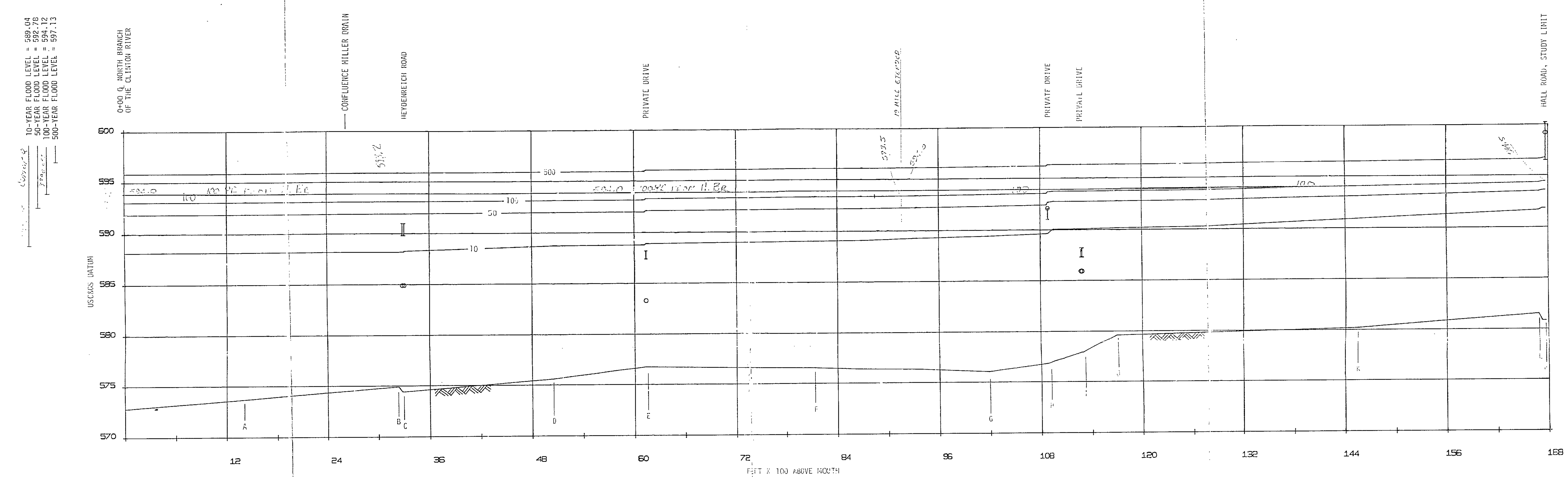
SCALE: VERT. 1" = 5'
HORIZ. 1" = 800'

REVISIONS	MARK	BULLETIN	DATE	MARK	BULLETIN	DATE	MARK	BULLETIN	DATE

JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS
PONTIAC, MICHIGAN

CLINTON TOWNSHIP FLOOD INSURANCE STUDY
NORTH BRANCH OF THE CLINTON RIVER
PROJECT MANAGER - WILLIAM C. ROSSOW

JOB NO. 5670-02
DATE ISSUED 5-13-77
SHEET NO. 1



NOTE: IN THE FINAL REPORT, NORTH BRANCH OF THE CLINTON RIVER FLOOD ELEVATIONS WILL BE EXTENDED HORIZONTALLY UNTIL THE CORRESPONDING MIDDLE BRANCH PROFILES ARE INTERSECTED.
(594.08 CONFL.)

Rev. 8-11-77

SCALE: VERT. 1" = 5'
HORIZ. 1" = 600'

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DATE COMPLETED:
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PRELIMINARY:

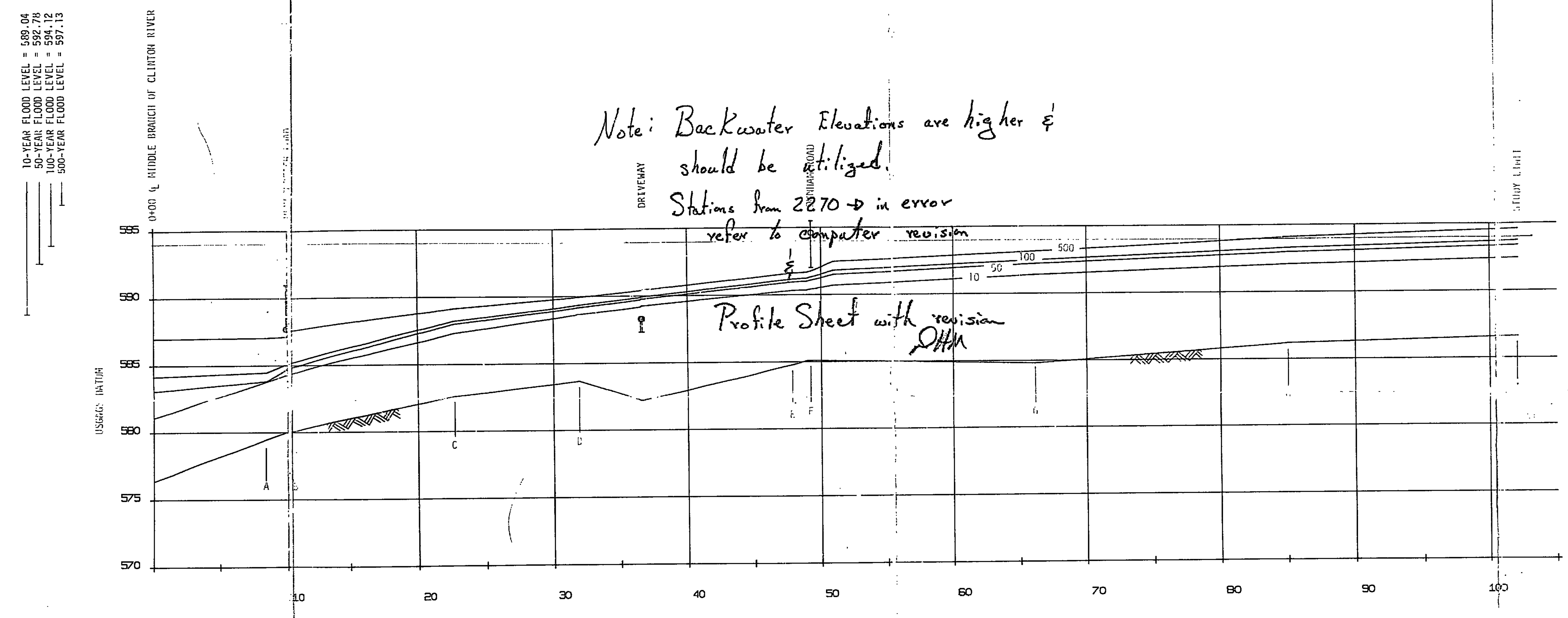
REVISIONS	MARK	BULLETIN	DATE	MARK	BULLETIN	DATE	MARK	BULLETIN	DATE

JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS
PONTIAC, MICHIGAN

CLINTON TOWNSHIP FLOOD INSURANCE STUDY
MIDDLE BRANCH OF THE CLINTON RIVER
PROJECT MANAGER - WILLIAM C. ROSSOW

JOB NO. 5670-02
DATE ISSUED 5-13-77
SHEET NO. 1

9 of 10



Note: Backwater Elevations are higher & should be utilized.
Stations from 2270 → in error refer to computer revision
Profile Sheet with revision
DHM

NOTE: IN THE FINAL REPORT, NORTH BRANCH OF THE CLINTON RIVER FLOOD ELEVATIONS WILL BE EXTENDED HORIZONTALLY UNTIL THE CORRESPONDING MILLER DRAIN PROFILES ARE INTERSECTED.

Rev. 8-11-77

SCALE: VERT. 1" = 5'
HORIZ. 1" = 500'

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REVISIONS	MARK	BULLETIN	DATE	MARK	BULLETIN	DATE	MARK	BULLETIN	DATE

JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS
PONTIAC, MICHIGAN

CLINTON TOWNSHIP FLOOD INSURANCE STUDY
MILLER DRAIN
PROJECT MANAGER - WILLIAM C. ROSSOW

JOB NO. 5670-02
DATE ISSUED 5-13-77
SHEET NO. 1

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Harrison Twp

3) WATERCOURSE: Clinton River & Spillway

4) DOCUMENT TYPE: ANAlysis

00BREAK00

HUBBELL, ROTH & CLARK INC • CONSULTING ENGINEERS

SHEET 1 OF 3

DATE 4-22 76

J.F.C

SUBJECT HARRISON TWP. E.I.S.

"n" FACTOR

DETAIL (CLINTON RIVER)

JOB NO.

old DATA from Corps

overbank ... not ... [illegible] ... by ... natural flow

CHANNEL		1	2	3	4	5	n_s	6			7
								MEANDER			
NO.		BASE CHANNEL	SURF. IRREG.	SHAPE & SIZE X-SEC.	OBSTR.	VEGET.	Σ 1 TO 5	l_m / l_s / $l_m \div l_s$	MOD. VALUE	$m_6 \times n_s$	$n_s + 6$ / n
*0+00	CH.	0.020	0.000	0.000	0.000	0.005	0.025			THIS VALUE AS CALCULATED = 0.00	0.025
	R.OB.	0.020	"	"	0.010	0.010	0.040				0.040
	L.OB	0.020	[illegible]	"	0.010	0.010	0.040				0.040
*39+80	CH.	0.020	0.000	0.000	0.000	0.005	0.025				0.025
	R.OB.	0.020	"	"	0.010	0.010	0.040				0.040
	L.OB.	0.020	"	"	0.010	0.010	0.040				0.040
*47+30	CH.	0.020	0.000	0.000	0.000	0.005	0.025				0.025
	R.OB.	0.020	"	"	0.010	0.010	0.040				0.040
	L.OB.	0.020	"	"	0.010	0.010	0.040				0.040
*68+40	CH.	0.020	0.000	0.000	0.000	0.005	0.025				0.025
	R.OB.	0.020	"	"	"	0.020	0.040				0.040
	L.OB.	0.020	"	"	"	0.020	0.040				0.040
*74+70	CH.	0.020	0.000	0.000	0.000	0.005	0.025				0.025
	R.OB.	0.020	"	"	"	0.020	0.040				0.040
	L.OB.	0.020	"	"	"	0.020	0.040				0.040
*83+40	CH.	0.020	0.000	0.000	0.000	0.005	0.025				0.025
	R.OB.	0.020	"	"	"	0.020	0.040				0.040
	L.OB	0.020	"	"	"	0.020	0.040				0.040
*96+40	CH.	0.020	0.000	0.000	0.000	0.005	0.025				0.025
	R.OB.	0.020	"	"	0.010	0.010	0.040				0.040
	L.OB	0.020	"	"	0.020	0.010	0.050				0.050
*103+30	CH.	0.020	0.000	0.000	0.000	0.005	0.025				0.025
	R.OB.	0.020	"	"	0.010	0.010	0.040				0.040
	L.OB.	0.020	min 0.01 "	"	0.020	0.010	0.050				0.050

* ACTUAL & COMPUTER STATION — for a natural stream

** COMPUTER ONLY STATION

Low

SUBJECT

DETAIL

JOB NO.

CHANNEL No.		1 BASE CHANNEL	2 SURF. IRREG.	3 SHAPE & SIZE X-SEC.	4 OBSTR.	5 VEGET.	n_s Σ 1 TO 5	6 MEANDER l_m / l_s / $l_m \div l_s$	MOD. VALUE	$m_v \times n_s$	7 n_s+6 / n
* 106+40	CH.	0.020	0.000	0.000	0.000	0.005	0.025				0.025
	R.OB.	0.020	"	"	0.010	0.010	0.040				0.040
	L.OB.	0.020	"	"	0.020	0.010	0.050				0.050
* 130+90	CH.	0.020	0.000	0.000	0.000	0.005	0.025			THIS VALUE AS CALCULATED = 0.00	0.025
	R.OB	0.020	"	"	0.010	0.010	0.040				0.040
	L.OB	0.020	"	"	0.010	0.010	0.040				0.040
* 136+40	CH.	0.020	0.000	0.000	0.000	0.005	0.025				0.025
	R.OB.	0.020	"	"	0.010	0.010	0.040				0.040
	L.OB.	0.020	"	"	0.010	0.010	0.040				0.040
* 156+40	CH.	0.020	0.000	0.000	0.000	0.005	0.025				0.025
	R.OB.	0.020	"	"	0.010	0.010	0.040				0.040
	L.OB.	0.020	"	"	0.010	0.010	0.040				0.040
176+40 **174+22 **178+22 **178+58	CH.	0.020	0.000	0.000	0.000	0.005	0.025				0.025
	R.OB.	0.020	"	"	0.010	0.010	0.040				0.040
	L.OB.	0.020	"	"	0.010	0.010	0.040				0.040
178+40 **179+58	CH.	0.020	0.000	0.000	0.000	0.005	0.025				0.025
	R.OB	0.020	"	"	0.010	0.010	0.040				0.040
	L.OB.	0.020	"	"	0.010	0.010	0.040				0.040
* 202+00	CH.	0.020	0.000	0.000	0.000	0.005	0.025				0.025
	ROB	0.020	"	"	0.000	0.080	0.100				0.100
	L.OB.	0.020	"	"	0.000	0.010	0.030				0.030
* 214+10	CH.	0.020	0.000	0.000	0.000	0.005	0.025				0.025
	R.OB.	0.020	"	"	0.010	0.020	0.050				0.050
	L.OB.	0.020	"	"	0.010	0.010	0.040				0.040

* ACTUAL & COMPUTER STATION
** COMPUTER ONLY STATION

SUBJECT

DETAIL

JOB NO.

CHANNEL		1	2	3	4	5	n_s	6			7
								MEANDER			
No.		BASE CHANNEL	SURF. IRREG.	SHAPE & SIZE X-SEC.	OBSTR.	VEGET.	Σ 1 to 5	l_m / l_s / $l_m \div l_s$	MOD. VALUE	$m_v \times n_s$	$n_s + 6$ n
*238+40	CH.	0.020			0.000	0.010	0.030			THIS VALUE AS CALCULATED = 0.00	0.030
	R.OB	0.020			0.010	0.010	0.040				0.040
	L.OB	0.020			0.000	0.030	0.050				0.050
*264+20	CH.	0.020			0.000	0.005	0.025				0.025
	R.OB	0.020			0.010	0.010	0.040				0.040
	L.OB	0.020			0.000	0.020	0.040				0.040
*277+20	CH.	0.020			0.000	0.005	0.025				0.025
	R.OB	0.020			0.010	0.010	0.040				0.040
	L.OB	0.020			0.010	0.010	0.040				0.040
305+40 **300+75 **304+75 **306+20	CH.	0.020			0.000	0.005	0.025				0.025
	R.OB.	0.020			0.010	0.020	0.050				0.050
	L.OB.	0.020			0.010	0.010	0.040				0.040
307+60 **307+20	CH.	0.020			0.000	0.010	0.030				0.030
	R.OB.	0.020			"	0.050	0.070				0.070
	L.OB.	0.020			"	0.050	0.070				0.070
*326+10	CH.	0.020			0.000	0.010	0.030				0.030
	R.OB.	0.020			0.010	0.010	0.040				0.040
	L.OB	0.020			0.000	0.050	0.070				0.070

*ACTUAL & COMPUTER STATION

** COMPUTER ONLY STATION

HUBBELL, ROTH & CLARK, INC • CONSULTING ENGINEERS

SHEET 1 OF 1
DATE 4-23 19 76
BY J.F.C.
CK
JOB NO
ACC

SUBJECT HARRISON TWP. F.I.S.
CLINTON RIVER SPILLWAY
DETAIL "n" VALUES FROM FIELD INVESTIGATION

n Data from Corps

CHANNEL No.		1 BASE CHANNEL	2 SURF. IRREG.	3 SHAPE & SIZE X-SEC.	4 OBSTR.	5 VEGET.	n_s Σ 1 TO 5	6 MEANDER l_m / l_s / $l_m \div l_s$	6 MEANDER MOD. VALUE	6 MEANDER $MV \times n_s$	7 $n_s + 6$ n
*0+00	CH.	0.020	0.005	0.000	0.000	0.000	0.025				0.025
	L. OB	0.020	0.005	"	"	0.005	0.030				0.030
	R. OB.	0.020	0.005	"	"	0.005	0.030				0.030
5+40 **1+21 **6+54 **5+21 **5+59	CH.	0.020	0.005	"	"	0.000	0.025				0.025
	L. OB.	0.020	0.005	"	"	0.005	0.030				0.030
	R. OB.	0.020	0.005	"	"	0.005	0.030				0.030
*23+00	CH.	0.020	0.005	0.000	0.000	0.000	0.025				0.025
	L. OB.	"	"	"	"	0.005	0.030				0.030
	R. OB.	"	"	"	"	0.005	0.030				0.030
40+80 **38+80 **45+16 **42+80 **44+16	CH.	0.020	0.005	0.000	0.000	0.000	0.025				0.025
	L. OB.	"	"	"	"	0.005	0.030				0.030
	R. OB.	"	"	"	"	0.005	0.030				0.030
53+50 **51+33 **55+33 **56+66	CH.	0.020	0.005	0.000	0.000	0.000	0.025				0.025
	L. OB.	"	"	"	"	0.005	0.030				0.030
	R. OB.	"	"	"	"	0.005	0.030				0.030
58+00 **57+66 **63+00	CH.	0.020	0.005	0.000	0.000	0.000	0.025				0.025
	L. OB.	"	"	"	"	0.005	0.030				0.030
	R. OB.	"	"	"	"	0.005	0.030				0.030

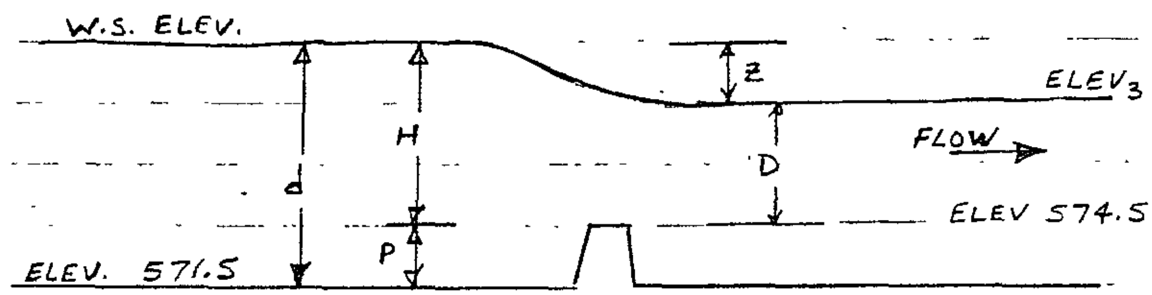
THIS VALUE AS CALCULATED = 0.00

* ACTUAL & COMPUTER STATION
** COMPUTER ONLY STATION

old Data from CORPS

HARRISON TWP. FLOOD INSURANCE STUDY

Head loss computations for flows over Spillway weir



Loss computed by BAZIN'S FORMULA:

$$Q = L H^{3/2} \underbrace{\left(3.248 + \frac{.079}{H}\right)\left(1 + .55\frac{H^2}{d^2}\right)}_{\text{Bazin Coef}} \left(1.05 + .21\frac{D}{P}\right) \sqrt[3]{\frac{Z}{H}}$$

$$\left(\frac{Z}{H}\right)^{3/2}$$

L = width of weir = 216 ft

$P = 574.5 - 571.5 = 3.0$ ft

$D = ELEV_3 - 574.5$

$H = D + Z$

$d = H + P$

All elevations in U.S.G.S. Elevations **Exhibit B-3 (cont'd)**

11 May. 76
P.M.

D

Given

I $Q = 4300$ c.f.s.

$ELEV_3 = 575.94$ $D = 575.94 - 574.5 = 1.44$ ft. $P = 3.0$

(a) Assume $Z = 1.5$

Then $H = D + Z = 2.94$

$d = H + P = 2.94 + 3.0 = 5.94$

$$Q = (216)(2.94)^{3/2}\left(3.245 + \frac{.079}{2.94}\right)\left(1 + .55\frac{H^2}{d^2}\right)\left(1.05 + .21\frac{D}{P}\right)\sqrt[3]{\frac{Z}{H}}$$

$= (216)(5.044)(3.275)(1.135)(1.151)(.799) = 3724$ cfs

Too low

(b) Assume $Z = 1.6$

Then $H = 3.04$ $d = 6.04$

$Q = (216)(5.304)(3.274)(1.139)(1.151)(.807) = 3968$ cfs

Too low.

c) Assume $Z = 1.8$

Then $H = 3.24$ $d = 6.24$

$Q = (216)(5.832)(3.272)(1.148)(1.151)(0.822) = 4476$

too high

d) Assume $Z = 1.75$

Then $H = 3.19$ $d = 6.19$

$Q = (216)(5.697)(3.273)(1.146)(1.151)(0.818) = 4345$

OK

Upstream W.S. Elev. = 577.69

Exhibit B-3 (cont'd)

② 12. May 76
P.M.

Given

II $Q = 6300$ cfs.

$ELEV_3 = 577.21$, $D = 577.21 - 574.5 = 2.71$ $P = 3.0$

a) Assume $Z = 1.4$

Then $H = D + Z = 2.71 + 1.4 = 4.11$

$d = H + P = 4.11 + 3.0 = 7.11$

$$Q = L H^{3/2}\left(3.248 + \frac{.079}{H}\right)\left(1 + .55\frac{H^2}{d^2}\right)\left(1.05 + .21\frac{D}{P}\right)\sqrt[3]{\frac{Z}{H}}$$

$$Q = (216)(4.11)^{3/2}\left(3.248 + \frac{.079}{4.11}\right)\left(1 + .55\frac{4.11^2}{7.11^2}\right)\left(1.05 + .21\frac{2.71}{3.0}\right)\left(\frac{1.4}{4.11}\right)^{1/3}$$

$= 216 \times 8.332 \times 3.267 \times 1.184 \times 1.240 \times .699 = 6034$ cfs.

Too low

b) Assume $Z = 1.5$

Then $H = D + Z = 2.71 + 1.5 = 4.21$

$d = H + P = 4.21 + 3 = 7.21$

$$Q = 216\,(4.21)^{3/2}\left(3.248 + \frac{.079}{4.21}\right)\left(1 + .55\frac{4.21^2}{7.21^2}\right)\left(1.05 + .21\frac{2.71}{3.0}\right)\left(\frac{1.5}{4.21}\right)^{1/3}$$

$= 216 \times 8.640 \times 3.267 \times 1.188 \times 1.240 \times 0.709 = 6367$

too high

c) Assume $Z = 1.48$

Then $H = D + Z = 2.71 + 1.48 = 4.19$

$d = H + P = 4.19 + 3.0 = 7.19$

$$Q = 216\,(4.19)^{3/2}\left(3.248 + \frac{.079}{4.19}\right)\left(1 + .55\frac{4.19^2}{7.21^2}\right)\left(1.05 + .21\frac{2.71}{3.0}\right)\left(\frac{1.48}{4.19}\right)^{1/3}$$

$= 216 \times 8.577 \times 3.267 \times 1.186 \times 1.240 \times 0.707 = 6293$

OK

Upstream W.S. Elev. = 578.69

Exhibit B-3 (cont'd)

③

15 May 76
P.M.

Given:

III $Q = 10,300$ cfs.

Elev. $= 579.32$, $D = 579.32 - 574.5 = 4.82$ $\quad P = 3.0$

a) Assume $Z = 1.3$

Then $H = D + Z = 4.82 + 1.3 = 6.12$

$d = H + P = 6.12 + 3.0 = 9.12$

$$Q = LH^{3/2}\left(3.248 + \frac{.079}{H}\right)\left(1 + .55\frac{H^2}{d^2}\right)\left(1.05 + .21\frac{D}{P}\right)\sqrt[3]{\frac{Z}{H}}$$

$$Q = (216)(6.12)^{3/2}\left(3.248 + \frac{.079}{6.12}\right)\left(1 + .55\frac{\overline{6.12}^2}{\overline{9.12}^2}\right)\left(1.05 + .21\frac{4.82}{3.0}\right)\left(\frac{1.3}{6.12}\right)^{1/3}$$

$216 \times 15.143 \times 3.261 \times 1.245 \times 1.387 \times 0.596 = 10,819$

too high

b) Assume $Z = 1.0$

Then $H = D + Z = 4.82 + 1.0 = 5.82$

$d = H + P = 5.82 + 3.0 = 8.82$

$$Q = 216(5.82)^{3/2}\left(3.248 + \frac{.079}{5.82}\right)\left(1 + .55\frac{\overline{5.82}^2}{\overline{8.82}^2}\right)\left(1.05 + .21\frac{4.82}{3.0}\right)\left(\frac{1.0}{5.82}\right)^{1/3}$$

$= 216 \times 14.032 \times 3.262 \times 1.239 \times 1.387 \times 0.555 = 9430$

too low

c) Assume $Z = 1.18$

Then $H = D + Z = 4.82 + 1.18 = 6.00$

$d = H + P = 6.00 + 3.0 = 9.00$

$Q = 216 \times 14.685 \times 3.261 \times 1.244 \times 1.387 \times 0.585 = 10,443$

too high

d) Assume $Z = 1.17$ Then $H = 4.82 + 1.17 = 5.99$

$d = 5.99 + 3.0 = 8.99$

$Q = 216 \times 14.652 \times 3.261 \times 1.244 \times 1.387 \times 0.582 = 10364$ ok

Upstream W.S. Elev. $= 580.49$

Exhibit B-3 (cont'd)

15 May 76
P.M.

(4)

Given:

IV $Q = 13{,}000$

Elev.3 = 580.91 $D = 580.91 - 574.5 = 6.41$ $P = 3.0$

a) Assume $Z = 0.80$

Then $H = D + Z = 6.41 + 0.80 = 7.21$

$d = H + P = 7.21 + 3.0 = 10.21$

$$Q = L H^{3/2}\left(3.248 + \frac{.079}{H}\right)\left(1 + .55\frac{H^2}{d^2}\right)\left(1.05 + .21\frac{D}{P}\right)\sqrt[3]{\frac{Z}{H}}$$

$$Q = 216(7.21)^{3/2}\left(3.248 + \frac{.079}{7.21}\right)\left(1 + .55\frac{7.21^2}{10.21^2}\right)\left(1.05 + .21\frac{6.41}{3.0}\right)\left(\frac{0.80}{7.21}\right)^{1/3}$$

$= 216 \times 19.357 \times 3.257 \times 1.274 \times 1.499 \times 0.481 = 12{,}518$

too low

b) Assume $Z = 0.85$

Then $H = D + Z = 6.41 + 0.85 = 7.26$

$d = H + P = 7.26 + 3.0 = 10.26$

$$Q = 216(7.26)^{3/2}\left(3.248 + \frac{.079}{7.26}\right)\left(1 + .55\frac{7.26^2}{10.26^2}\right)\left(1.05 + .21\frac{6.41}{3.0}\right)\left(\frac{0.85}{7.26}\right)^{1/3}$$

$= 216 \times 19.552 \times 3.259 \times 1.275 \times 1.499 \times 0.489 = 12{,}863$

too low

c) Assume $Z = 0.87$

Then $H = D + Z = 6.41 + 0.87 = 7.28$

$d = H + P = 7.28 + 3 = 10.28$

$$Q = 216(7.28)^{3/2}\left(3.248 + \frac{.079}{7.28}\right)\left(1 + 0.55\frac{7.28^2}{10.28^2}\right)\left(1.05 + .21\frac{6.41}{3.0}\right)\left(\frac{0.87}{7.28}\right)^{1/3}$$

$= 216 \times 19.639 \times 3.259 \times 1.276 \times 1.499 \times 0.493 = 13{,}036$

ok

Upstream W.S. Elev. = 581.78

Exhibit B-3 (cont'd)

⑤

15 May 76
P.M.

Given

V $Q = 17{,}300$ cfs.

$Elev._3 = 583.12$ $D = 583.12 - 574.5 = 8.62$ $P = 3.0$

a) Assume $Z = 0.60$

Then $H = D + Z = 8.62 + 0.60 = 9.22$

$d = H + P = 9.22 + 3.0 = 12.22$

$$Q = LH^{3/2}\left(3.245 + \frac{.079}{H}\right)\left(1 + .55\frac{H^2}{d^2}\right)\left(1.05 + .21\frac{D}{P}\right)\sqrt[3]{\frac{Z}{H}}$$

$$Q = 216 \times (9.22)^{3/2}\left(3.248 + \frac{.079}{9.22}\right)\left(1 + .55\frac{9.22^2}{12.22^2}\right)\left(1.05 + .21\frac{8.62}{3.0}\right)\left(\frac{0.60}{9.22}\right)^{1/3}$$

$$= 216 \times 27.984 \times 3.257 \times 1.313 \times 1.653 \times 0.403 = 17{,}220$$

too low

b) Assume $Z = 0.61$

Then $H = D + Z = 8.62 + 0.61 = 9.23$

$d = H + P = 9.23 + 3.0 = 12.23$

$$Q = 216 \times (9.23)^{3/2}\left(3.248 + \frac{.079}{9.23}\right)\left(1 + .55\frac{9.23^2}{12.23^2}\right)\left(1.05 + .21\frac{8.62}{3.0}\right)\left(\frac{0.61}{9.23}\right)^{1/3}$$

$$= 216 \times 28.04 \times 3.257 \times 1.313 \times 1.653 \times 0.404 = 17297$$

OK

Upstream W.S. Elev. = 583.73

Exhibit B-3 (cont'd)

(6)

15 May 76
P.M.

Given

VI $Q = 21,600$ c.f.s.

Water surface old computer run section 14

WS Elev.$_3$ = 585.07 $D = 585.07 - 574.5 = 10.57$ $P = 3.0$

HV = 1.24

Energy$_3$ 586.32

a) Assume $Z = 0.40$

Then $H = D + Z = 10.57 + 0.40 = 10.97$

$d = H + P = 10.97 + 3.0 = 13.97$

$$Q = LH^{3/2}\left(3.248 + \frac{.079}{H}\right)\left(1 + .55\frac{H^2}{d^2}\right)\left(1.05 + .21\frac{D}{P}\right)\left(\frac{Z}{H}\right)^{1/3}$$

$$Q = 216 \times (10.97)^{3/2}\left(3.248 + \frac{.079}{10.97}\right)\left(1 + .55\frac{10.97^2}{13.97^2}\right)\left(1.05 + .21\frac{10.57}{3.0}\right)\left(\frac{0.40}{10.97}\right)^{1/3}$$

$= 216 \times 36.33 \times 3.255 \times 1.339 \times 1.790 \times 0.330 = 20,203$

too low

b) Assume $Z = 0.45$

Then $H = D + Z = 10.57 + .45 = 11.02$

$d = H + P = 11.02 + 3.0 = 14.02$

$$Q = 216 \times (11.02)^{3/2}\left(3.248 + \frac{.079}{11.02}\right)\left(1 + .55\frac{11.02^2}{14.02^2}\right)\left(1.05 + .21\frac{10.57}{3.0}\right)\left(\frac{0.45}{11.02}\right)^{1/3}$$

$= 216 \times 36.59 \times 3.255 \times 1.340 \times 1.790 \times 0.344 = 21,226$

~~too low~~

OK

c) Assume $Z = 0.46$

Then $H = D + Z = 10.57 + 0.46 = 11.03$

$d = H + P = 11.03 + 3.0 = 14.03$

$$Q = 216 \times (11.03)^{3/2}\left(3.248 + \frac{.079}{11.03}\right)\left(1 + .55\frac{11.03^2}{14.03^2}\right)\left(1.05 + .21\frac{10.57}{3.0}\right)\left(\frac{0.46}{11.03}\right)^{1/3}$$

$= 216 \times 36.63 \times 3.255 \times 1.340 \times 1.790 \times 0.347 = 21,435$

too high

use $Z = 0.45$

Upstream W.S. Elev. = 585.52

Exhibit B-3 (cont'd)

The upstream section Sta 112+10 is identical to The D/S ~~section~~ sta 111+10.

Area D/S below 585.07 is 2413 sqft.

check VC = $\frac{21600}{2413}$ = 8.95 = output

~~Est~~ of upstream area =

$2413 + (.45)(1700) = 3178$

$Vel = \frac{21600}{3178} = 6.8$

$V^2/2g = .72$

upstream energy =

U/S WS Exhibit B-3	=	585.52
$V^2/2g$		.72
U/S Energy	=	586.24

586.32 D/S Energy

U/S EG can not be less than elev. 586.32 U.S.G.S.

15 May, 76
P.M.

Given

VII $Q = 26,600$ cfs. $D = 587.07 - 574.5 = 12.57$ $P = 3.0$
Elev 3 = 587.07

a) Assume $Z = 0.40$

Then $H = D + Z = 12.57 + 0.40 = 12.97$

$d = H + P = 12.97 + 3.0 = 15.97$

$$Q = LH^{3/2}\left(3.248 + \frac{.079}{H}\right)\left(1 + .55\frac{H^2}{d^2}\right)\left(1.05 + .21\frac{D}{P}\right)\left(\sqrt[3]{\frac{Z}{H}}\right)$$

$$Q = 216(12.97)^{3/2}\left(3.245 + \frac{.079}{12.97}\right)\left(1 + .55\overline{\frac{12.97}{15.97}}^2\right)\left(1.05 + .21\frac{12.57}{3.0}\right)\left(\frac{0.40}{12.97}\right)^{1/3}$$

$= 216 \times 46.94 \times 3.254 \times 1.363 \times 1.930 \times 0.314 = 27,252$
too high

b) Assume $Z = 0.38$

Then $H = D + Z = 12.57 + 0.38 = 12.95$

$d = H + P = 12.95 + 3.0 = 15.95$

$$Q = 216(12.95)^{3/2}\left(3.245 + \frac{.079}{12.95}\right)\left(1 + .55\overline{\frac{12.95}{15.95}}^2\right)\left(1.05 + .21\frac{12.57}{3.0}\right)\left(\frac{0.38}{12.95}\right)^{1/3}$$

$= 216 \times 46.62 \times 3.254 \times 1.363 \times 1.930 \times 0.307 = 26,635$
OK

Upstream W.S. Elev. = 587.45

DISCHARGE (CFS)	MORAVIAN GAGE HEIGHT (FT)	DIFFERENCE IN GAGE HEIGHTS (FT)	GAGE HGT. NEAR SPILLWAY (FT)	ELEVATION NEAR SPILLWAY (FT)
1,000	5.85	1.20	4.65	575.08
3,000	9.10	3.00	6.10	576.53
5,000	11.58	4.45	7.13	577.56
7,000	13.59	5.68	7.91	578.34
9,000	15.20	6.63	8.57	579.00
11,000	16.47	7.30	9.17	579.60
13,000	17.51	7.78	9.73	580.16
15,000	18.42	8.18	10.24	580.67

EXHIBIT B-2 Cont

old DATA from CORPS

Discharge

The Discharges used by our office for the Harrison Flood Insurance Study were obtained from the Corps of Engineers Detroit District office. The Corps prepared the hydrology report for the Clinton River and Clinton River Spillway, and this report was sent to the Department of Natural Resources dated June 8, 1976. A letter from the DNR's Roger B. Wallace, P. E. Chief, Hydrologic Studies Unit was sent to the Corps dated July 6, 1976 concurring with the flows as presented in the hydrology report, a copy of this letter is enclosed.

change in our views

Report 1947

$\frac{1}{5600} = 1.7857 \times 10^{-4}$ not

Method of Starting Computations

why ?

The slope area method was used for establishing the starting water surface on the Clinton River.

The starting slope was obtained from the Sheet B-1 of the Clinton River Flood Plain Information report dated August 1964. This slope is between section 2 and section 4 of the profile (Q=7000 cfs.) The starting water surfaces as calculated by the Hec. II backwater for the Clinton River were then used for the starting water surfaces for the Clinton River Spillway. why

How can this be when the 08/June 76 Letter Report indicates that at the auxilary gage rating curve show stage 1.0 to 1.2 ft above the stages shown in the FPI Report?

"n" Values

Roughness coefficients (Manning's n) for the Clinton River and Spillway were estimated by field inspection at each cross section. These roughness coefficients were determined by using the SCS method, see enclosed copy entitled "Preface, Supplement B Hydraulics", August 1, 1956. A table of "n" values for each stream is also enclosed.

why not check or obtain "n" from past flood events.

Structures

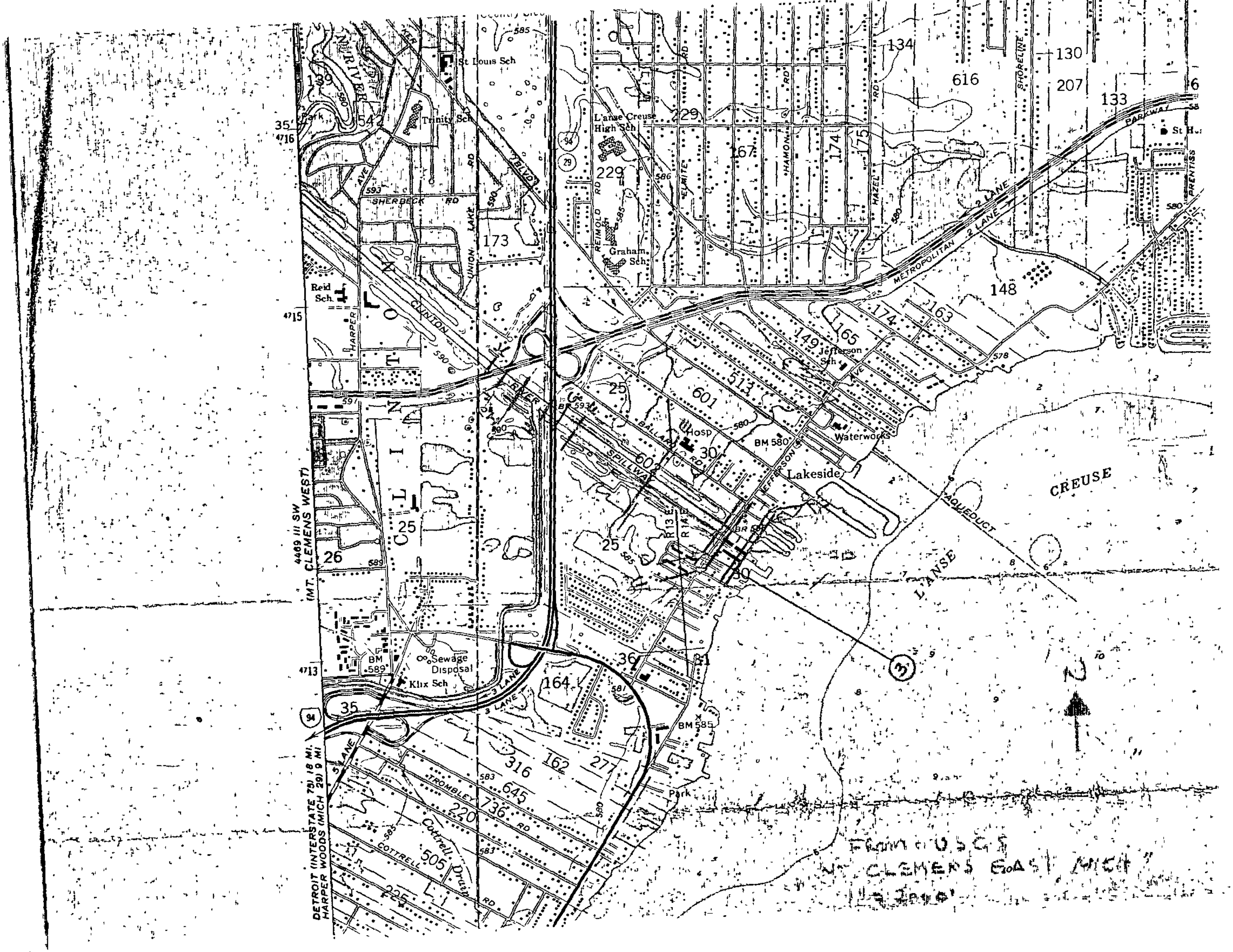
A sketch of each structure is included. Necessary calculations for the SB cards are also presented. Each bridge loss that was calculated by the HEC II program was checked long hand by methods described in Hydraulics of Bridge Waterways, Hydraulic Design Series No. 1. A table showing these results if included.

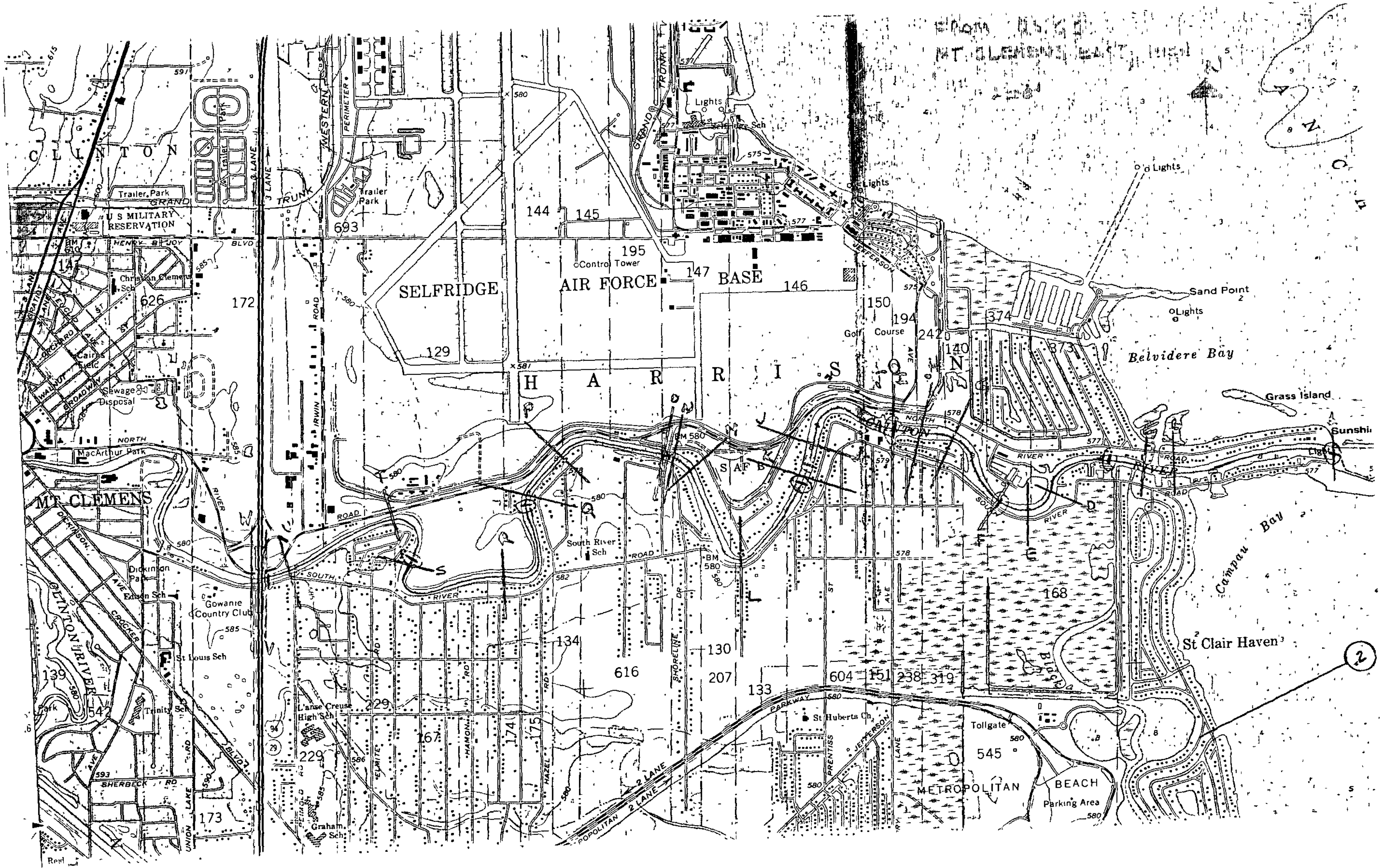
Coefficients

Expansion (0. 3) and Contraction (0. 1) coefficients were used for both watercourses. There are no abrupt changes in the channels and they are generally uniform.

Water Surface Profiles

The water surface profiles for the Clinton River and the Spillway can be found in the F. I. S. Preliminary Report, Exhibit 1. These profiles show a composite of the flooding that will occur from Lake St. Clair and the watercourses. The backwater from the lake is plotted until it intersects the river profile.


St Louis Sch
Trinity Sch
RIVER
Park
SHERBECK RD
UNION LAKE RD
BLVD
CLINTON
Reid Sch
HARPER
L'anse Creuse High Sch
REIMOLD RD
ELMITE RD
HAMON RD
HAZEL RD
SHORELINE
PRENTISS
Graham Sch
METROPOLITAN PARKWAY
2 LANE
Jefferson Sch
JEFFERSON AVE
BALLARD RD
SPILLWAY
Hosp
BM 580
Waterworks
Lakeside
AQUEDUCT
CREUSE
L'ANSE
Sewage Disposal
BM 589
Klix Sch
3 LANE
BM 585
Park
TROMBLEY RD
COTTRELL RD
Cottrell Drain
4469 III SW (MT. CLEMENS WEST)
DETROIT (INTERSTATE 75) 18 MI.
HARPER WOODS (MICH 29) 9 MI.
R 13 E
R 14 E
N
94
29
From USGS
Mt CLEMENS EAST, MICH
1968



CLINTON
Trailer Park
U S MILITARY RESERVATION
HENRY B JOY BLVD
Christian Clemens Sch
Cairns Field
Sewage Disposal
MacArthur Park
MT CLEMENS
Dickinson Park
Edison Sch
Gowanie Country Club
St Louis Sch
Trinity Sch
CLINTON RIVER
SHERBECK RD
UNION LAKE RD
GRAND TRUNK
WESTERN
PERIMETER
IRWIN ROAD
SELFRIDGE AIR FORCE BASE
Control Tower
Lights
Selfridge Sch
JEFFERSON
Golf Course
HARRISON
Old Lights
Sand Point
Belvidere Bay
Grass Island
NORTH RIVER ROAD
SOUTH RIVER ROAD
CLINTON RIVER
South River Sch
S A F B
SHORELINE DR
Campau Bay
St Clair Haven
Black Cr
L'anse Creuse High Sch
Graham Sch
HAZEL RD
HAMON RD
St Huberts Ch
PRENTISS
METROPOLITAN PARKWAY
2 LANE
Tollgate
METROPOLITAN BEACH
Parking Area
172
144
145
195
147
146
150
194
242
140
374
373
129
693
626
141
616
134
130
207
133
604
151
238
319
168
545
229
267
174
175
173
139
542
2

SPILLWAY

STATION LETTER	STATION FEET
A	0 + 00
B	1 + 21
C	5 + 21
D	5 + 59
E	23 + 00
F	38 + 80
G	42 + 80
H	44 + 16
I	51 + 33
J	55 + 33
K	56 + 66

CLINTON RIVER *No*

STATION LETTER	STATION FEET
A	0
B	39 + 80
C	47 + 30
D	68 + 40
E	74 + 70
F	83 + 40
G	96 + 40
H	103 + 30
I	106 + 40
J	130 + 90
K	136 + 40
L	156 + 40
M	174 + 22
N	178 + 22
O	178 + 58
P	202 + 00
Q	214 + 10
R	238 + 40
S	264 + 20
T	277 + 20
U	300 + 75
V	304 + 75
W	306 + 20

HUBBELL, ROTH & CLARK, INC • CONSULTING ENGINEERS

SHEET ____ OF ____
DATE 8 - 4 19 76
BY R. F. B.
CK.
JOB NO.
ACC. NO.

SUBJECT F. I. S. (FINAL)

DETAIL HARRISON TWP. data rec'd Aug 3, 1976
CLINTON RIVER

old DATA from CORPS

BRIDGE, STA	CONTROL	Q	YR.	HYDRAULICS OF BRIDGE WATERWAY H.W.	H.W. HEC II	DIFF
BRIDGEVIEW 178+58	OUTLET	8500	100	14.89	14.81	0.08
I-94 306+20	OUTLET	8500	100	14.52	14.43	0.09
		SPILLWAY	data	rec'd	Sept 3 1976	
JEFFERSON 5+59	OUTLET	19,000	100	14.85	14.68	0.17
I-94 44+16	OUTLET	19,000	100	19.45	19.37	0.08
METRO PARK 56+66	OUTLET	19,000	100	22.24	22.22	0.02

OK

HUBBELL, ROTH & CLARK, INC. • CONSULTING ENGINEERS

SHEET 1 OF 1

DATE 5-6 19 76

BY ABD

CK.

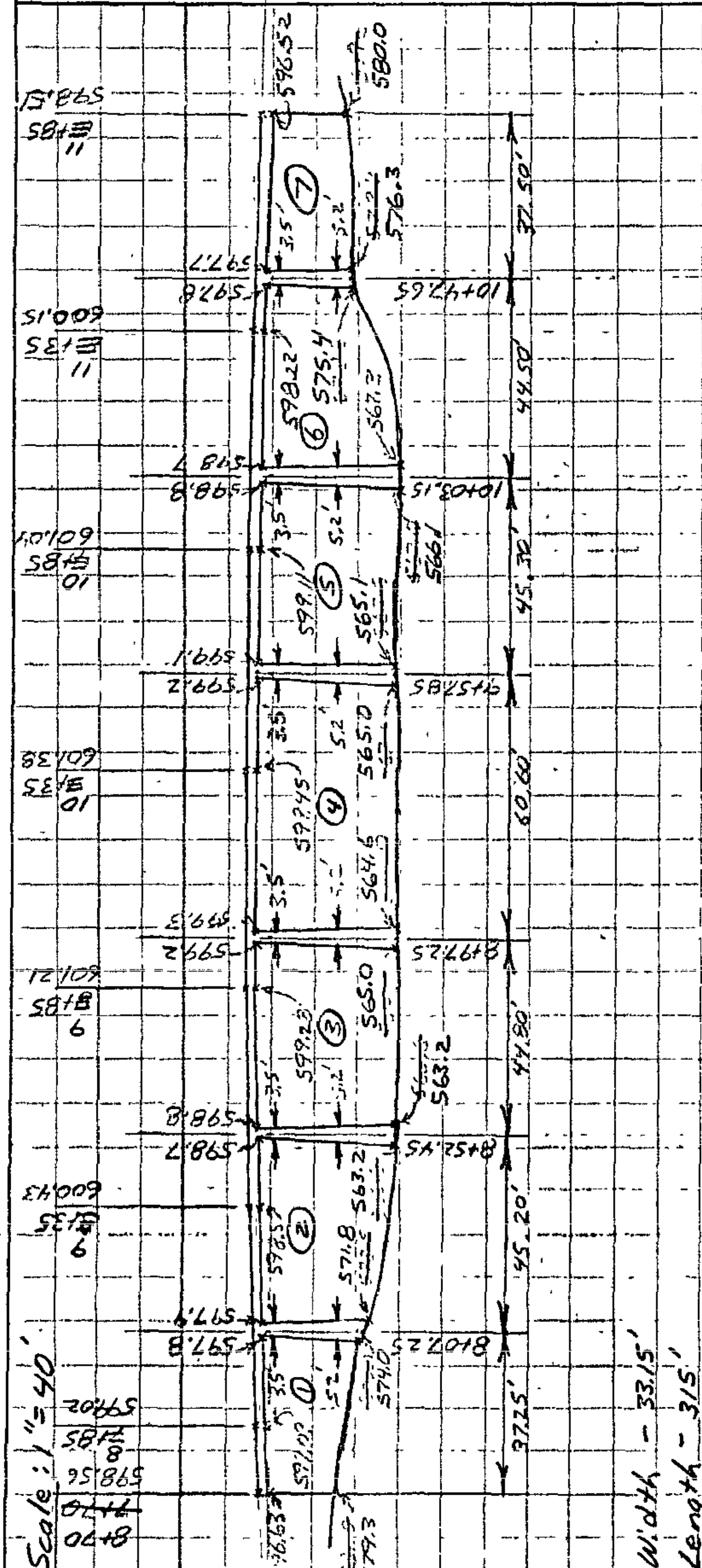
JOB NO. 74132

ACC. NO

SUBJECT Harrison Twp. F.I.S., Clinton River

DETAIL Bridge @ Bridgeview & River

Revised 5/10/76

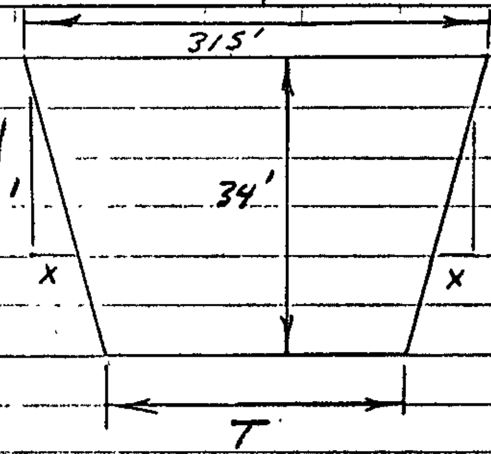


HUBBELL, ROTH & CLARK, INC · CONSULTING ENGINEERS

SUBJECT Harrison Twp. F.I.S., Clinton River	SHEET 1 OF 2
	DATE 5-13 19 76
	BY ABD
	CK.
DETAIL Bridgeview Rd. Bridge	JOB NO. 74132
	ACC. NO.

Total Loss Coefficient "k"

Intake	0.10 Lowest
Intermediate Piers	0.05
Friction	K_f
Exit Loss	1.0
	$1.15 + K_f$



Area ①

$= (.5)(17.33 + 23.8)(37.25) = 766.05$ Sq.Ft.

Area ②

$= (.5)(23.8 + 35.5)(45.20) = 1340.18$ Sq.Ft.

Area ③

$= (34.2)(44.80) = 1532.16$ Sq.Ft.

Area ④

$= (34.2)(60.60) = 2072.52$ Sq.Ft.

Area ⑤

$= (34)(45.30) = 1540.20$ Sq.Ft.

Area ⑥

$= (.5)(31.4 + 22.4)(44.50) = 1197.05$ Sq.Ft.

Area ⑦

$= (.5)(22.4 + 16.52)(37.50) = 729.75$ Sq.Ft.

∴ Total Area Of Bridge Opening − 9177.91 Sq.Ft.

Say 9178 Sq.Ft.

PIERS $(181')\left(\frac{3.5+5.2}{2}\right) = 787.35$ say 788 sf

$P_w = 315 + 17.33 + 16.52 + 38 + 47 + 45 + 60 + 45 + 59 + 38 + 181 = 861.85$ Lin.Ft.

$9178 - 788 = 8390$ sf = effective AREA

$A = \frac{1}{2}(b_1 + b_2)h \Rightarrow 8390 = \frac{1}{2}(315 + T)(34)$

$\therefore T = \left(8390 / (.5)(34)\right) - 315$

$= 178.5$

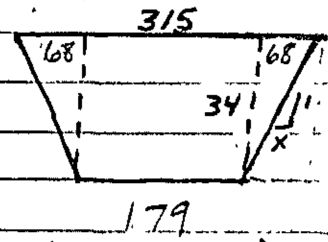
Say 179 Lin.Ft.

HUBBELL, ROTH & CLARK, INC. • CONSULTING ENGINEERS

SHEET 2 OF 2
DATE 5-13 19 76
BY ABD
CK.
JOB NO. 74132
ACC NO.

SUBJECT Harrison Twp. F.I.S., Clinton River

DETAIL Bridgeview Rd. Bridge



Slope = Rise / Run

$\frac{1}{x} = \frac{34}{68}$ ∴ $X = 68/34 = 2.0$

n (Concrete Piers) (181) (0.015) = 2.72
n (Concrete) (348.85)(0.015) = 5.23
n (Channel) (256)(0.025) = 6.4
n (Overbanks) (76)(0.04) = 3.04
861.85 17.39

n(Avg.) = 17.39 / 861.85 = 0.020
Say 0.020

$K_f = (29.1)(n^2)(L) / R^{4/3}$ $R = 8390/861.85 = 9.734$
$R^{4/3} = 20.78$

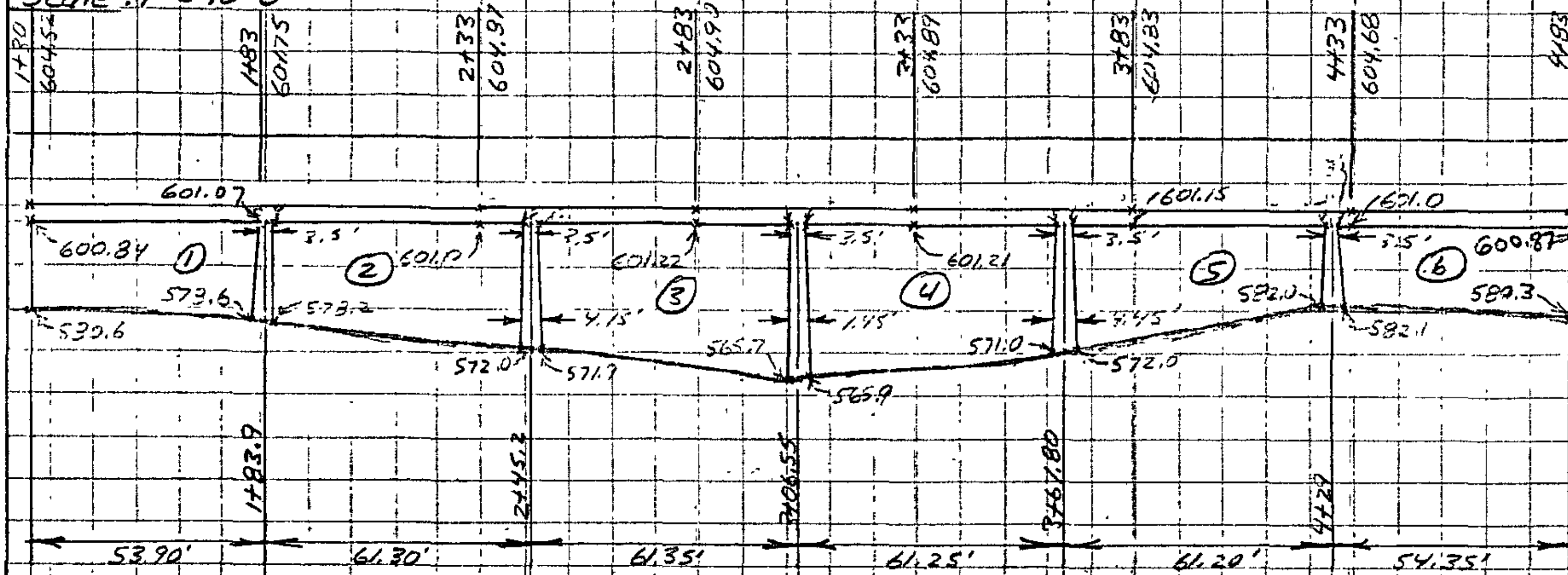
$= (29.1)(0.020)^2(33) / 20.78$
$= 0.01848$

"K" = 1.15 + K_f = 1.15 + 0.02 = 1.17

Card SB —

Field	1	1.25
	2	1.17
	3	2.5
	4	0.0
	5	~~117.0~~ 179.0
	6	27.6
	7	8390
	8	2.0
	9	0.0
	10	0.0

Scale: 1" = 40'-0"



Double Bridge -

	South Bound	North Bound
Width -	59.10'	50.88'
Length -	353'	353'

Distance Between Bridges - 34.90'

Dn. stream to Up Stream = 145'

HUBBELL, ROTH & CLARK, INC. • CONSULTING ENGINEERS

SUBJECT Harrison Twp. F.I.S., Clinton River

DETAIL Bridge @ I-94 & River

SHEET 1 OF 1

DATE 5-6 19 76

BY ABD

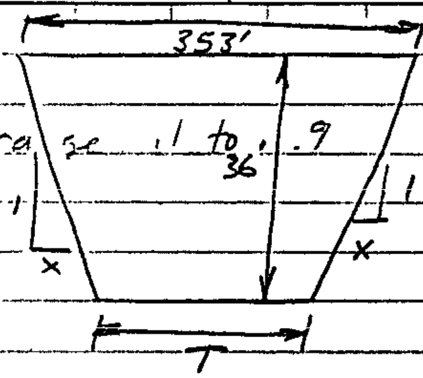
CK

JOB NO. 74132

ACC. NO.

HUBBELL, ROTH & CLARK, INC. • CONSULTING ENGINEERS

SHEET 1 OF 2
DATE 5-13 19 76
SUBJECT Harrison Twp. F.I.S., Clinton River
BY ABD
CK.
DETAIL I-94 Bridge
JOB NO. 74132
ACC NO.



Total Loss Coefficient "K"

Intake	0.10	[illegible] range .1 to .9
Intermediate Piers	0.05	
Friction	K_f	
Exit Loss	1.0	
	$1.15 + K_f$	

Area ①
$= (21.36)(53.90) = 1151.30$ Sq.Ft. $(20.24 + 22.47)/2 = 21.36$ (Avg.)

Area ②
$= (.5)(22.47 + 29.3)(61.30) = 1586.75$ Sq.Ft.

Area ③
$= (.5)(29.3 + 35.7)(61.35) = 1993.88$ Sq.Ft.

Area ④
$= (.5)(35.7 + 29.5)(61.25) = 1996.75$ Sq.Ft.

Area ⑤
$= (.5)(29.5 + 18.9)(61.20) = 1481.04$ Sq.Ft.

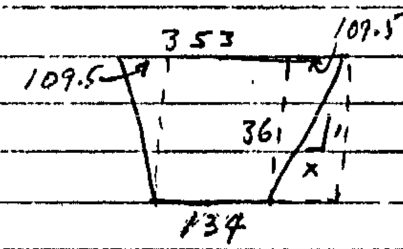
Area ⑥
$= (20.18)(54.35) = 1096.78$ Sq.Ft. $(18.9 + 21.45)/2 = 20.18$ (Avg.)

∴ Total Area Of Bridge Opening = 9306.5 Sq.Ft.
Piers $= (137')\left(\frac{3.5+4.45}{2}\right) = 544.5$ Net area $= 9306.5 - 544.5 = 8762.0$

$P_w = 353 + 20.24 + 21.45 + 53 + 63 + 62 + 61 + 62 + 55 + 137 = 887.69$

$R = 8762 / 887.69 = 9.87$
$R^{4/3} = 21.17$

$A = \frac{1}{2}(b_1 + b_2)h \Rightarrow 8762.0 = \frac{1}{2}(353 + T)(36)$



$\therefore T = (8762.0/(.5)(36)) - 353$
$= 133.73$

Say 134 Lin. Ft.

Slope = Rise/Run $1/x = 36/109.5$ $\therefore x = 109.5/36 = \underline{3.04}$

HUBBELL, ROTH & CLARK, INC. • CONSULTING ENGINEERS

SHEET 2 OF
DATE 5-13 19 76
BY ABD
CK.
JOB NO. 74132
ACC. NO.

SUBJECT Harrison Twp. F.I.S., Clinton River

DETAIL I-94 Bridge

n concrete (137) (0.015) = 2.06
n (Concrete) (394.69)(0.015) = 5.92
n (Channel) (226)(0.025) = 5.65
n (Overbanks) (130)(0.045) = 5.85
887.69 19.48

n (Avg.) = 19.48/887.69 = 0.0219
Say 0.022

$K_f = (29.1)(n^2)(L)/R^{4/3}$
$= (29.1)(0.022)^2(130)/21.174$
$= 0.086$

"K" = 1.15 + 0.09 = 1.24

Card SB —

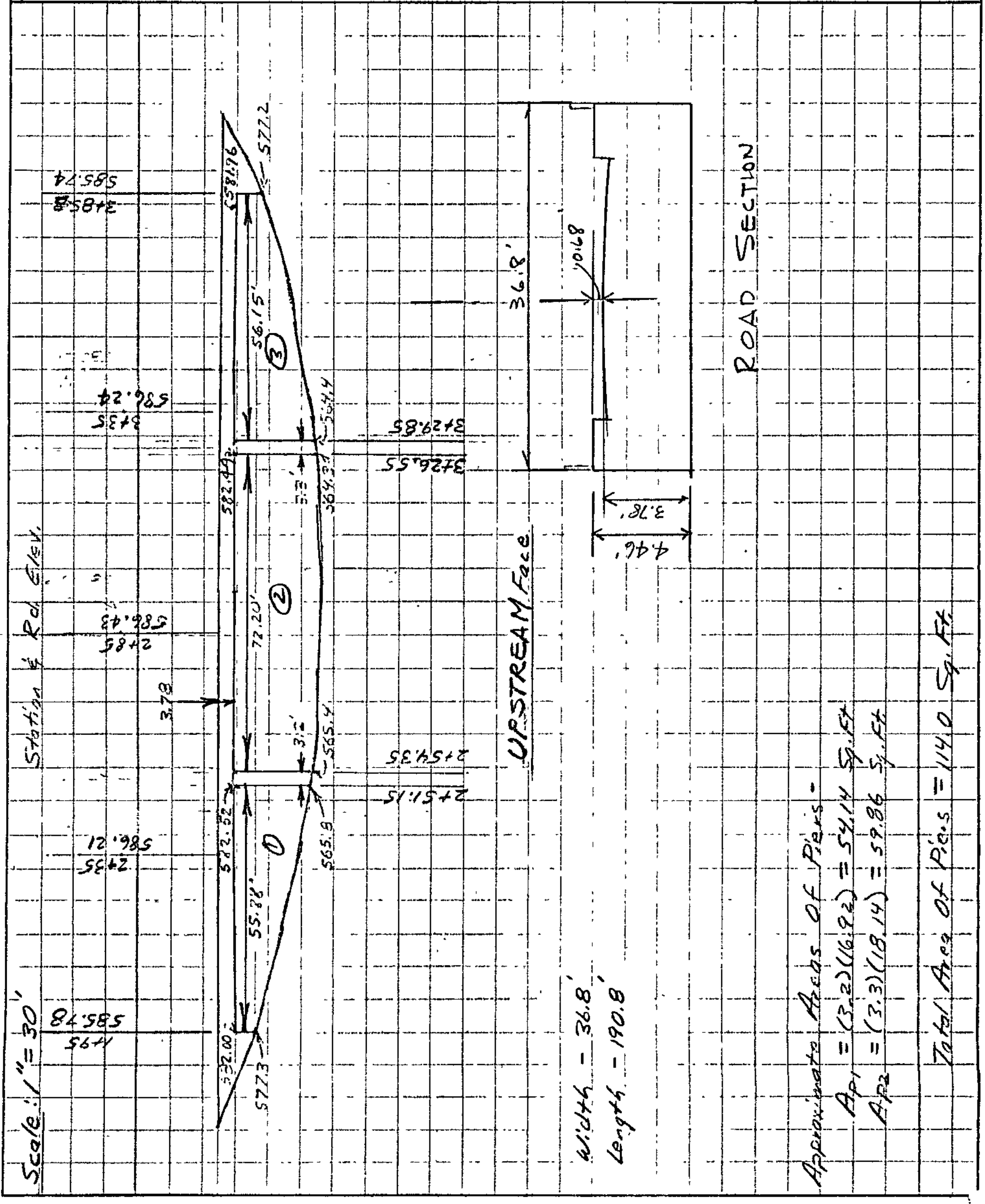
Field	1	1.25
	2	1.24
	3	2.5
	4	0.0
	5	134
	6	21
	7	8762.0
	8	3.04
	9	0.0
	10	0.0

HUBBELL, ROTH & CLARK, INC. • CONSULTING ENGINEERS

SHEET 1 OF 1
DATE 5/4 1976
BY ABD
CK.
JOB NO. 74132
ACC. NO.

SUBJECT Harrison Twp. F.I.S., Clinton River Spillway

DETAIL Bridge @ Jefferson & Spillway



HUBBELL, ROTH & CLARK, INC. • CONSULTING ENGINEERS

SHEET 1 OF 1
DATE 5-17 19 76
BY ABD
CK.
JOB NO. 74132
ACC. NO.

SUBJECT Harrison Township F.I.S.
Clinton River Spillway
DETAIL Jefferson Bridge

Revised 5-24-76

Loss Coefficient, "K" $K_f = 29.1(n^2)L/R^{4/3}$

Intake	0.10	
Intermediate Piers	0.05	$K_f = 29.1(0.019)^2(36)/9.77$
Friction	K_f	$= 0.038$
Exit Loss	1.0	
	$1.15 + K_f$	$\therefore$ "K" $= 1.15 + 0.038 = 1.188$

Area ①
= ½ (4.7 + 17.12)(55.88) = 609.65 Sq. Ft.

Area ②
= (18.19)(72.2) = 1313.32 Sq. Ft.

Area ③
= ½ (18.19 + 4.76)(56.15) = 644.32 Sq. Ft.

Total Area (Bridge Opening) = 2567.29 Sq. Ft.

$P_W = 191 + 4.76 + 4.7 + 60 + 75 + 58 + 71 = 464.46$ Ft.

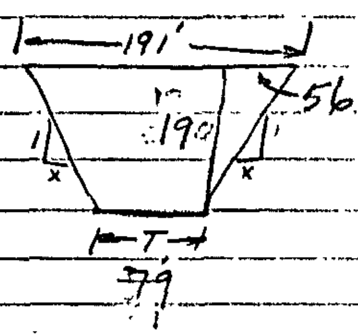
$R = 2567.29 / 464.46 = 5.53$

$R^{4/3} = 9.77$

n (Concrete) → (271.46)(0.015) = 4.07
n (Channel) → (193)(0.025) = 4.83
464.46 8.90

n (Avg.) = 8.90 / 464.46 = 0.019

Field	
1	1.25
2	1.19
3	2.5
4	0.0
5	79
6	6.5
7	2567.29
8	2.94
9	0.0
10	0.0



$A = \frac{1}{2}(b_1 + b_2)h$

$\therefore b_2 = [A/\frac{h}{2}] - b_1$

$= (2567.29/9.5) - 191$

$= 79.24$

say 79

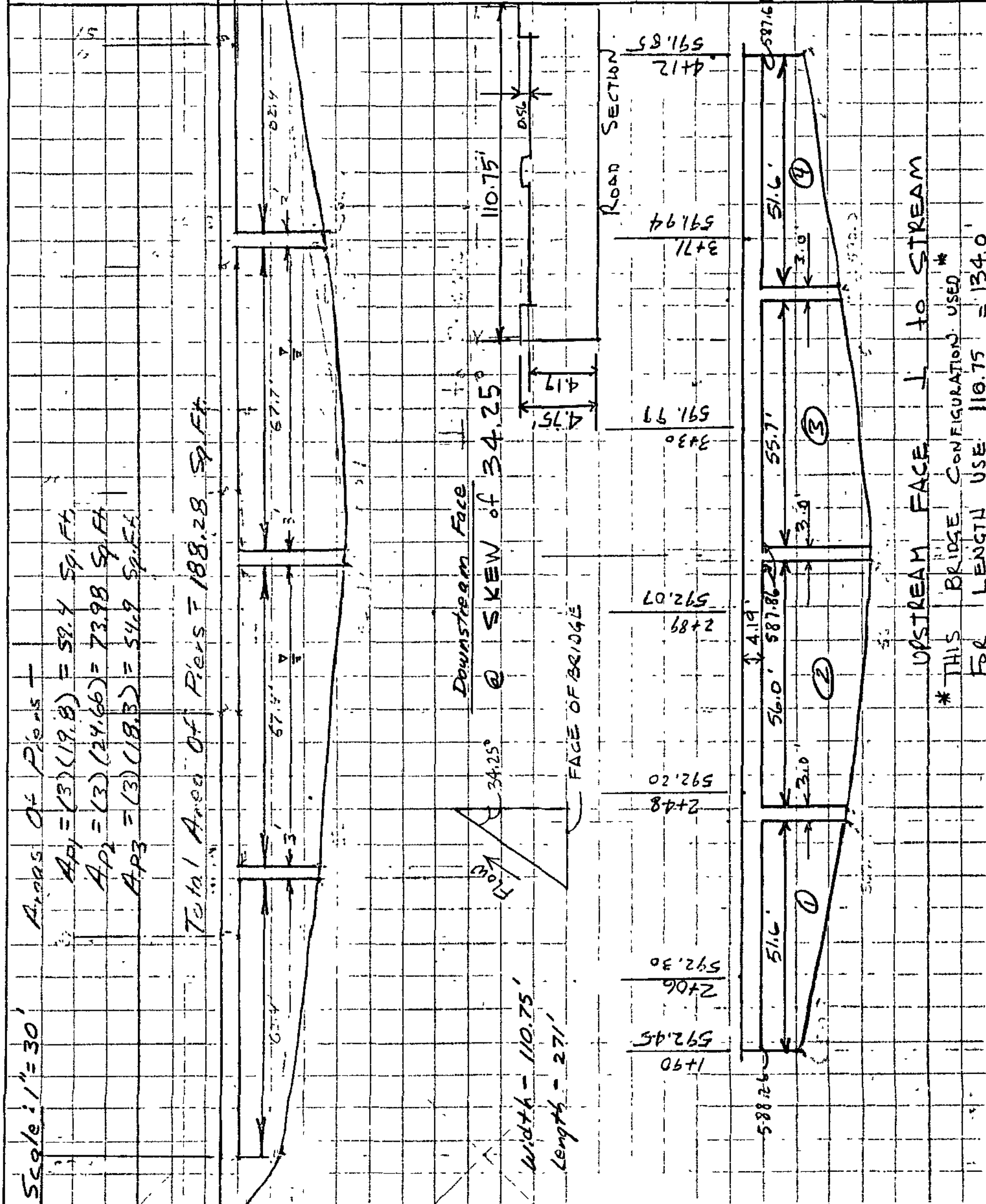
$\frac{1}{x} = \frac{19}{56}$

$\therefore x = \frac{56}{19}$

$= 2.94$

HUBBELL, ROTH & CLARK, INC. • CONSULTING ENGINEERS

SUBJECT Harrison Twp. F.I.S., Clinton River Spillway	SHEET 1 OF 1
DETAIL Bridge @ I-94 & Spillway	DATE 5/4 1976
	BY ABD
	CK.
	JOB NO. 74132
	ACC. NO.



HUBBELL, ROTH & CLARK, INC. • CONSULTING ENGINEERS

SHEET 1 OF 1
DATE 5-18 19 76
BY ABD
CK.
JOB NO. 74132
ACC. NO.

SUBJECT Harrison Township F.I.S.
Clinton River Spillway
DETAIL I-94 Bridge

Loss Coefficient "K" — Revised 5-24-76

Intake	0.10	$K_f = 29.1 (n^2) L/R^{4/3}$
Intermediate Piers	0.05	$= 29.1(0.018)^2(134)/11.96$
Friction	K_f	$= 0.105$
Exit Loss	1.0	
	$1.15 + K_f$	$\therefore K = 1.15 + 0.11 = 1.26$

Area ①
$= \frac{1}{2}(8.26 + 19.6)(51.6) = 718.79$ Sq. Ft.
Area ②
$= \frac{1}{2}(19.6 + 24.5)(59) = 1300.95$ Sq. Ft.
Area ③
$= \frac{1}{2}(24.5 + 17.9)(61.7) = 1308.04$ Sq. Ft.
Area ④
$= \frac{1}{2}(17.9 + 9.66)(51.6) = 711.05$ Sq. Ft.

Field	
1	1.25
2	1.26
3	2.5
4	0.0
5	84.0
6	9.0
7	3850.55
8	2.8
9	0.0
10	0.0

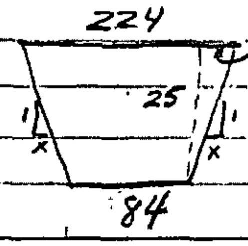
Total Area Of Opening = 4038.83 Sq. Ft.
Subtract Area Of Piers = 3850.55 Sq. Ft.

$P_w = 223.9 + 8.26 + 9.66 + 55 + 60 + 62 + 54 + 126 = 598.82$

$R = A/P_w = 3850.55/598.82 = 6.43$
$R^{4/3} = \underline{11.96}$

n (Concrete) (126) (0.015) = 1.89
n (Concrete) - (268.92) (0.015) = 4.03
n (Channel) - (200) (0.025) = 5.00
n (Overbank) - (3.9) (0.03) = 0.12
598.82 11.04

n (Avg.) = 11.04 / 598.82 = 0.0184
Say 0.018



70'

$\frac{1}{x} = \frac{25}{70}$ $\therefore x = 70/25 = 2.8$

$A = \frac{1}{2}(b_1 + b_2) h$

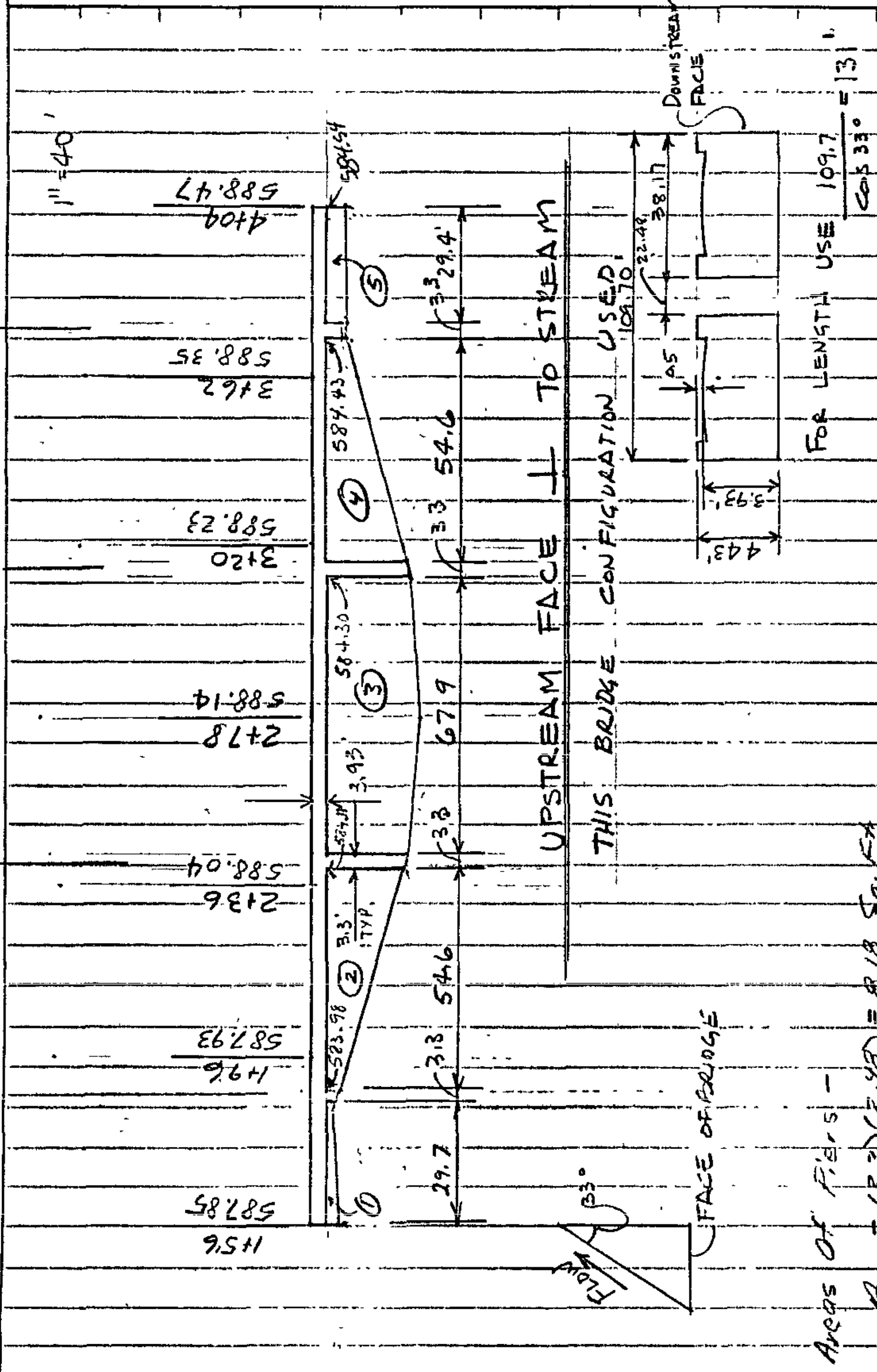
$\therefore b_2 = [A/h/2] - b_1 = (3850.55/12.5) - 224 = 84.04$ Lin. Ft.
Say 84 Lin. Ft.

HUBBELL, ROTH & CLARK, INC. • CONSULTING ENGINEERS

SHEET ____ OF ____
DATE 5-12 19 76
BY R.F.B.
CK.
JOB NO.
ACC. NO.

SUBJECT Harrison Twp., F.I.S. Clinton River Spillway

DETAIL Bridge @ Metro Parkway & Spillway



Areas of Piers –

$A_{P1} = (3.3)(2.48) = 8.18$ Sq. Ft

$A_{P2} = (3.3)(19.31) = 63.73$ Sq. Ft

$A_{P3} = (3.3)(19.3) = 63.69$ Sq. Ft

$A_{P4} = (3.3)(4.73) = 15.61$ Sq. Ft

Area of Piers = 151.21 Sq. Ft

HUBBELL, ROTH & CLARK, INC. • CONSULTING ENGINEERS

SHEET 1 OF 1
DATE 5-19 19 76
BY ABD
CK
JOB NO. 74132
ACC. NO.

SUBJECT Harrison Township F.I.S.
Clinton River Spillway
DETAIL Metro Parkway Bridge

Loss Coefficient "K"

Intake	0.10	$K_f = 29.1\,(n^2)\,L/R^{4/3}$
Intermediate Piers	0.05	$= 29.1(0.019)^2(131)/8.983$
Friction	K_f	$= 0.15$
Exit Loss	1.0	
	$1.15 + K_f$	$\therefore K = 1.15 + 0.15 = 1.30$

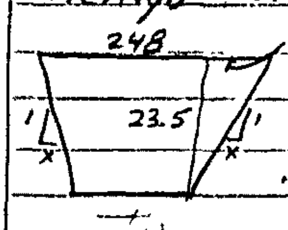
Area ①
$= \tfrac{1}{2}(3.02+1.98)(35.4) = 88.5$ Sq. Ft.
Area ②
$= \tfrac{1}{2}(1.98+19.01)(68.4) = 717.86$ Sq. Ft.
Area ③
$= (84.3)(22.3) = 1879.89$ Sq. Ft.
Area ④
$= \tfrac{1}{2}(20+4.73)(68.4) = 845.77$ Sq. Ft.
Area ⑤
$= \tfrac{1}{2}(4.73+3.94)(38.4) = 166.46$ Sq. Ft.

Field	
1	1.25
2	1.30
3	2.5
4	0.0
5	11.0
6	13.2
7	3043.79
8	5.04
9	0.0
10	0.0

Total Area Of Opening = 3195 Sq. Ft.
Subtract Area Of Piers = 3195.0 − 151.21 = 3043.79
$P_w = 248 + 3.02 + 3.94 + 30 + 57 + 68 + 56 + 29 + 91.64 = 586.60$

$R = A/P_w = 3043.79 / 586.60 = 5.1889$
$R^{4/3} = 8.983$
n (concrete) − 91.64 (0.015) = 1.37
n (Concrete) − (254.96)(0.015) = 3.82
n (Channel) − (240) (0.025) = 6.00
) − 586.60 11.19

n (Avg.) = 11.19 / 586.60 = 0.0190 $\frac{1}{x} = \frac{27.5}{118.5}$ $\therefore x = 118.5/27.5 = 5.04$

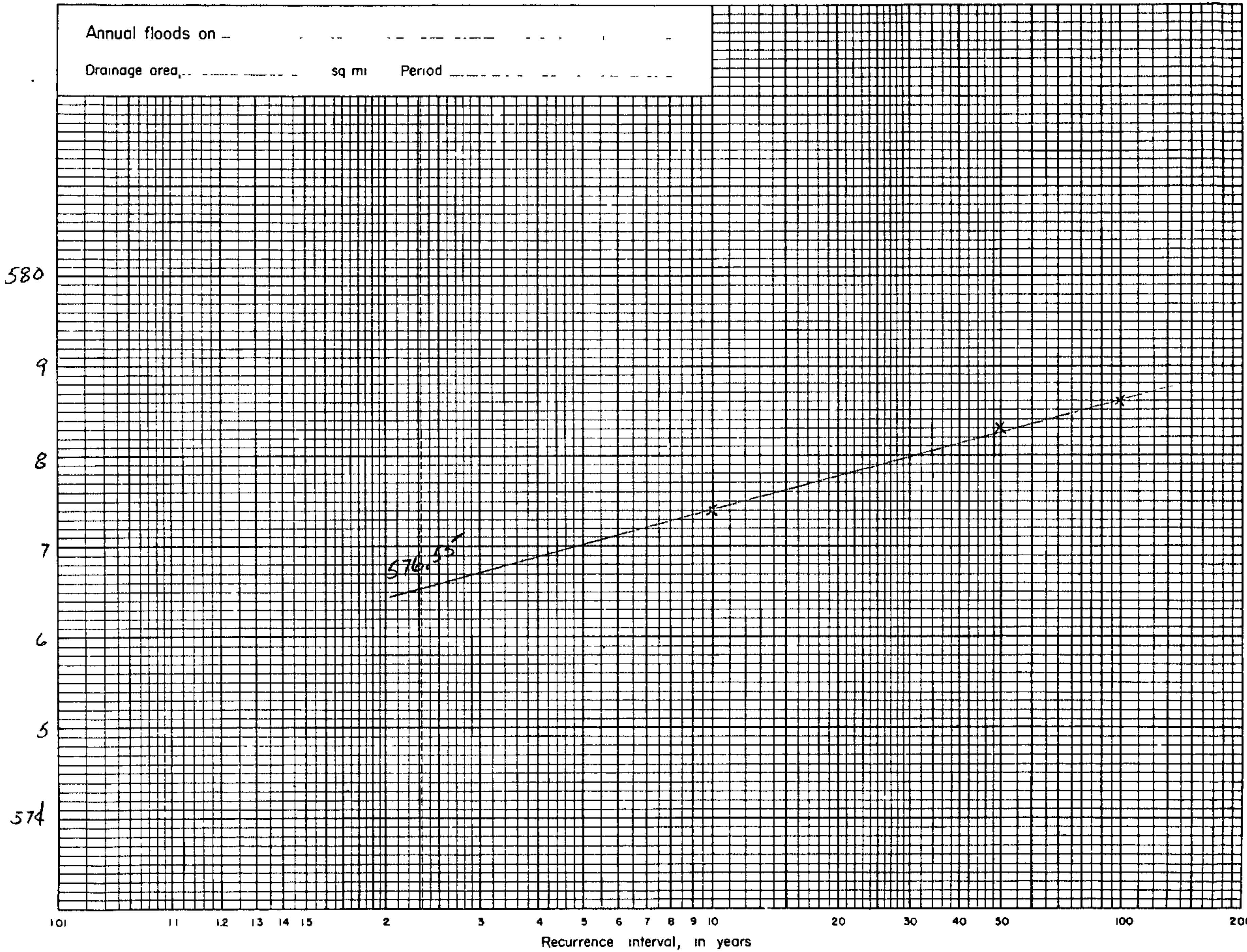


$A = \tfrac{1}{2}(b_1 + b_2)h$

$\therefore b_2 = (A/\tfrac{h}{2}) - b_1 = (3043.79/\tfrac{23.5}{2}) - 248 = 11.0$

Say 11 Lin. Ft.

OLD Data From Creps



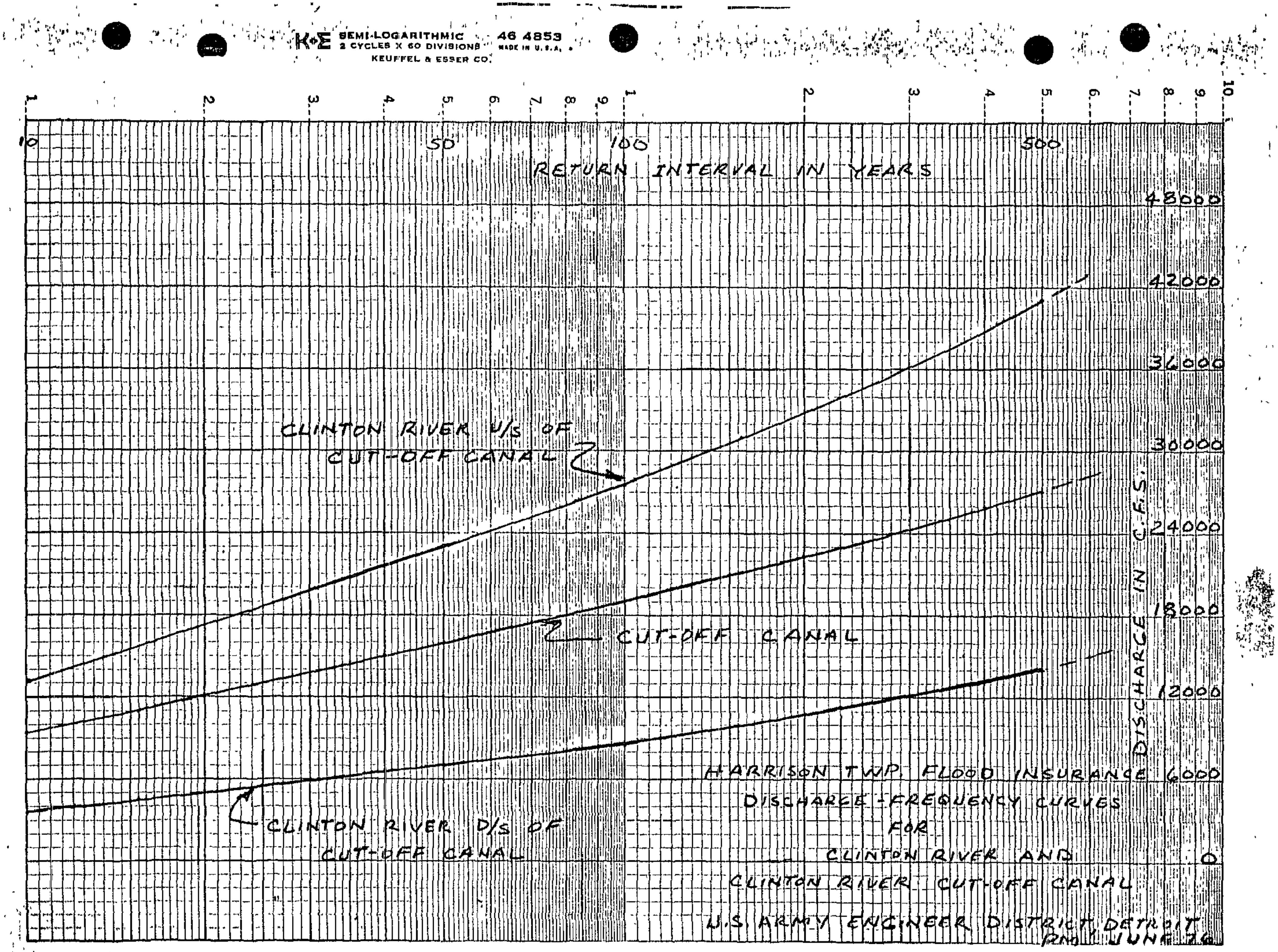

K+E SEMI-LOGARITHMIC 2 CYCLES X 60 DIVISIONS KEUFFEL & ESSER CO.
46 4853 MADE IN U.S.A.
RETURN INTERVAL IN YEARS
10
50
100
500
DISCHARGE IN C.F.S.
0
6000
12000
18000
24000
30000
36000
42000
48000
CLINTON RIVER U/S OF CUT-OFF CANAL
CUT-OFF CANAL
CLINTON RIVER D/S OF CUT-OFF CANAL
HARRISON TWP FLOOD INSURANCE
DISCHARGE-FREQUENCY CURVES
FOR
CLINTON RIVER AND
CLINTON RIVER CUT-OFF CANAL
U.S. ARMY ENGINEER DISTRICT, DETROIT
JUNE 76

EXHIBIT B-6

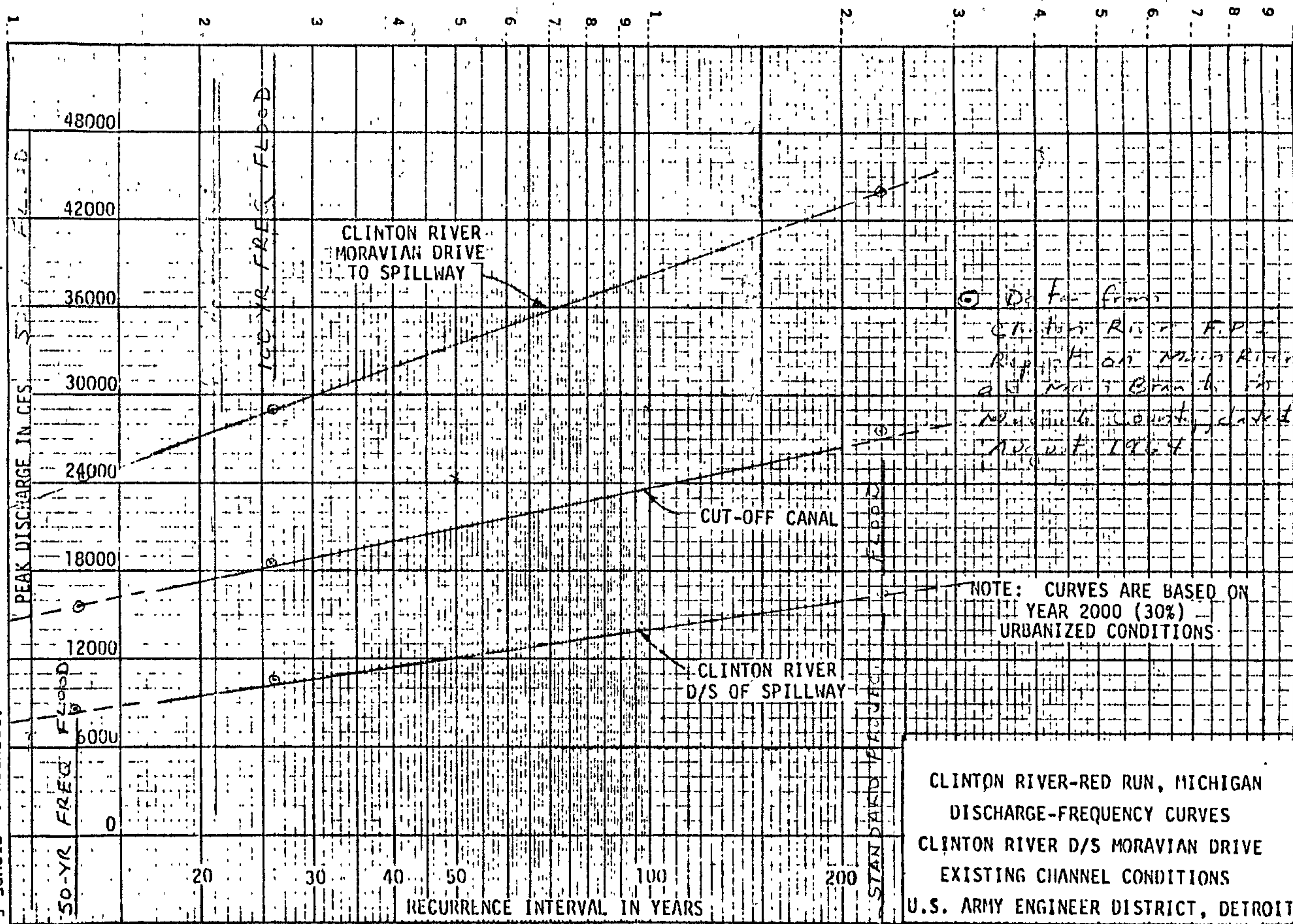


EXHIBIT B-1 APPENDIX A FIGURE 5

APPENDIX A FIGURE 5

EXHIBIT B-1

AQUABEE
MADE IN USA

DRAWING PAPER NO. 1280-10-5L.
TRACING PAPER NO. 1227-10-5L.
10X10 TO INCH, 5TH LINE ACCT.

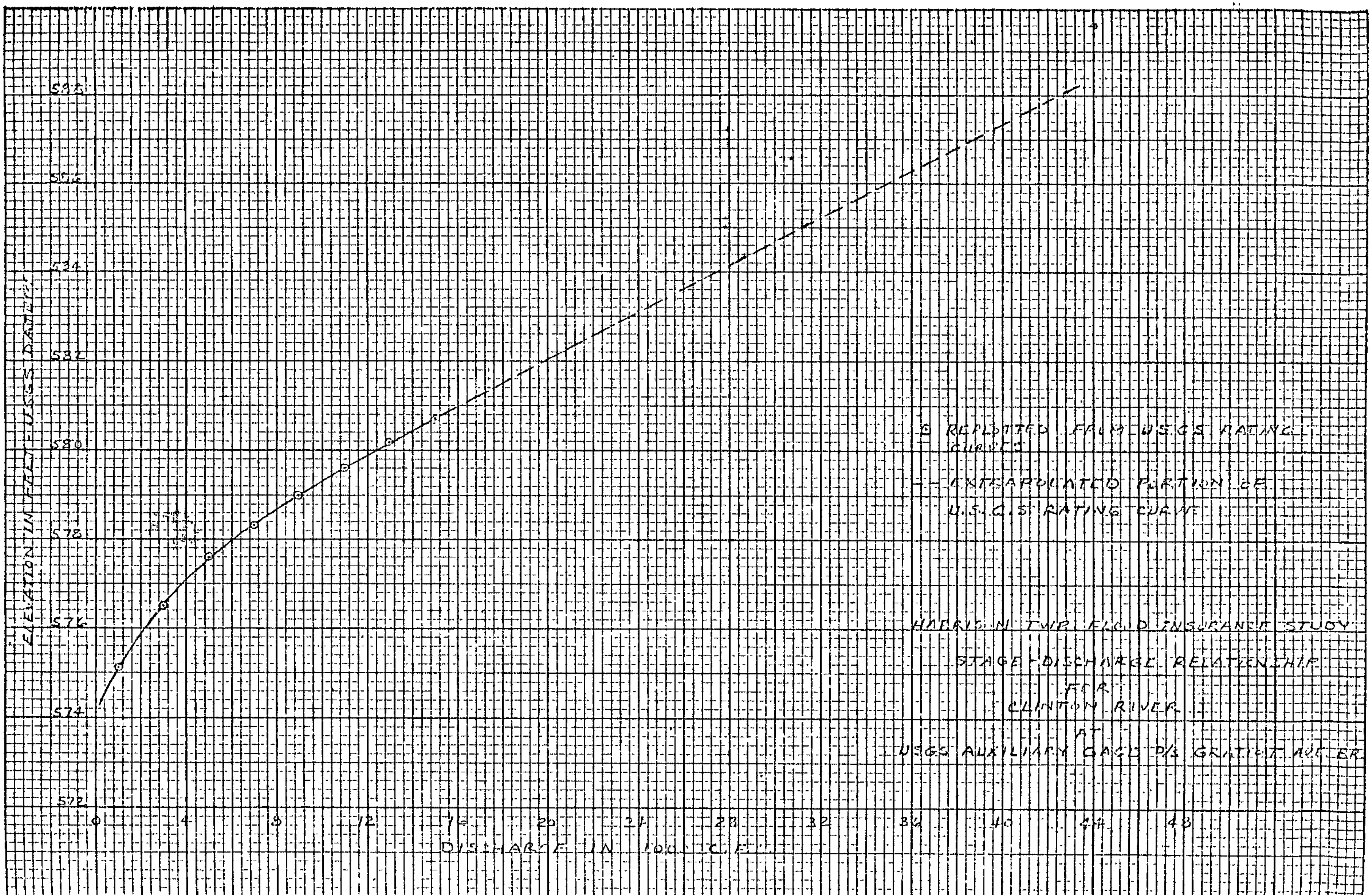
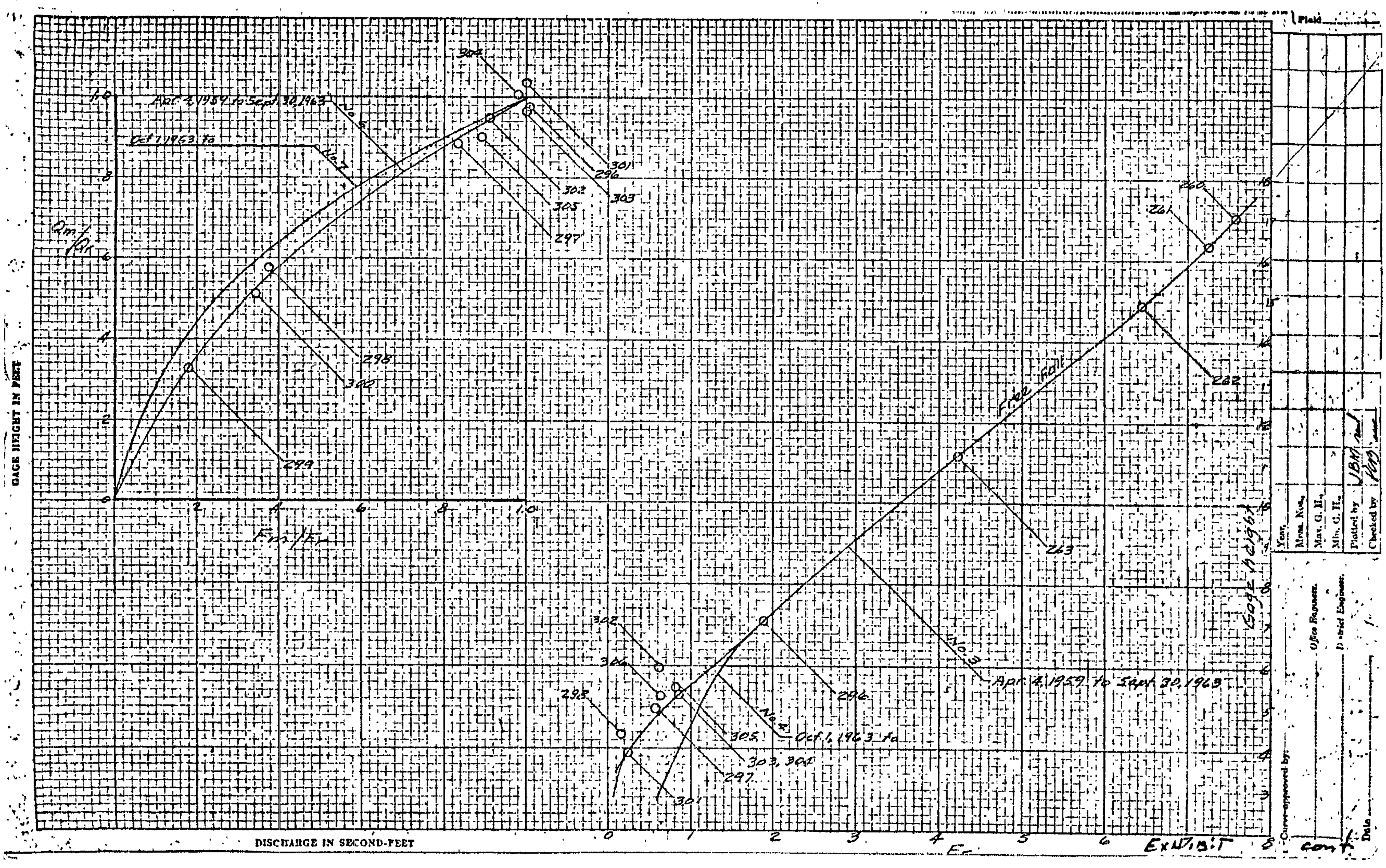
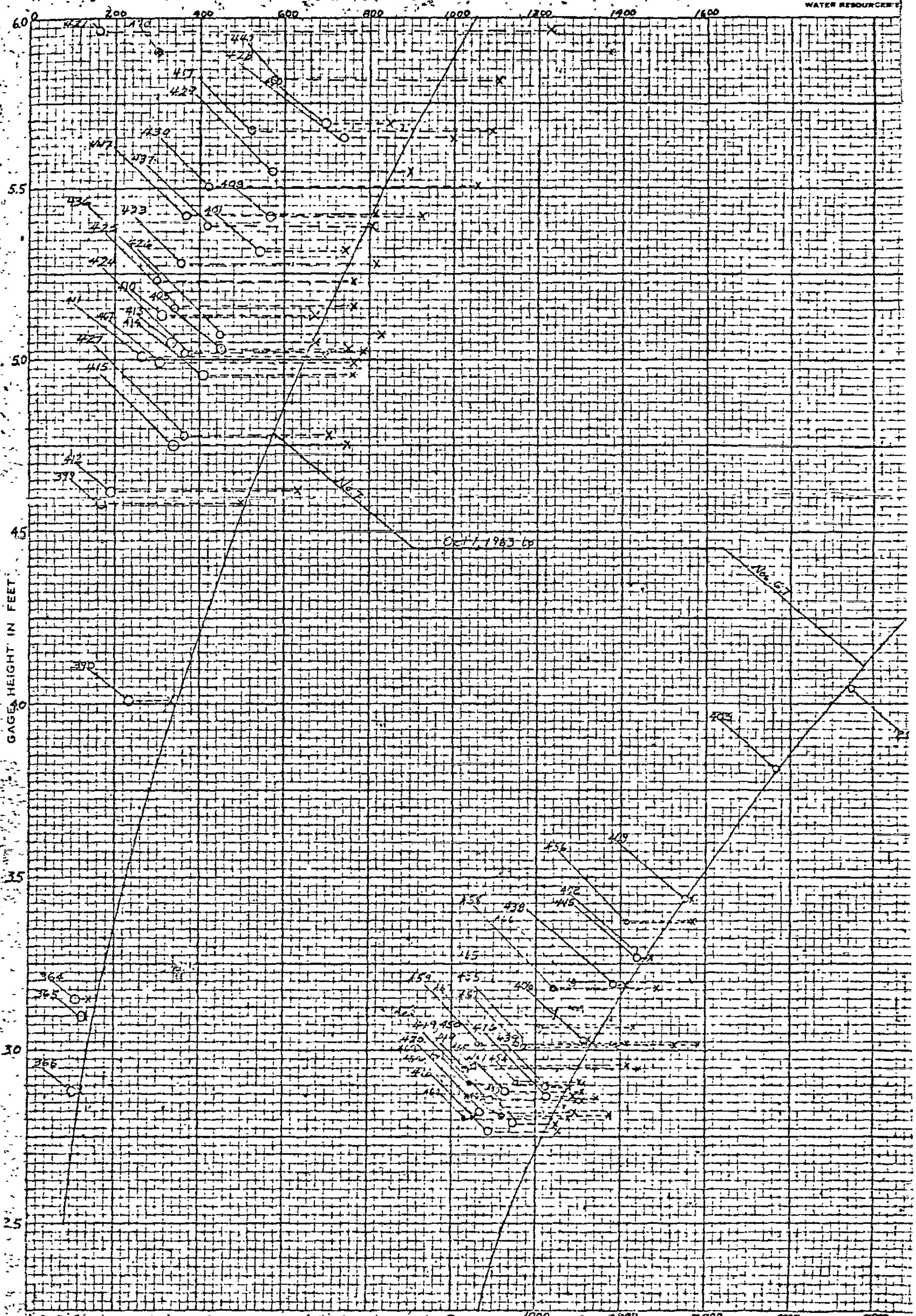


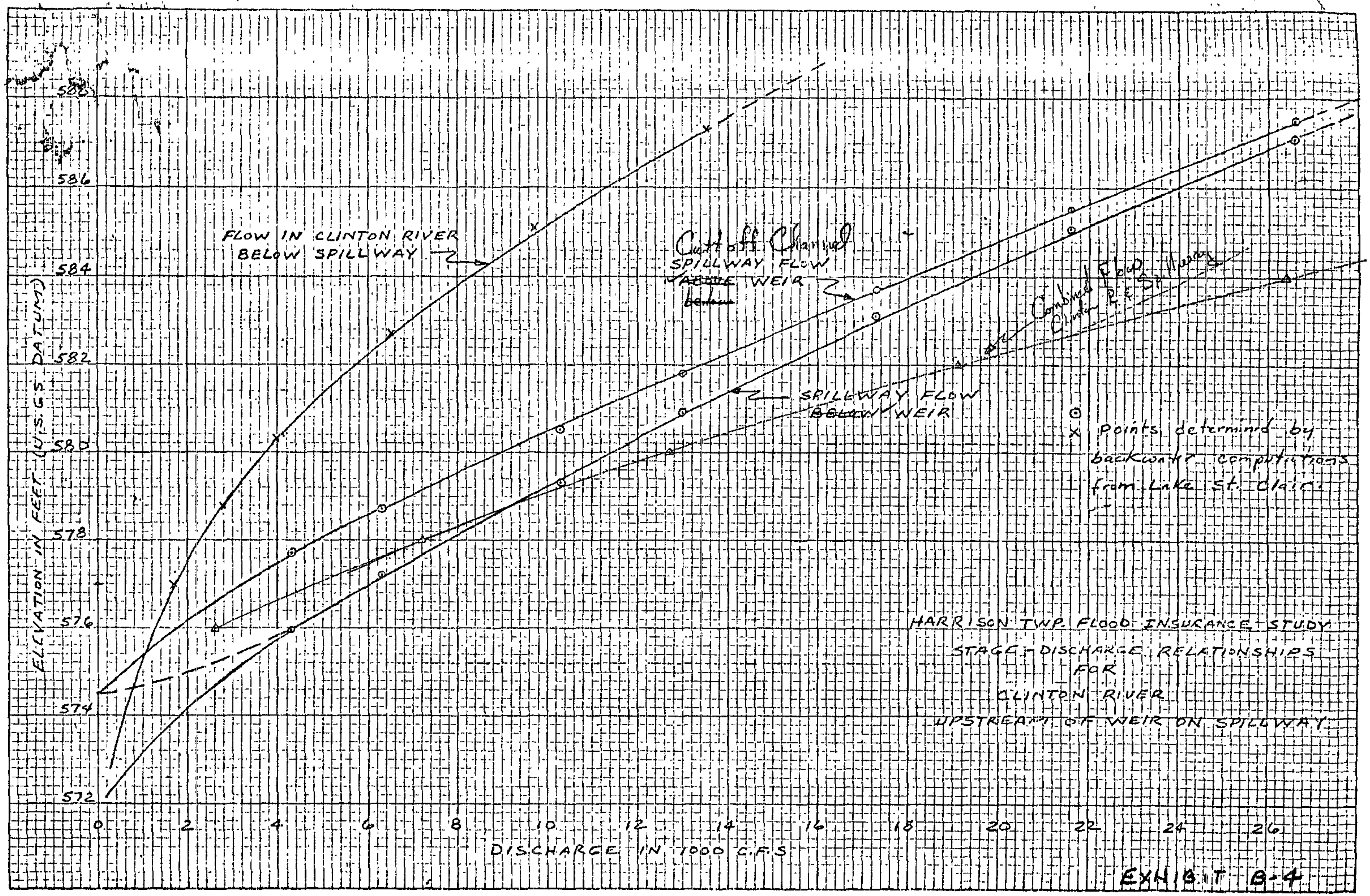
Exhibit B-2

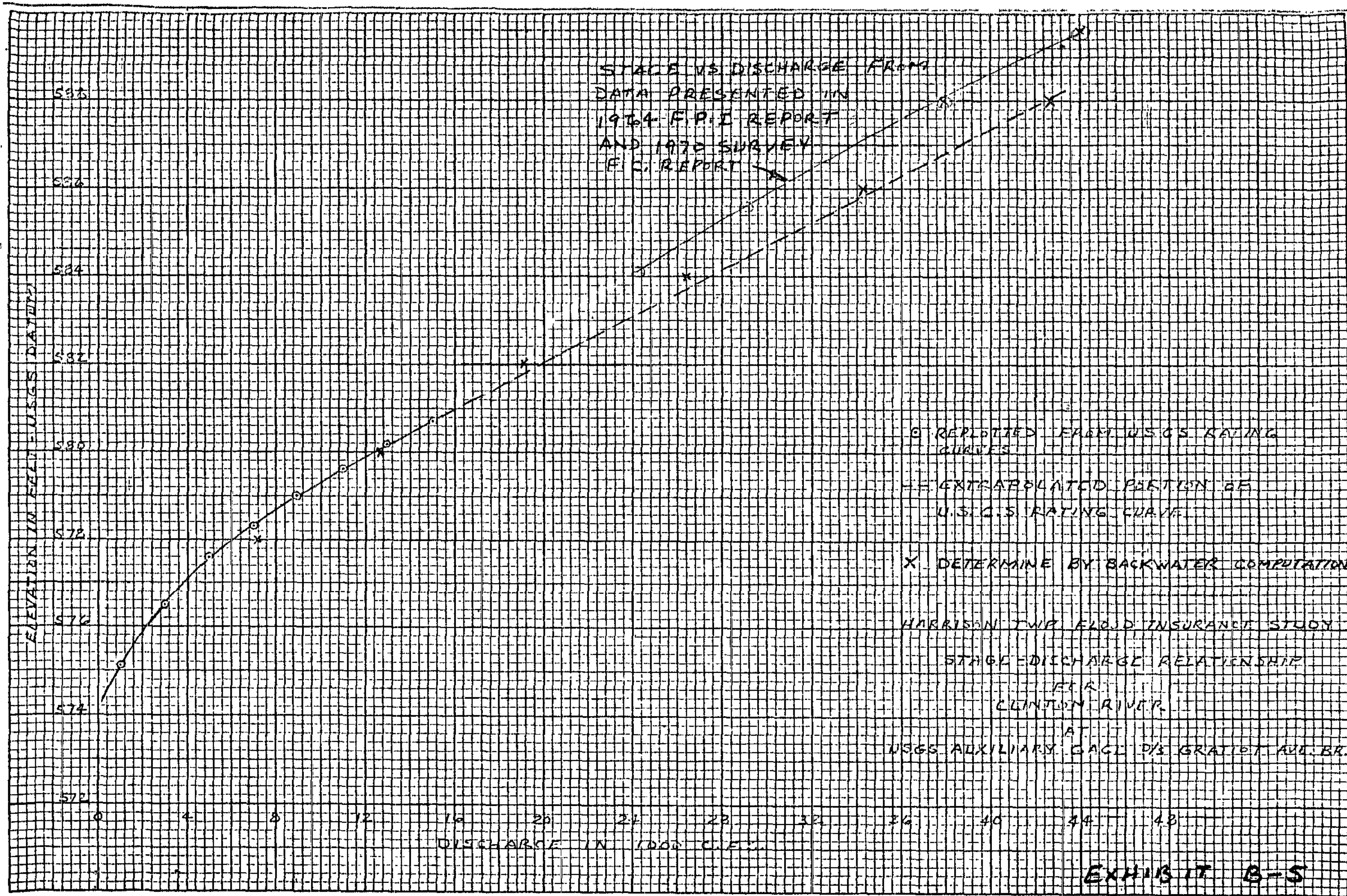


GAGE HEIGHT IN FEET
DISCHARGE IN SECOND-FEET
Apr. 4, 1959 to Sept 30, 1963
No. 6
Oct 1, 1963 to
No. 7
Qm/Qr
Fm/Fr
Free Fall
Gage height
No. 3
Apr. 4, 1959 to Sept 30, 1963
No. 4
Oct. 1, 1963 to
296
297
298
299
300
301
302
303
303, 304
304
305
260
261
262
263
Field
Year,
Meas. Nos.
Max. G. H.
Min. G. H.
Plotted by JBM
Checked by
Curve approved by:
Office Engineer.
District Engineer.
Date
EXHIBIT
E-
cont.

UNITED S
DEPARTMENT OF TH
GEOLOGICAL SU
WATER RESOURCES




FLOW IN CLINTON RIVER
BELOW SPILLWAY
Cuttoff Channel
SPILLWAY FLOW
~~ABOVE~~ WEIR
below
Combined Flood Spillway Clinton R. &
SPILLWAY FLOW
BELOW WEIR
⊙ X points determined by backwater computations from Lake St. Clair
HARRISON TWP. FLOOD INSURANCE STUDY
STAGE - DISCHARGE RELATIONSHIPS
FOR
CLINTON RIVER
UPSTREAM OF WEIR ON SPILLWAY
ELEVATION IN FEET (U.S.G.S. DATUM)
572
574
576
578
580
582
584
586
588
DISCHARGE IN 1000 C.F.S.
0
2
4
6
8
10
12
14
16
18
20
22
24
26
EXHIBIT B-4
K+E 10 X 10 TO THE INCH 359-5L KEUFFEL & ESSER CO.


STAGE VS DISCHARGE FROM
DATA PRESENTED IN
1964 F.P.I REPORT
AND 1970 SURVEY
F.C. REPORT
⊙ REPLOTTED FROM USGS RATING CURVES
-- EXTRAPOLATED PORTION OF U.S.G.S RATING CURVE
X DETERMINE BY BACKWATER COMPUTATIONS
HARRISON TWP. FLOOD INSURANCE STUDY
STAGE-DISCHARGE RELATIONSHIP
FOR
CLINTON RIVER
AT
USGS AUXILIARY GAGE D/S GRATIOT AVE. BR.
ELEVATION IN FEET - USGS DATUM
588
586
584
582
580
578
576
574
572
0
4
8
12
16
20
24
28
32
36
40
44
48
DISCHARGE IN 1000 C.F.S.
EXHIBIT B-5

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Harrison Twp

3) WATERCOURSE: Clinton River & the Cut off Channel

4) DOCUMENT TYPE: Analysis

00BREAK00

08 June 76

old Data from Corps

LETTER REPORT

Discharge - Frequency Analysis for the Clinton River and the Clinton River Cut-off Canal in Harrison Township, Michigan

1. Project Description -

This report contains criteria and guidelines used to determine the proposed Clinton River discharge-frequency relationship to be used in the preparation of the Harrison Township Type 15 Flood Insurance Report, Macomb County, Michigan. This study was divided into two parts: (1) the development of a discharge-frequency curve for the U.S.G.S. gage on the Clinton River at Moravian Road bridge and (2) the development of a flow distribution relationship for the Clinton River below its confluence with the cut-off canal and the cut-off canal itself. The study limits of the Clinton River and Clinton River Cut-off Canal in Harrison Township shown on Exhibit A-1, extend from a line above 1400 feet west of the Interstate 94 Expressway eastward to Lake St. Clair.

Part A

2. Basic Data -

Basic data used in the construction of the frequency curves consist of 39 years of stream gaging records for the U.S.G.S. gage at Mt. Clemens and data from stations within a radius of about 50 miles from the gaging station at Mt. Clemens, Michigan. The majority of the station records exceed 10 years. Thirteen stations out of seventy-nine have records exceeding 20 years. The maximum radius of 50 miles was selected due to the density of stations in this area and the availability of a reasonable number of stations with 20 or more years of continuous records.

Skew coefficients taken from the computer output (see Exhibit A-2) for these stations were used to calculate the average, weighted skew coefficient for the gage at Mt. Clemens in correlation with drainage area and record length. Other basic data consist of two dependent variables: M - mean of logarithms of annual flood peaks and S - standard deviation from the mean expressed as a logarithm, both computed for the gaging station at Mt. Clemens (gage number 04 165500). The gage is of the water-stage recorder type with a datum of 570.43 feet above mean sea level. The period of record used for these computations is thirty-nine years, from October 1934 thru September 1973. The location of all gaging stations used in this study is shown on the attached map, Exhibits A-3. The basic data used to obtain the regionalized skew coefficient are shown on Exhibits A-4 through A-9.

3. Methods and Reference -

The basic procedures and fundamental prinicples used in this study are based upon a January 1962 paper by Leo R. Beard, entitled "Statistical

Methods in Hydrology," and the U.S. Water Resources Council Bulletin, "A Uniform Technique for Determining Flood Flow Frequencies," 3 December 1974. A computer program was used to facilitate and systematize the computations required in connection with this analysis. In conjunction with the frequency analysis, the tables presented in "Statistical Methods in Hydrology" were used. The approach outlined in the above mentioned references is the accepted method used for the discharge-frequency analysis. By statistical methods the three principal components (mean, standard deviation, and skew coefficient), representing respectively the average height, shape, and the degree of curvature of the cumulative frequency curve, were measured. Much of this work was initiated before WRC Bulletin No. 17, "Guidelines for Determining Flood Flow Frequency," March 1976 was available. Therefore, all of the guidelines and criteria were not followed.

The average, weighted regionalized skew coefficient at Mt. Clemens was used for this frequency analysis. The adjustment for "expected probability" was also made at each discharge-frequency calculation.

The six following alternatives were taken under consideration for calculating average weighted skew coefficient:

a. The skew coefficient was calculated using stations within the radius of 25 miles in correlation with length of record (see Exhibit A-4). Eighteen gaging stations were used. In the study area, the majority of the station records exceed 10 years. Only one station has records which do not exceed 10 years. Skew coefficients taken from the computer output (see Exhibit 2) for these 18 stations were used to calculate the average regionalized skew coefficient at Mt. Clemens, giving a value of .011.

b. The skew coefficient was calculated using stations within the radius of 25 miles in correlation with the drainage area (see Exhibit A-5). The same 18 stations as mentioned in "a" with a total drainage area of 2348.9 square miles were used. Using skew coefficients for these stations, the calculated average skew coefficient is equal to 0.018.

c. The skew coefficient was calculated using stations within the radius of 50 miles in correlation with length of record. Twenty-nine gaging stations were used. In the study area, thirteen stations have records which exceed 20 years. Only three stations have records which do not exceed 10 years. Skew coefficients taken from the computer output for these 29 Stations were used to calculate the average regionalized skew coefficient, giving g= -.015. For calculations see Exhibit A-6.

d. The skew coefficient was calculated using stations within the radius of 50 miles in accordance with drainage area. The same twenty-nine gaging stations as mentioned in "c", with total drainage area of 3902.2 square miles were used. Skew coefficients taken from the computer output (see Exhibit A-2) for these 29 stations were used to calculate the average regionalized skew coefficient, giving g= -0.178 (see Exhibit A-7).

e. The skew coefficient was then calculated using gaging stations with the length of record of 20 or more years (see Exhibit A-8). Thirteen stations within the 50-mile radius of Mt. Clemens were selected and their skew coefficients taken from the computer output. The length of record for each station was used to calculate the average regionalized skew coefficient at Mt. Clemens. The result was g= -.021.

f. Finally the skew coefficient was calculated using gaging stations with the length of record of 10 or more years (see Exhibit A-9). Twenty-six stations within the 50-mile radius of Mt. Clemens were selected, and the same method as in "e" was used to calculate average weighted skew coefficient. Calculated skew coefficient g= -.011.

g. A test for low outliner was made for the peak flow of 1940 c.f.s. occurring in 1964. Results of this test is presented in Exhibit A-9a.

Using the mean and standard deviation, the frequency curves were computed using the six above mentioned regionalized skew coefficients weighted with the computed Station skew of 0.248 as follows:

(1) For selected values of P , values of K obtained from Appendix 3, WRC Bulletin No. 17, corresponding to the adopted skew coefficient, were tabulated.

(2) Discharge in cfs was calculated from the equation:

$$\text{Log } Q = M + KS$$

in which:

M = mean logarithm
S = standard deviation
K = magnitude in standard deviation from mean

(3) Values of P_N from Appendix 11, WRC Bulletin No. 17, corresponding to the selected P values were tabulated.

(4) Antilogarithms obtained in step 2 were plotted against the selected P_N values obtained in step 3. These computations are presented as Exhibit A-10. Typical resulting discharge frequency curves are shown on Exhibit A-11.

4. Conclusions -

This paragraph summarizes the results of the hydrologic analysis of the discharge-frequency relationship of the Clinton River at Mt. Clemens, Michigan. This flood frequency analysis was conducted to determine various frequency floods to be used in the preparation of the Type 15 Flood Insurance Report, Harrison Township, Macomb County, Michigan. The results of this analysis are summarized on the following page and presented on Exhibits A-11.

Using skew coefficients based on length of record, we are getting better correlation than using other factors such as size of drainage area for selected stations either within the radius of 25 or 50 miles.

5. <u>Recommendations</u> -

It is proposed that the discharge-frequency relationship described as alternate "e" above be adopted for use in the preparation of the Type 15 Flood Insurance Report for the Clinton River, Harrison Township, Michigan. This frequency curve, presented as Exhibit A-12 was based on the following data:

a. Mean and standard deviation derived from 39 years of continuous records of the Clinton River gage at Mt. Clemens.

b. An average, weighted, regionalized skew coefficient utilizing records of all stations with at least 20 years of record and is within a 50-mile radius of the Mt. Clemens gage. The average weighted value of 0.029 was established by weighting the computed station skew of 0.246 with the regionalized skew coefficient of -0.021.

c. The adjustment for "expected probability."

Part B

6. <u>Basic Data</u> -

The initial development of the flow distribution relationship was based on data presented in the Clinton River, Michigan Flood Plain Information Report for the Main Stem, dated August 1964 and the Southeast Michigan Water Resources Study, Interim Survey Report on Flood Control, Major Drainage and Allied Purposes, Red Run Drain and Lower Clinton River Michigan, dated April 1970. Exhibit B-1 is a copy of Figure 5 of Appendix A from the latter referenced study. This particular exhibit is based on year 2000 urbanized runoff conditions. The discharge-frequency distribution relationships developed in the preparation of the Flood Plain Information Study are plotted in red on this exhibit to verify the compatibility of both studies.

Subsequently, more detailed studies have been made to verify the above referenced data. This was done by establishing a stage discharge relationship for the U.S.G.S. auxiliary gage located just upstream of the cut-off canal (Exhibit B-2). Backwater computations were then made for the Clinton River below the cut-off canal and the cut-off canal, presented as Exhibit B-3. Stage discharge relationships (Exhibit B-4) developed from the backwater computations match very closely the rating curve for the auxiliary gaging stations.

However, when comparing the rating curve for the auxiliary gage with the highwater profile developed in 1964 flood plain information report and the Flood Control Survey Report of 1970, the results was not compatible. A curve plotted thru points of stage vs discharge from the FPI and survey reports was consistently 1.0 to 1.2 feet above the extrapolated portions of the U.S.G.S. rating curve, see Exhibit B-5.

7. Recommendations -

In view of the conclusions reached in the above paragraphs, it is proposed that the discharge frequency relationships presented on Exhibit B-6 and tabulated in the following table be adopted for use in the preparation of the Type 15 Flood Insurance Report for Harrison Township, Macomb County, Michigan.

Percent Chance of Occurrence	Frequency	Discharge C. F. S. Clinton River Upstream Cut-off Canal	Cut-off Canal	Clinton River Downstream Cut-off Canal
10	10	13,200	9,400	3,800
2	50	23,000	16,000	7,000
1	100	27,500	19,000	8,500
0.2	500	41,000	27,000	14,000

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Harrison Twp

3) WATERCOURSE: Clinton River & the Cut off Channel

4) DOCUMENT TYPE: Analysis

00BREAK00

08 June 76

old Data from Corps

LETTER REPORT

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Skew coefficients taken from the computer output (see Exhibit A-2) for these stations were used to calculate the average, weighted skew coefficient for the gage at Mt. Clemens in correlation with drainage area and record length. Other basic data consist of two dependent variables: M - mean of logarithms of annual flood peaks and S - standard deviation from the mean expressed as a logarithm, both computed for the gaging station at Mt. Clemens (gage number 04 165500). The gage is of the water-stage recorder type with a datum of 570.43 feet above mean sea level. The period of record used for these computations is thirty-nine years, from October 1934 thru September 1973. The location of all gaging stations used in this study is shown on the attached map, Exhibits A-3. The basic data used to obtain the regionalized skew coefficient are shown on Exhibits A-4 through A-9.

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b. The skew coefficient was calculated using stations within the radius of 25 miles in correlation with the drainage area (see Exhibit A-5). The same 18 stations as mentioned in "a" with a total drainage area of 2348.9 square miles were used. Using skew coefficients for these stations, the calculated average skew coefficient is equal to 0.018.

c. The skew coefficient was calculated using stations within the radius of 50 miles in correlation with length of record. Twenty-nine gaging stations were used. In the study area, thirteen stations have records which exceed 20 years. Only three stations have records which do not exceed 10 years. Skew coefficients taken from the computer output for these 29 Stations were used to calculate the average regionalized skew coefficient, giving g= -.015. For calculations see Exhibit A-6.

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in which:

M = mean logarithm
S = standard deviation
K = magnitude in standard deviation from mean

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c. The adjustment for "expected probability."

Part B

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Subsequently, more detailed studies have been made to verify the above referenced data. This was done by establishing a stage discharge relationship for the U.S.G.S. auxiliary gage located just upstream of the cut-off canal (Exhibit B-2). Backwater computations were then made for the Clinton River below the cut-off canal and the cut-off canal, presented as Exhibit B-3. Stage discharge relationships (Exhibit B-4) developed from the backwater computations match very closely the rating curve for the auxiliary gaging stations.

[illegible] slope of the [illegible] how can [illegible] be done [illegible] they should go back to the [illegible] gage with their computations

However, when comparing the rating curve for the auxiliary gage with the highwater profile developed in 1964 flood plain information report and the Flood Control Survey Report of 1970, the results was not compatible. A curve plotted thru points of stage vs discharge from the FPI and survey reports was consistently 1.0 to 1.2 feet above the extrapolated portions of the U.S.G.S. rating curve, see Exhibit B-5.

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1	100	27,500	19,000	8,500
0.2	500	41,000	27,000	14,000

MACOMB COUNTY PLANNING COMMISSION
HARRISON TOWNSHIP
BASE MAP
HARRISON TOWNSHIP, MI
INDICATES AREA NOT INCLUDED
CHESTERFIELD TWP.
MACOMB TWP.
WM. P. ROSSO HWY
G.T.W. R.R. SPUR
Selfridge Air National Guard Base
CITY OF MT. CLEMENS
CLINTON TWP.
CITY OF ST. CLAIR SHORES
HENRY B. JOY
GRATIOT
SNOVER
IRWIN
JEFFERSON
PRENTISS
METROPOLITAN PARKWAY
L'ANSE CREUSE
CROCKER
CLINTON N. RIVER
CLINTON S. RIVER
OLD N. RIVER
BLACK RIVER
SPILLWAY
HARRISON-CLINTON RELIEF DRAIN
UNION LAKE
Metropolitan Beach
Point Rosa
Huron Point
Campau Bay
Belvidere Bay
Gross Island
Sunshine
Lanse Creuse Bay
LAKE ST. CLAIR
36
31
1
25
35
94

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Harrison Twp

3) WATERCOURSE: Clinton River

4) DOCUMENT TYPE: Multiple Run Profile

00BREAK00

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HH        HH EEEEEEEEEEEE   CCCCCCCC     22222222
HH        HH EEEEEEEEEEEE  CCCCCCCCCC   2222222222
HH        HH EE           CCC       CC 22        222
HH        HH EE           CC                      22
HH        HH EE           CC                      22
HH        HH EE           CC                      22
HH        HH EE           CC                      22
HHHHHHHHHHHH EEEEEEEEEEE  CC                     222
HHHHHHHHHHHH EEEEEEEEEEE  CC               222222222
HH        HH EE           CC             222222222
HH        HH EE           CC           222
HH        HH EE           CC           22
HH        HH EE           CC           22
HH        HH EE           CCC       CC 22
HH        HH EEEEEEEEEEEE  CCCCCCCCCC  222222222222
HH        HH EEEEEEEEEEEE   CCCCCCCC   222222222222

IIIIIIII   NN         NN PPPPPPPPPP   UU        UU TTTTTTTTTTTT
IIIIIIII   NN         NN PPPPPPPPPPP  UU        UU TTTTTTTTTTTT
   II      NNN        NN PP       PPP UU        UU      TT
   II      NNN        NN PP        PP UU        UU      TT
   II      NNNN       NN PP        PP UU        UU      TT
   II      NN NN      NN PP        PP UU        UU      TT
   II      NN  NN     NN PP       PPP UU        UU      TT
   II      NN   NN    NN PPPPPPPPPPP  UU        UU      TT
   II      NN    NN   NN PPPPPPPPPP   UU        UU      TT
   II      NN     NN  NN PP           UU        UU      TT
   II      NN      NNNN PP            UU        UU      TT
   II      NN       NNN PP            UU        UU      TT
   II      NN       NNN PP            UU        UU      TT
   II      NN        NN PP            UUU      UUU      TT
IIIIIIII   NN        NN PP             UUUUUUUUUU       TT
IIIIIIII   NN        NN PP              UUUUUUUU        TT

EEEEEEEEEEEE   CCCCCCCC   HH        HH   00000000
EEEEEEEEEEEE  CCCCCCCCCC  HH        HH  0000000000
EE           CCC       CC HH        HH 000      000
EE           CC           HH        HH 00        00
EE           CC           HH        HH 00        00
EE           CC           HH        HH 00        00
EE           CC           HH        HH 00        00
EEEEEEEEEEE  CC           HHHHHHHHHHHH 00        00
EEEEEEEEEEE  CC           HHHHHHHHHHHH 00        00
EE           CC           HH        HH 00        00
EE           CC           HH        HH 00        00
EE           CC           HH        HH 00        00
EE           CC           HH        HH 00        00
EE           CCC       CC HH        HH 000      000
EEEEEEEEEEEE  CCCCCCCCCC  HH        HH  0000000000
EEEEEEEEEEEE   CCCCCCCC   HH        HH   00000000
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Note: slight elevation differences from values used in the report have been found due to use of newer Hec-2 version here (Report has approved elevations)

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[illegible] TJJ

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C
C      4
C  17822  DOWNSTREAM SECTION FOR BRIDGEVIEW BRIDGE
C  17858  UPSTREAM SECTION FOR BRIDGEVIEW BRIDGE
C  30475  DOWNSTREAM SECTION FOR I-94 BRIDGE
C  30620  UPSTREAM SECTION FOR I-94 BRIDGE
T1        HARRISON TOWNSHIP - JOB NO. 5850-11  PROJECT MANAGER  OLE ANDERSON
T2        10 YEAR FLOOD - 3900 CFS
T3        CLINTON RIVER  HARRISON TOWNSHIP
J1     -1         2                                                     575.60
J2      1                  -1
J3     38        40        41        42        43         1         8        10        12         3
J3     33         4        25
J5    -10       -10
QT      4      3600      5900      6800     10000
NC    .04       .04       .03       0.1       0.3
X1     030.0    172.0     488.0
X3                                 172                 488
GR 577.00.0       577.0     106.0     578.1     111.0     577.6     123.0     578.6     133.0
GR 578.4162.0     577.2     167.0     578.1     172.0     577.0     174.0     575.0     200.0
GR 576.0209.0     565.9     220.0     565.8     240.0     565.9     260.0     566.9     280.0
GR 567.5300.0     566.7     320.0     567.0     340.0     567.0     360.0     566.9     380.0
GR 568.9400.0     569.0     420.0     569.0     440.0     569.0     450.0     575.0     460.0
GR 577.0486.0     579.7     488.0     579.8     522.0     580.0     563.0     580.0     600.0
X1  398045.0      398.0     632.0    3980.0    3980.0    3980.0
X3                                 398                 632
GR 578.10.0       578.2      16.0     578.9      32.0     578.6      64.0     577.8      86.0
GR 577.6101.0     577.6     123.0     577.2     144.0     577.3     168.0     577.5     225.0
GR 577.5265.0     577.5     319.0     577.6     368.0     577.6     398.0     566.0     400.0
GR 564.8425.0     564.5     438.0     564.2     466.0     564.1     498.0     564.4     518.0
GR 565.1529.0     564.8     544.0     565.1     557.0     565.4     585.0     566.5     605.0
GR 569.5627.0     577.0     629.0     578.4     632.0     577.6     635.0     577.8     660.0
GR 578.0714.0     578.1     740.0     578.6     754.0     578.7     806.0     578.5     840.0
GR 578.6859.0     578.9     878.0     579.2     923.0     579.4     959.0     579.0     993.0
GR 579.01026.0    578.8    1050.0     578.4    1062.0     578.2    1086.0     578.2    1100.0
X1  473038.0      122.0     428.0     750.0     750.0     750.0
X3                                  95                 428
GR 577.80.0       577.8      14.0     577.5      40.0     577.6      75.0     578.0      87.0
GR 579.695.0      579.0     105.0     578.4     122.0     577.7     131.0     577.0     145.0
GR 575.0170.0     567.9     180.0     566.6     210.0     563.0     220.0     563.0     230.0
GR 563.0240.0     563.0     260.0     563.0     280.0     563.6     300.0     563.9     320.0
GR 568.8340.0     570.0     351.0     571.1     360.0     572.8     380.0     575.0     400.0
GR 577.0425.0     578.4     428.0     578.4     450.0     578.4     499.0     578.4     528.0
GR 578.6547.0     578.8     580.0     578.8     600.0     578.1     622.0     578.2     649.0
GR 578.3672.0     578.3     688.0     578.4     700.0
X1   6840        51      1300      1628      2110      2110      2110      .966
X3     10                         1000                1661
GR 579.20.0       578.8      18.0     579.1      62.0     579.5     202.0     579.2     223.0
GR 578.8245.0     573.2     268.0     577.6     306.0     577.8     342.0     577.0     457.0
GR 577.0584.0     577.0     692.0     577.0     783.0     577.4     840.0     577.2     858.0
GR 576.9893.0     577.8     925.0     578.1     953.0     578.2     988.0     578.2    1000.0
GR 578.21043.0    578.5    1079.0     578.2    1125.0     578.6    1175.0     578.3    1217.0
GR 577.61253.0    577.2    1292.0     577.0    1300.0     573.6    1317.0     569.2    1339.0
GR 566.11359.0    564.3    1386.0     564.1    1417.0     564.1    1439.0     564.0    1456.0
GR 564.71476.0    564.4    1494.0     564.9    1516.0     565.5    1548.0     565.8    1572.0
GR 569.61595.0    577.0    1605.0     577.4    1620.0     577.2    1623.0     578.4    1628.0
GR 578.31645.0    578.2    1661.0     576.8    1677.0     577.1    1684.0     577.1    1737.0
GR 577.11800.0
X1   7470        51      1027      1423       630       630       630
X3     10                          864
GR 578.70.0       578.8      22.0     578.8      48.0     576.7      78.0     578.6     109.0
GR 578.4141.0     578.6     164.0     578.5     179.0     578.3     200.0     578.0     232.0
GR 577.7240.0     577.0     292.0     577.0     439.0     577.0     621.0     577.0     735.0
GR 577.4736.0     577.6     771.0     577.4     818.0     578.8     837.0     579.6     864.0
GR 579.5903.0     579.3     934.0     579.0     968.0     579.4    1000.0     579.8    1027.0
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Note: slight elevation differences from values used in the report have been found due to use of newer Hec-2 version here (Report has approved elevations)

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GR 579.61056.0  579.0   1087.0  577.0   1100.0  565.5   1120.0  564.0   1140.0
GR 563.91160.0  563.3   1180.0  563.0   1200.0  562.9   1220.0  563.4   1240.0
GR 565.01260.0  566.9   1280.0  565.7   1300.0  567.3   1320.0  569.0   1340.0
GR 570.01354.0  570.5   1360.0  575.0   1386.0  577.0   1388.0  578.2   1398.0
GR 577.81414.0  578.8   1423.0  578.8   1444.0  578.8   1455.0  577.0   1472.0
GR 577.01500.0
X1  834040.0    686.0   996.0   870.0   870.0   870.0
X3    10                        544
GR 579.020.0    578.6   18.0    578.2   32.0    577.0   74.0    577.0   210.0
GR 577.0222.0   577.0   345.0   577.8   395.0   577.7   402.0   578.7   428.0
GR 579.9445.0   580.2   480.0   580.8   509.0   581.2   544.0   580.8   579.0
GR 580.8602.0   580.4   633.0   579.4   663.0   578.5   686.0   577.0   700.0
GR 567.6719.0   565.1   740.0   563.4   768.0   563.1   793.0   562.8   838.0
GR 564.0881.0   564.9   899.0   566.0   922.0   572.1   966.0   577.0   992.0
GR 578.8996.0   578.7   1011.0  578.8   1025.0  578.6   1035.0  578.0   1042.0
GR 577.41061.0  577.2   1089.0  577.0   1126.0  577.0   1164.0  577.0   1200.0
NC  0.05
X1  9290      44      556     845     950     950     950     .70     -0.8
X3    10                      448             915
GR 579.00.0     578.8   19.0    578.6   45.0    579.0   73.0    578.4   106.0
GR 578.2133.0   578.5   166.0   578.2   207.0   578.0   245.0   577.6   290.0
GR 577.2319.0   577.2   338.0   575.8   343.0   578.4   352.0   578.6   371.0
GR 578.3392.0   576.2   401.0   577.8   407.0   578.0   430.0   578.4   448.0
GR 578.2475.0   577.9   500.0   578.0   527.0   577.7   556.0   576.9   566.0
GR 570.5600.0   569.1   625.0   568.9   650.0   567.0   675.0   565.7   700.0
GR 565.6725.0   565.6   750.0   566.2   775.0   566.2   800.0   567.5   825.0
GR 572.6845.0   577.9   846.0   577.6   867.0   578.0   891.0   578.2   915.0
GR 578.2940.0   578.4   959.0   578.6   983.0   578.2   1000.0
X1  9640      44      556     845     350     350     350     .978
X3    10                      448             915
GR 579.00.0     578.8   19.0    578.6   45.0    579.0   73.0    578.4   106.0
GR 578.2133.0   578.5   166.0   578.2   207.0   578.0   245.0   577.6   290.0
GR 577.2319.0   577.2   338.0   575.8   343.0   578.4   352.0   578.6   371.0
GR 578.3392.0   576.2   401.0   577.8   407.0   578.0   430.0   578.4   448.0
GR 578.2475.0   577.9   500.0   578.0   527.0   577.7   556.0   576.9   566.0
GR 570.5600.0   569.1   625.0   568.9   650.0   567.0   675.0   565.7   700.0
GR 565.6725.0   565.6   750.0   566.2   775.0   566.2   800.0   567.5   825.0
GR 572.6845.0   577.9   846.0   577.6   867.0   578.0   891.0   578.2   915.0
GR 578.2940.0   578.6   959.0   578.6   983.0   578.2   1000.0
X1  10330     62      579     865     690     690     690     .940
X3                            579             915
GR 576.30.0     575.7   34.0    575.8   43.0    576.3   50.0    576.2   60.0
GR 676.668.0    578.2   79.0    577.8   110.0   577.5   142.0   576.1   164.0
GR 572.2177.0   571.7   189.0   572.2   201.0   580.0   222.0   580.8   232.0
GR 576.8254.0   577.0   278.0   575.7   284.0   577.6   292.0   578.0   302.0
GR 578.2315.0   577.4   334.0   576.4   345.0   577.5   349.0   577.6   371.0
GR 577.8391.0   577.6   421.0   577.4   450.0   577.6   477.0   577.2   504.0
GR 577.0521.0   577.0   579.0   575.0   600.0   567.6   610.0   568.8   620.0
GR 566.1640.0   565.1   660.0   565.1   680.0   564.9   700.0   565.0   720.0
GR 565.0730.0   566.0   740.0   567.0   750.0   567.2   760.0   568.0   770.0
GR 567.2780.0   569.0   790.0   568.0   800.0   568.1   820.0   568.9   840.0
GR 569.1850.0   575.2   860.0   577.4   865.0   577.6   879.0   578.4   896.0
GR 578.4915.0   577.9   930.0   578.2   941.0   578.0   954.0   577.8   966.0
GR 577.8995.0   577.8   1000.0
X1  1064050.0   600.0   878.0   310.0   310.0   310.0
X3                            625             913
GR 578.40.0     578.8   31.0    576.7   45.0    576.4   58.0    577.0   73.0
GR 577.693.0    576.2   115.0   576.8   124.0   577.3   142.0   576.8   165.0
GR 577.9198.0   578.4   231.0   578.2   245.0   577.6   285.0   581.0   301.0
GR 579.0317.0   578.2   345.0   578.4   361.0   578.6   372.0   578.1   384.0
GR 577.0400.0   578.4   411.0   578.0   449.0   577.4   455.0   577.0   457.0
GR 577.0600.0   570.6   610.0   568.6   625.0   567.5   650.0   566.1   675.0
GR 565.3700.0   563.8   725.0   563.8   750.0   564.2   775.0   566.3   800.0
GR 567.5825.0   571.0   850.0   577.0   875.0   577.8   878.0   578.4   884.0
GR 579.0893.0   580.0   913.0   579.4   955.0   578.5   975.0   577.6   997.0
GR 577.81025.0  577.8   1056.0  577.0   1057.0  577.0   1189.0  578.0   1200.0
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NC   0.04
X1 1309067.0    568.0    839.0   2450.0   2450.0   2450.0
X3                                   467               916
GR 577.20.0     577.4    7.0      576.4    20.0     579.4    35.0     579.8    63.0
GR 579.686.0    578.0    100.0    580.0    114.0    579.2    135.0    578.4    152.0
GR 575.3174.0   574.6    187.0    576.6    202.0    582.4    226.0    581.4    240.0
GR 579.8254.0   577.8    270.0    579.2    278.0    579.6    289.0    579.2    300.0
GR 578.8327.0   578.4    361.0    578.2    383.0    578.4    417.0    578.4    467.0
GR 577.8503.0   578.0    537.0    578.4    568.0    577.9    590.0    577.0    592.0
GR 575.0600.0   569.7    620.0    566.3    630.0    566.0    640.0    568.0    650.0
GR 568.0660.0   566.0    680.0    565.9    700.0    565.1    720.0    564.2    730.0
GR 565.1740.0   565.0    760.0    565.2    780.0    565.9    790.0    568.1    800.0
GR 570.0812.0   572.6    820.0    575.1    830.0    577.0    838.0    578.0    839.0
GR 577.8856.0   578.1    876.0    579.4    893.0    580.0    916.0    579.8    940.0
GR 579.6956.0   579.8    981.0    579.8    1004.0   579.9    1013.0   579.6    1028.0
GR 579.41046.0  579.4    1075.0   579.5    1088.0   579.5    1118.0   579.0    1148.0
GR 578.61190.0  579.4    1200.0
X1 1364046.0    778.0    1021.0   550.0    550.0    550.0
X3                                   676               1070
GR 577.00.0     577.0    31.0     576.8    72.0     577.0    121.0    576.9    161.0
GR 577.6198.0   577.3    238.0    573.2    271.0    581.2    298.0    580.0    313.0
GR 577.2330.0   577.6    346.0    576.8    356.0    577.8    365.0    577.8    382.0
GR 577.2402.0   577.0    436.0    577.5    469.0    576.8    519.0    577.0    555.0
GR 577.7594.0   578.2    639.0    578.4    676.0    578.2    706.0    577.8    731.0
GR 577.8778.0   577.0    800.0    572.0    801.0    569.4    825.0    568.0    850.0
GR 566.3875.0   565.8    900.0    565.6    925.0    566.3    950.0    566.8    975.0
GR 570.81000.0  577.0    1020.0   577.8    1021.0   578.6    1035.0   579.6    1053.0
GR 580.01070.0  579.4    1119.0   579.9    1139.0   579.4    1160.0   579.2    1188.0
GR 579.01200.0
X1 15640         47       300      616     2000     2000     2000      .900
X3    10                             195               761
GR 578.60.0     578.0    23.0     577.8    50.0     577.8    72.0     578.4    80.0
GR 579.5113.0   578.4    127.0    579.6    141.0    579.8    150.0    579.6    170.0
GR 579.2195.0   578.6    217.0    578.6    247.0    578.0    276.0    577.5    300.0
GR 576.9301.0   572.2    310.0    568.6    331.0    567.8    366.0    566.7    396.0
GR 565.8412.0   564.3    443.0    565.1    481.0    567.1    524.0    567.6    557.0
GR 568.9577.0   572.6    589.0    576.9    590.0    579.6    593.0    579.8    603.0
GR 580.4616.0   580.2    629.0    579.2    641.0    579.6    660.0    580.5    691.0
GR 581.5722.0   582.0    741.0    582.0    761.0    580.7    776.0    579.8    794.0
GR 579.5824.0   579.4    860.0    580.2    885.0    579.4    922.0    579.4    943.0
GR 579.4974.0   579.4    1000.0
X1 1742263.0    892.0    1162.0   1782.0   1782.0   1782.0
X3                                   764               1228
GR 578.40.0     578.1    12.0     576.8    23.0     578.8    33.0     578.7    45.0
GR 578.060.0    576.6    70.0     578.0    83.0     576.6    97.0     579.0    107.0
GR 579.6129.0   579.0    151.0    576.7    163.0    578.7    170.0    577.8    186.0
GR 578.0230.0   577.8    274.0    578.0    315.0    577.8    354.0    578.6    378.0
GR 579.0414.0   579.2    457.0    579.6    475.0    578.6    487.0    579.5    513.0
GR 578.4537.0   577.3    554.0    581.6    576.0    580.6    592.0    578.9    610.0
GR 578.0632.0   579.4    645.0    578.6    667.0    577.8    674.0    579.0    689.0
GR 578.8715.0   579.0    739.0    579.4    764.0    579.4    788.0    579.4    810.0
GR 579.9840.0   579.2    876.0    579.4    892.0    576.9    900.0    571.9    910.0
GR 568.3925.0   566.2    950.0    566.3    975.0    564.4    1000.0   564.4    1025.0
GR 564.91050.0  565.2    1075.0   566.1    1100.0   570.7    1125.0   576.9    1155.0
GR 578.41162.0  579.8    1184.0   580.2    1206.0   580.7    1228.0   580.6    1249.0
GR 580.21268.0  579.4    1290.0   579.0    1300.0
X1 1782243.0    870.0    1185.0   400.0    400.0    400.0
X3    10                             820               1235
GR 578.40.0     577.8    186.0    578.0    230.0    577.8    274.0    578.0    315.0
GR 577.8354.0   578.6    378.0    579.0    414.0    579.7    470.0    579.3    520.0
GR 580.8570.0   578.5    620.0    578.4    670.0    579.0    720.0    579.5    770.0
GR 579.7820.0   579.3    870.0    579.2    876.0    579.3    885.0    579.4    892.0
GR 576.9900.0   571.9    910.0    568.3    925.0    567.4    935.0    566.2    950.0
GR 566.3975.0   565.6    985.0    564.4    1000.0   564.4    1025.0   564.9    1035.0
GR 564.91050.0  565.2    1075.0   565.8    1085.0   566.1    1100.0   570.7    1125.0
GR 573.51135.0  576.9    1155.0   578.4    1162.0   579.8    1184.0   580.0    1185.0
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GR 580.71235.0  579.5   1285.0  57.0    1300.0
SB  1.251617    2.5             179.0   27.6    8390.0  2.0             564.4   564.4
X1 17858                        36.0    36.0    36.0
X2                      1.0  599.45  596.15
X3  10.0                        820             1235            598.56  598.45
BT     10820.0  596.55  579.7   870.0   598.56  596.63  885.0   599.02  597.09
BT 935.0600.43  598.5   985.0   601.21  599.28  1035.0  601.38  599.45  1085.0
BT601.04599.11  1135.0  600.15  598.22  1135.0  598.51  596.58  1235.0  596.15
BT 580.7
X1 1795861.0    800.0   1046.0  100.0   100.0   100.0
X3                              712             1113
GR 579.00.0     578.6   18.0    576.6   28.0    578.6   39.0    579.0   50.0
GR 578.563.0    576.6   72.0    573.8   88.0    576.9   97.0    579.2   108.0
GR 579.2129.0   577.6   165.0   573.8   178.0   578.7   203.0   579.0   228.0
GR 578.4269.0   578.4   316.0   578.0   357.0   578.0   396.0   577.9   422.0
GR 578.8430.0   578.6   448.0   577.8   462.0   579.0   481.0   579.6   508.0
GR 576.8545.0   582.2   566.0   581.8   592.0   579.8   603.0   580.3   616.0
GR 580.2629.0   579.4   648.0   578.6   657.0   580.4   667.0   581.3   712.0
GR 581.3754.0   580.4   787.0   580.1   800.0   572.7   810.0   570.1   820.0
GR 567.0840.0   566.4   860.0   556.8   880.0   567.0   900.0   567.0   920.0
GR 567.0940.0   567.4   960.0   567.0   980.0   567.0   1000.0  568.2   1020.0
GR 570.01025.0  575.2   1040.0  577.0   1041.0  578.6   1046.0  579.2   1074.0
GR 579.71095.0  579.8   1113.0  579.3   1139.0  579.7   1151.0  579.6   1179.0
GR 578.21200.0
NC  0.03
X1 20200        41      257     512     2242    2242    2242
X3                              257             563
GR 582.20.0     582.4   24.0    582.3   51.0    581.7   73.0    580.2   99.0
GR 578.6118.0   584.2   144.0   584.2   158.0   583.3   170.0   580.0   181.0
GR 580.8201.0   582.3   218.0   581.0   230.0   582.6   236.0   582.7   257.0
GR 581.4281.0   576.9   300.0   572.4   310.0   569.4   325.0   567.6   350.0
GR 566.3375.0   565.7   400.0   566.2   425.0   568.1   450.0   569.3   475.0
GR 571.2500.0   578.3   512.0   579.2   530.0   580.4   545.0   581.4   563.0
GR 580.8584.0   580.0   631.0   579.3   650.0   579.0   673.0   578.4   699.0
GR 578.6717.0   578.6   736.0   578.0   754.0   579.2   766.0   578.9   783.0
GR 578.6800.0
NC  0.040.05
X1 2141035.0    186.0   430.0   1210.0  1210.0  1210.0
X3   10                                         566
GR 579.30.0     578.2   9.0     578.5   33.0    578.2   68.0    578.2   99.0
GR 578.4127.0   577.9   157.0   579.0   186.0   574.8   200.0   571.5   220.0
GR 570.0229.0   567.8   240.0   565.5   260.0   565.0   280.0   564.9   300.0
GR 565.0320.0   565.0   340.0   565.5   360.0   566.1   380.0   566.4   390.0
GR 571.0400.0   574.5   420.0   579.9   430.0   579.4   454.0   580.0   483.0
GR 579.7514.0   580.0   566.0   579.9   596.0   580.8   610.0   580.0   626.0
GR 581.3637.0   581.0   658.0   580.1   661.0   581.8   670.0   583.2   700.0
NC   .05     .04     .035
X1 2384035.0    294.0   572.0   2430.0  2430.0  2430.0
X3   10                                         713
GR 581.20.0     581.8   12.0    581.2   35.0    582.0   52.0    580.7   85.0
GR 581.0116.0   580.6   161.0   580.8   196.0   580.4   214.0   581.0   237.0
GR 580.5272.0   581.9   294.0   577.0   300.0   573.4   325.0   572.4   350.0
GR 569.8375.0   568.4   400.0   566.3   425.0   566.0   450.0   566.7   475.0
GR 569.4500.0   572.3   525.0   574.6   550.0   577.0   565.0   577.4   572.0
GR 577.8595.0   577.4   614.0   576.8   644.0   578.4   654.0   579.1   674.0
GR 580.8693.0   581.4   713.0   580.8   740.0   580.2   765.0   579.8   800.0
NC   .04             .03
X1 26420        36      168     411     2580    2580    2580
X3   10                                         500
GR 581.30.0     582.4   30.0    581.8   64.0    582.0   91.0    581.3   124.0
GR 581.8149.0   582.4   168.0   579.9   200.0   572.1   210.0   571.8   220.0
GR 570.7240.0   570.0   248.0   569.4   260.0   568.6   280.0   568.2   291.0
GR 567.8300.0   565.4   320.0   563.4   340.0   563.1   360.0   564.8   380.0
GR 572.9400.0   574.6   410.0   579.9   411.0   580.0   434.0   579.2   470.0
GR 579.6508.0   579.6   536.0   579.2   568.0   579.3   586.0   580.2   607.0
GR 580.2643.0   580.1   682.0   579.1   721.0   580.2   748.0   579.9   774.0
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GR 580.6800.0
X1 27720      49     563     796    1300    1300    1300
X3   10
GR 582.80.0     582.4   13.0   581.6   21.0   583.5   31.0   584.2   53.0
GR 582.076.0    581.8   91.0   579.4  117.0   584.6  137.0   585.3  147.0
GR 585.4156.0   585.2  169.0   581.8  191.0   580.6  213.0   577.2  244.0
GR 576.6260.0   576.1  287.0   577.4  307.0   577.6  339.0   577.6  376.0
GR 577.0411.0   577.0  430.0   578.6  442.0   578.4  452.0   576.2  470.0
GR 578.4476.0   578.9  500.0   578.4  513.0   576.8  526.0   579.6  535.0
GR 581.0563.0   580.4  581.0   577.0  600.0   571.2  625.0   566.2  650.0
GR 564.5675.0   565.0  700.0   568.0  725.0   571.8  750.0   573.8  775.0
GR 577.0795.0   579.9  796.0   579.2  827.0   578.6  848.0   578.0  876.0
GR 578.4907.0   582.4  928.0   582.8  977.0   582.6 1000.0
NC      0.05
X1 30075      25     145     432    2355    2355    2355
X3   10                       87              537
GR 579.00.0     579.4   25.0   578.2   55.0   576.8   87.0   578.8  102.0
GR 580.0121.0   581.5  145.0   580.2  165.0   577.0  200.0   573.0  225.0
GR 571.7250.0   569.3  275.0   565.5  300.0   557.2  350.0   573.7  375.0
GR 577.0387.0   578.6  406.0   581.4  413.0   582.2  432.0   582.0  450.0
GR 580.6481.0   579.8  505.0   580.8  537.0   581.3  574.0   581.8  600.0
X1 30475      16     130     433     400     400     400
X3   10                      130              533
GR 579.00.0     579.2   30.0   577.1   80.0   580.6  130.0   580.2  165.0
GR 578.7183.0   572.8  233.0   568.0  283.0   566.7  333.0   575.7  383.0
GR 578.6404.0   582.2  433.0   580.6  483.0   580.8  533.0   581.5  583.0
GR 581.8600.0
SB  1.251.24     2.5                134.0   21.0  8762.0   3.04      566.7   566.7
X1 30620                        145.0  145.0   145.0
BT   14        0   603.3   579.0      30  603.69   579.2      80  604.04   577.1
BT   130  604.52  600.84     183  604.75  601.07     233  604.87  601.19     283
BT604.90  601.22   333.0  604.89  601.21   383.0  604.83  601.15   433.0  604.68
BT601.00   483.0  604.55  600.87   533.0  603.99   580.8   583.0  603.77   581.5
BT 600.0603.7   581.8
X2              1.0      601.2   603.3
X3   10                      130              533
NC   .07     .07    .035
X1 30720      34     251     500     100     100     100
X3   10
GR 600.20.0     600.6   43.0   600.7  103.0   600.3  163.0   592.3  183.0
GR 579.0212.0   580.8  236.0   581.2  251.0   580.6  262.0   577.3  272.0
GR 577.0289.0   574.7  300.0   572.0  320.0   570.0  340.0   568.5  360.0
GR 567.0370.0   567.1  380.0   566.9  400.0   565.6  420.0   565.0  430.0
GR 565.0440.0   569.3  460.0   574.0  480.0   579.8  500.0   581.5  515.0
GR 582.1534.0   582.0  548.0   581.5  559.0   587.4  573.0   593.4  596.0
GR 595.2620.0   594.8  650.0   594.2  673.0   594.0  700.0
EJ
T1       HARRISON TOWNSHIP - JOB NO. 5850-11  PROJECT MANAGER  OLE ANDERSON
T2       50 YEAR FLOOD   6300 CFS
T3          CLINTON RIVER   HARRISON TOWNSHIP
J1     -1       3                                                  575.60
J2      2               -1
T1       HARRISON TOWNSHIP - JOB NO. 5850-11  PROJECT MANAGER  OLE ANDERSON
T2       100 YEAR FLOOD   7100 CFS
T3          CLINTON RIVER  HARRISON TOWNSHIP
J1     -1       4                                                  575.60
J2      3               -1
T1       HARRISON TOWNSHIP - JOB NO. 5850-11  PROJECT MANAGER  OLE ANDERSON
T2       500 YEAR FLOOD   9900 CFS
T3          CLINTON RIVER  HARRISON TOWNSHIP
J1     -1       5                                                  575.60
J2     15               -1

ER
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*******************************************************
 HEC2 RELEASE DATED NOV 76 UPDATED JULY1979
 ERROR CORR -  01,02,03
 MODIFICATION -  50,51,52,53
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C
T1     HARRISON TOWNSHIP - JOB NO. 5850-11  PROJECT MANAGER  OLE ANDERSON
T2     10 YEAR FLOOD   3900 CFS
T3     CLINTON RIVER  HARRISON TOWNSHIP

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      -1.        2.        0.        0.  0.000000      0.00      0.0       0.    575.600    0.000

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     1.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    38.000    40.000    41.000    42.000    43.000     1.000     8.000    10.000    12.000     3.000

    33.000     4.000    25.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

J5  LPRNT     NUMSEC                        ********REQUESTED SECTION NUMBERS********

   -10.000   -10.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
QT     4.000  3600.000  5900.000  6800.000 10000.000     0.000     0.000     0.000     0.000     0.000
NC      .040      .040      .030      .100      .300     0.000     0.000     0.000     0.000     0.000

X1     0.000    30.000   172.000   488.000     0.000     0.000     0.000     0.000     0.000     0.000
X3     0.000     0.000     0.000   172.000     0.000   488.000     0.000     0.000     0.000     0.000
GR   577.000     0.000   577.000   106.000   578.100   111.000   577.600   123.000   578.600   133.000
GR   578.400   162.000   577.200   167.000   578.100   172.000   577.000   174.000   575.000   200.000
GR   576.000   209.000   565.900   220.000   565.800   240.000   565.900   260.000   566.900   280.000
GR   567.500   300.000   566.700   320.000   567.000   340.000   567.000   360.000   566.900   380.000
GR   568.900   400.000   569.000   420.000   569.000   440.000   569.000   450.000   575.000   460.000
GR   577.000   486.000   579.700   488.000   579.800   522.000   580.000   563.000   580.000   600.000

X1  3980.000    45.000   398.000   632.000  3980.000  3980.000  3980.000     0.000     0.000     0.000
X3     0.000     0.000     0.000   398.000     0.000   632.000     0.000     0.000     0.000     0.000
GR   578.100     0.000   578.200    16.000   578.900    32.000   578.600    64.000   577.800    86.000
GR   577.600   101.000   577.600   123.000   577.200   144.000   577.300   168.000   577.500   225.000
GR   577.500   265.000   577.500   319.000   577.600   368.000   577.600   398.000   566.000   400.000
GR   564.800   425.000   564.500   438.000   564.200   466.000   564.100   498.000   564.400   518.000
GR   565.100   529.000   564.800   544.000   565.100   557.000   565.400   585.000   566.500   605.000
GR   569.500   627.000   577.000   629.000   576.400   632.000   577.600   635.000   577.800   660.000
GR   578.000   714.000   578.100   740.000   578.600   754.000   578.700   806.000   578.500   840.000
GR   578.600   859.000   578.900   878.000   579.200   923.000   579.400   959.000   579.000   993.000
GR   579.000  1026.000   578.800  1050.000   578.400  1062.000   578.200  1086.000   578.200  1100.000

X1  4730.000    38.000   122.000   428.000   750.000   750.000   750.000     0.000     0.000     0.000
X3     0.000     0.000     0.000    95.100     0.000   428.000     0.000     0.000     0.000     0.000
GR   577.800     0.000   577.800    14.000   577.500    40.000   577.600    75.000   578.000    87.000
GR   579.600    95.000   579.000   105.000   578.400   122.000   577.700   131.000   577.000   145.000
GR   575.000   170.000   567.900   130.000   566.600   210.000   563.000   220.000   563.000   230.000
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GR	563.000	240.000	563.000	260.000	565.000	280.000	563.600	300.000	[illegible]	320.000
GR	568.800	340.000	570.000	351.000	571.100	360.000	572.300	383.000	575.000	400.000
GR	577.000	425.000	576.400	428.000	578.400	450.000	578.400	499.000	578.400	528.000
GR	578.600	547.000	578.800	580.000	576.800	600.000	578.100	622.000	578.200	649.000
GR	578.300	672.000	578.300	688.000	578.400	700.000	0.000	0.000	0.000	0.000
X1	6840.000	51.000	1300.000	1628.000	2110.000	2110.000	2110.000	.966	0.000	0.000
X3	10.000	0.000	0.000	1000.000	0.000	1661.000	0.000	0.000	0.000	0.000
GR	579.200	0.000	578.800	18.000	579.100	62.000	579.600	202.000	579.200	223.000
GR	578.800	245.000	573.200	268.000	577.600	306.000	577.800	342.000	577.000	457.000
GR	577.000	584.000	577.000	692.000	577.000	783.000	577.400	840.000	577.200	858.000
GR	576.900	893.000	577.800	925.000	578.100	953.000	578.200	988.000	578.200	1000.000
GR	578.200	1043.000	578.500	1079.000	578.200	1125.000	578.600	1175.000	578.300	1217.000
GR	577.600	1253.000	577.200	1292.000	577.000	1300.000	573.600	1317.000	569.200	1339.000
GR	566.100	1359.000	564.800	1386.000	564.100	1417.000	564.100	1439.000	564.000	1456.000
GR	564.700	1476.000	564.400	1494.000	564.900	1515.000	565.500	1548.000	565.800	1572.000
GR	569.600	1595.000	577.000	1605.000	577.400	1620.000	577.200	1623.000	578.400	1628.000
GR	578.300	1645.000	578.210	1661.000	576.800	1677.000	577.100	1684.000	577.100	1737.000
GR	577.100	1800.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	7470.000	51.000	1027.000	1423.000	630.000	630.000	630.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	864.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	578.700	0.000	578.800	22.000	578.800	48.000	578.700	78.000	578.600	109.000
GR	578.400	141.000	578.600	164.000	578.500	179.000	578.300	200.000	578.000	232.000
GR	577.700	240.000	577.000	292.000	577.000	439.000	577.000	621.000	577.000	735.000
GR	577.400	736.000	577.600	771.000	577.400	818.000	578.800	837.000	579.600	864.000
GR	579.500	903.000	579.300	934.000	579.000	968.000	579.400	1000.000	579.800	1027.000
GR	579.600	1056.000	579.000	1087.000	577.000	1100.000	565.500	1120.000	564.000	1140.000
GR	563.900	1160.000	563.300	1180.000	563.000	1200.000	562.900	1220.000	563.400	1240.000
GR	565.000	1260.000	566.900	1280.000	565.700	1300.000	567.800	1320.000	569.000	1340.000
GR	570.000	1354.000	570.500	1360.000	575.000	1386.000	577.000	1388.000	578.200	1398.000
GR	577.800	1414.000	578.800	1423.000	578.300	1444.000	575.800	1455.000	577.000	1472.000
GR	577.000	1500.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	8340.000	40.000	685.000	953.000	870.000	870.000	870.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	543.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	579.200	0.000	575.600	18.000	578.200	32.000	577.000	74.000	577.000	210.000
GR	577.000	222.000	577.000	345.000	577.800	395.000	577.700	402.000	578.700	428.000
GR	579.900	445.000	580.200	480.000	580.800	509.000	581.200	544.000	580.800	579.000
GR	580.800	502.000	580.400	533.000	579.400	663.000	576.500	685.000	577.000	700.000
GR	567.500	719.000	565.100	740.000	563.400	768.000	563.100	793.000	562.800	838.000
GR	564.000	881.000	564.900	899.000	566.000	922.000	572.100	966.000	577.000	992.000
GR	578.800	995.000	578.700	1011.000	578.800	1025.000	578.600	1035.000	578.000	1042.000
GR	577.400	1061.000	577.200	1089.000	577.000	1126.000	577.000	1164.000	577.000	1200.000
NC	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	9290.000	44.000	556.000	845.000	950.000	950.000	950.000	.700	-.800	0.000
X3	10.000	0.000	0.000	448.000	0.000	915.000	0.000	0.000	0.000	0.000
GR	579.000	0.000	578.800	19.000	578.600	45.000	579.000	73.000	578.400	106.000
GR	578.200	133.000	573.500	166.000	578.200	207.000	578.000	245.000	577.600	290.000
GR	577.200	319.000	577.200	338.000	575.800	343.000	578.400	352.000	578.600	371.000
GR	578.300	392.000	576.200	401.000	577.800	407.000	578.000	430.000	578.400	448.000
GR	578.200	475.000	577.900	500.000	578.000	527.000	577.700	556.000	576.900	566.000
GR	570.500	600.000	569.100	625.000	568.900	650.000	567.000	675.000	565.700	700.000
GR	565.600	725.000	565.600	750.000	566.200	775.000	566.200	800.000	567.500	825.000
GR	572.600	845.000	577.900	846.000	577.600	867.000	578.000	891.000	578.200	915.000
GR	578.200	940.000	578.400	959.000	578.600	983.000	578.200	1000.000	0.000	0.000
X1	9640.000	44.000	556.000	345.000	350.000	350.000	350.000	.978	0.000	0.000
X3	10.000	0.000	0.000	448.000	0.000	915.000	0.000	0.000	0.000	0.000
GR	579.000	0.000	578.800	19.000	578.500	45.000	579.000	73.000	578.400	106.000

GR	578.200	133.000	578.300	166.000	578.200	207.000	578.000	245.000	577.5[illegible]	290.000
GR	577.200	319.000	577.200	338.000	575.800	343.000	578.400	352.000	578.600	371.000
GR	578.300	392.000	576.200	401.000	577.800	407.000	578.000	430.000	578.400	448.000
GR	578.200	475.000	577.900	500.000	578.000	527.000	577.700	556.000	576.900	566.000
GR	570.500	600.000	569.100	625.000	568.900	650.000	567.000	675.000	565.700	700.000
GR	565.600	725.000	565.600	750.000	566.200	775.000	566.200	800.000	567.500	825.000
GR	572.600	845.000	577.900	846.000	577.600	867.000	578.000	891.000	578.200	915.000
GR	578.200	940.000	578.400	959.000	578.600	983.000	578.200	1000.000	0.000	0.000
X1	10330.000	62.000	579.000	865.000	690.000	690.000	690.000	.940	0.000	0.000
X3	0.000	0.000	0.000	579.000	0.000	915.000	0.000	0.000	0.000	0.000
GR	576.300	0.000	575.700	34.000	575.300	43.000	576.800	50.000	576.200	60.000
GR	576.600	68.000	578.200	79.000	577.800	110.000	577.500	142.000	576.100	164.000
GR	572.200	177.000	571.700	189.000	572.200	201.000	580.000	222.000	580.800	232.000
GR	576.800	254.000	577.000	278.000	575.700	284.000	577.600	292.000	578.000	302.000
GR	578.200	315.000	577.400	334.000	576.400	345.000	577.500	349.000	577.600	371.000
GR	577.800	391.000	577.600	421.000	577.400	450.000	577.600	477.000	577.200	504.000
GR	577.000	521.000	577.000	579.000	575.000	600.000	567.600	610.000	568.800	620.000
GR	566.100	640.000	565.100	660.000	565.100	680.000	564.900	700.000	565.000	720.000
GR	565.000	730.000	565.000	740.000	567.000	750.000	567.200	760.000	568.000	770.000
GR	567.200	780.000	569.000	790.000	568.000	800.000	568.100	820.000	568.900	840.000
GR	569.100	850.000	575.200	860.000	577.400	865.000	577.600	879.000	578.400	896.000
GR	578.400	915.000	577.900	930.000	578.200	941.000	578.000	954.000	577.800	966.000
GR	577.800	995.000	577.800	1000.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	10640.000	50.000	600.000	878.000	310.000	310.000	310.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	625.000	0.000	913.000	0.000	0.000	0.000	0.000
GR	578.400	0.000	578.800	31.000	576.700	45.000	576.400	58.000	577.000	73.000
GR	577.600	93.000	576.200	115.000	576.800	124.000	577.300	142.000	576.800	165.000
GR	577.900	198.000	578.400	231.000	578.200	265.000	577.600	285.000	581.000	301.000
GR	579.000	317.000	578.200	345.000	578.400	361.000	578.600	372.000	578.100	384.000
GR	577.000	400.000	578.400	411.000	578.000	449.000	577.400	455.000	577.000	457.000
GR	577.000	600.000	570.600	610.000	568.600	625.000	567.500	650.000	566.100	675.000
GR	565.300	700.000	563.800	725.000	563.800	750.000	564.200	775.000	566.300	800.000
GR	567.500	825.000	571.000	850.000	577.000	875.000	577.800	878.000	578.400	884.000
GR	579.000	893.000	580.000	913.000	579.400	955.000	578.500	975.000	577.600	997.000
GR	577.800	1025.000	577.800	1056.000	577.000	1057.000	577.000	1189.000	578.000	1200.000
NC	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	13090.000	67.000	568.000	839.000	2450.000	2450.000	2450.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	467.000	0.000	916.000	0.000	0.000	0.000	0.000
GR	577.200	0.000	577.400	7.000	576.400	20.000	579.400	35.000	579.800	63.000
GR	579.600	86.000	578.000	100.000	580.000	114.000	579.200	135.000	578.400	152.000
GR	575.300	174.000	574.600	187.000	576.600	202.000	582.400	226.000	581.400	240.000
GR	578.800	254.000	577.300	270.000	579.200	278.000	579.600	289.000	579.200	300.000
GR	578.800	327.000	578.400	361.000	578.200	383.000	578.400	417.000	578.400	467.000
GR	577.300	503.000	578.000	537.000	578.400	565.000	577.900	590.000	577.000	592.000
GR	575.000	600.000	569.700	620.000	566.300	630.000	566.000	640.000	568.000	650.000
GR	568.000	660.000	566.000	680.000	565.900	700.000	565.100	720.000	564.200	730.000
GR	565.100	740.000	565.000	760.000	565.200	780.000	565.900	790.000	568.100	800.000
GR	570.000	812.000	572.500	820.000	575.100	830.000	577.000	838.000	578.000	839.000
GR	577.500	856.000	578.100	876.000	579.400	893.000	580.000	916.000	579.800	940.000
GR	579.600	956.000	579.800	981.000	579.800	1004.000	579.900	1013.000	579.600	1028.000
GR	579.400	1045.000	579.400	1075.000	579.500	1088.000	579.500	1118.000	579.000	1148.000
GR	578.600	1190.000	579.400	1200.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	13640.000	46.000	778.000	1021.000	550.000	550.000	550.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	676.000	0.000	1070.000	0.000	0.000	0.000	0.000
GR	577.000	0.000	577.000	31.000	576.800	72.000	577.000	121.000	576.900	161.000
GR	577.600	198.000	577.300	238.000	573.200	271.000	581.200	298.000	580.000	313.000
GR	577.200	330.000	577.600	346.000	576.800	356.000	577.800	365.000	577.800	382.000
GR	577.200	402.000	577.000	436.000	577.500	469.000	576.800	519.000	577.000	555.000

GR	577.700	594.000	578.200	639.000	578.400	676.000	578.200	705.000	577.800	751.000
GR	577.800	778.000	577.000	800.000	572.000	801.000	569.400	825.000	568.000	850.000
GR	566.300	875.000	565.800	900.000	565.600	925.000	566.300	950.000	566.800	975.000
GR	570.800	1000.000	577.000	1020.000	577.800	1021.000	578.600	1035.000	579.600	1053.000
GR	580.000	1070.000	579.400	1119.000	579.900	1139.000	579.400	1160.000	579.200	1188.000
GR	579.000	1200.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	15640.000	47.000	300.000	616.000	2000.000	2000.000	2000.000	.900	0.000	0.000
X3	10.000	0.000	0.000	195.000	0.000	741.000	0.000	0.000	0.000	0.000
GR	578.600	0.000	578.000	23.000	577.800	50.000	577.800	72.000	578.400	80.000
GR	579.500	113.000	578.400	127.000	579.600	141.000	579.800	150.000	579.600	170.000
GR	579.200	195.000	578.500	217.000	578.600	247.000	578.000	276.000	577.500	300.000
GR	575.900	301.000	572.200	310.000	568.600	331.000	567.800	366.000	566.700	396.000
GR	565.800	412.000	564.300	443.000	565.100	481.000	567.100	524.000	567.600	557.000
GR	568.900	577.000	572.600	589.000	576.900	590.000	579.600	593.000	579.800	603.000
GR	580.400	616.000	580.200	629.000	579.200	641.000	579.600	660.000	580.500	691.000
GR	581.500	722.000	582.000	741.000	582.000	761.000	580.700	776.000	579.800	794.000
GR	579.500	824.000	579.400	860.000	580.200	885.000	579.400	922.000	579.400	943.000
GR	579.400	974.000	579.600	1000.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	17422.000	63.000	892.000	1162.000	1782.000	1782.000	1782.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	764.000	0.000	1228.000	0.000	0.000	0.000	0.000
GR	578.400	0.000	573.100	12.000	576.800	23.000	578.800	33.000	578.700	45.000
GR	578.000	60.000	576.600	70.000	578.000	83.000	576.600	97.000	579.000	107.000
GR	579.600	129.000	579.000	151.000	576.700	163.000	578.700	170.000	577.800	186.000
GR	578.000	230.000	577.800	274.000	578.000	315.000	577.800	354.000	578.600	378.000
GR	579.000	414.000	579.200	457.000	579.600	475.000	578.600	487.000	579.500	513.000
GR	578.400	537.000	577.300	554.000	581.600	576.000	580.600	592.000	578.900	610.000
GR	578.000	632.000	579.400	645.000	578.600	667.000	577.800	674.000	579.000	689.000
GR	578.800	715.000	579.000	739.000	579.400	764.000	579.400	788.000	579.400	810.000
GR	579.900	840.000	579.200	876.000	579.400	892.000	576.900	900.000	571.900	910.000
GR	568.300	925.000	566.200	950.000	566.300	975.000	564.600	1000.000	564.400	1025.000
GR	564.900	1050.000	565.200	1075.000	566.100	1100.000	570.700	1125.000	576.900	1155.000
GR	578.400	1162.000	579.800	1184.000	580.200	1206.000	580.700	1228.000	580.600	1249.000
GR	580.200	1268.000	579.400	1290.000	579.000	1300.000	0.000	0.000	0.000	0.000

DOWNSTREAM SECTION FOR BRIDGEVIEW BRIDGE

X1	17822.000	43.000	870.000	1185.000	400.000	400.000	400.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	820.000	0.000	1235.000	0.000	0.000	0.000	0.000
GR	578.400	0.000	577.800	186.000	578.000	230.000	577.800	274.000	578.000	315.000
GR	577.800	354.000	578.600	378.000	579.000	414.000	579.700	470.000	579.300	520.000
GR	580.800	570.000	578.500	620.000	578.400	670.000	579.000	720.000	579.500	770.000
GR	579.700	820.000	579.300	870.000	579.200	876.000	579.300	885.000	579.400	892.000
GR	576.900	900.000	571.900	910.000	568.300	925.000	567.400	935.000	566.200	950.000
GR	566.300	975.000	565.600	985.000	564.400	1000.000	564.400	1025.000	564.900	1035.000
GR	564.900	1050.000	565.200	1075.000	565.800	1085.000	566.100	1100.000	570.700	1125.000
GR	573.500	1135.000	576.900	1155.000	578.400	1162.000	579.800	1184.000	580.000	1185.000
GR	580.700	1235.000	579.500	1285.000	579.000	1300.000	0.000	0.000	0.000	0.000
SB	1.250	1.170	2.500	0.000	179.000	27.600	8390.000	2.000	564.400	564.400

UPSTREAM SECTION FOR BRIDGEVIEW BRIDGE

X1	17858.000	0.000	0.000	0.000	36.000	36.000	36.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	599.450	596.150	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	820.000	0.000	1235.000	0.000	598.560	598.450	0.000
BT	10.000	820.000	596.550	579.700	870.000	598.560	596.630	885.000	599.020	597.090
BT	935.000	600.430	598.500	985.000	601.210	599.280	1035.000	601.380	599.450	1085.000
BT	601.040	599.110	1135.000	600.150	598.220	1185.000	598.510	596.580	1235.000	596.150
BT	580.700	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	17958.[illegible]	61.000	8[illegible]0.000	104[illegible].000	100.0[illegible]0	1[illegible]	1[illegible]0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	712.000	0.000	1113.000	0.000	0.000	0.000	0.000
GR	579.000	0.000	578.600	18.000	576.600	28.000	578.600	39.000	579.000	50.000
GR	578.500	63.000	576.600	72.000	578.800	88.000	576.900	97.000	579.200	108.000
GR	579.200	129.000	577.600	165.000	578.800	178.000	578.700	203.000	579.000	228.000
GR	578.400	269.000	578.400	316.000	578.000	357.000	578.000	396.000	577.900	422.000
GR	578.800	430.000	578.603	448.000	577.800	462.000	579.000	481.000	579.600	508.000
GR	576.800	545.000	582.200	566.000	581.800	592.000	579.800	603.000	580.300	616.000
GR	580.200	629.000	579.400	648.000	578.600	657.000	580.403	667.000	581.300	712.000
GR	581.300	764.000	580.400	787.000	580.100	800.000	572.700	810.000	570.100	820.000
GR	567.000	840.000	566.400	860.000	566.800	880.000	567.000	900.000	567.000	920.000
GR	567.000	940.000	567.400	960.000	567.000	980.000	567.000	1000.000	568.200	1020.000
GR	570.000	1025.000	575.200	1040.000	577.030	1041.000	578.600	1046.000	579.200	1074.000
GR	579.700	1095.000	579.800	1113.000	579.300	1139.080	579.700	1151.000	579.600	1179.000
GR	578.200	1200.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	20200.000	41.000	257.000	512.000	2242.000	2242.000	2242.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	257.000	0.000	563.000	0.000	0.000	0.000	0.000
GR	582.200	0.000	582.400	24.000	582.300	51.000	581.700	73.000	580.200	99.000
GR	578.600	118.000	584.200	144.000	584.200	158.000	583.300	170.000	580.000	181.000
GR	580.800	201.000	582.300	218.000	581.000	230.000	582.600	236.000	582.700	257.000
GR	581.400	281.000	576.900	300.000	572.400	310.000	569.400	325.000	567.600	350.000
GR	566.300	375.000	565.700	400.000	566.200	425.000	568.100	450.000	569.300	475.000
GR	571.200	500.000	578.300	512.000	579.200	530.000	580.400	545.000	581.400	563.000
GR	580.800	584.000	580.000	631.000	579.300	650.000	579.300	673.000	578.400	699.000
GR	578.600	717.000	578.600	736.000	578.000	754.000	579.200	766.000	578.900	783.000
GR	578.600	800.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.040	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	21410.000	35.000	186.000	430.000	1210.000	1210.000	1210.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	566.000	0.000	0.000	0.000	0.000
GR	579.300	0.000	578.200	9.000	578.600	33.000	578.200	68.000	578.200	99.000
GR	578.400	127.000	577.900	157.000	579.000	186.000	576.300	200.000	571.500	220.000
GR	570.000	229.000	567.800	240.000	565.500	260.000	565.000	280.000	564.900	300.000
GR	565.000	320.000	565.000	340.000	565.500	360.000	565.100	380.000	566.400	390.000
GR	571.000	400.000	574.500	420.000	579.900	430.000	579.400	454.000	580.000	483.000
GR	579.700	514.000	580.000	566.000	579.900	596.000	580.800	610.000	580.000	626.000
GR	581.300	637.000	581.000	658.000	580.100	661.000	581.800	670.000	583.200	700.000
NC	.050	.040	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	23840.000	35.000	294.000	572.000	2430.000	2430.000	2430.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	713.000	0.000	0.000	0.000	0.000
GR	581.200	0.000	581.800	12.000	581.200	35.000	582.000	52.000	580.700	85.000
GR	581.000	116.000	580.600	161.000	580.800	196.000	580.600	214.000	581.000	237.000
GR	580.500	272.000	581.900	294.000	577.000	300.000	573.400	325.000	572.400	350.000
GR	569.800	375.000	568.400	400.000	566.300	425.000	566.000	450.000	566.700	475.000
GR	569.400	500.000	572.300	525.000	574.600	550.000	577.000	565.000	577.400	572.000
GR	577.800	595.000	577.400	614.000	576.800	644.000	578.400	664.000	579.100	674.000
GR	580.800	693.000	581.400	713.000	580.800	740.000	580.200	765.000	579.800	800.000
NC	.040	0.000	.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	26420.000	36.000	168.000	411.000	2580.000	2580.000	2580.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	500.000	0.000	0.000	0.000	0.000
GR	581.300	0.000	582.400	30.000	581.800	64.000	582.000	91.000	581.300	124.000
GR	581.800	149.000	582.400	168.000	579.900	200.000	572.100	210.000	571.800	220.000
GR	570.700	240.000	570.000	248.000	569.400	260.000	568.600	280.000	568.200	291.000
GR	567.800	300.000	565.400	320.000	563.400	340.000	563.100	360.000	564.800	380.000
GR	572.900	400.000	574.600	410.000	579.900	411.000	580.000	434.000	579.200	470.000
GR	579.600	508.000	579.600	536.000	579.200	568.000	579.300	586.000	580.200	607.000
GR	580.200	643.000	580.100	682.000	579.100	721.000	580.200	748.000	579.900	774.000
GR	580.600	800.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	27720.000	49.000	563.000	796.000	1300.000	1300.000	1300.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	582.800	0.000	582.400	13.000	581.600	21.000	583.500	31.000	584.200	53.000
GR	582.000	76.000	581.800	91.000	579.400	117.000	584.600	137.000	585.300	147.000
GR	585.400	156.000	585.200	169.000	581.800	191.000	580.600	213.000	577.200	244.000
GR	576.600	260.000	576.100	287.000	577.400	307.000	577.600	339.000	577.600	376.000
GR	577.000	411.000	577.000	430.000	578.400	442.000	578.400	462.000	576.200	470.000
GR	578.400	476.000	578.900	500.000	578.400	513.000	576.800	526.000	579.600	535.000
GR	581.000	563.000	580.400	581.000	577.000	600.000	571.200	625.000	566.200	650.000
GR	564.500	675.000	565.000	700.000	568.000	725.000	571.800	750.000	573.800	775.000
GR	577.000	795.000	579.900	796.000	579.200	827.000	575.600	848.000	578.000	876.000
GR	578.400	907.000	582.400	928.000	582.800	977.000	582.600	1000.000	0.000	0.000
NC	0.000	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	30075.000	25.000	145.000	432.000	2355.000	2355.000	2355.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	87.000	0.000	537.000	0.000	0.000	0.000	0.000
GR	579.000	0.000	579.400	25.000	576.200	55.000	576.800	87.000	578.800	102.000
GR	580.000	121.000	581.500	145.000	580.200	165.000	577.000	200.000	573.000	225.000
GR	571.700	250.000	569.300	275.000	565.500	300.000	567.200	350.000	573.700	375.000
GR	577.000	387.000	578.600	404.000	581.400	413.000	582.200	432.000	582.000	450.000
GR	580.600	481.000	579.800	505.000	580.800	537.000	581.300	574.000	581.800	600.000

DOWNSTREAM SECTION FOR I-94 BRIDGE

X1	30475.000	16.000	130.000	433.000	400.000	400.000	400.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	130.000	0.000	533.000	0.000	0.000	0.000	0.000
GR	579.000	0.000	579.200	30.000	577.100	80.000	580.600	130.000	580.200	165.000
GR	578.700	183.000	572.800	233.000	568.000	283.000	566.700	333.000	575.700	383.000
GR	578.600	404.000	582.200	433.000	580.600	483.000	580.800	533.000	581.500	583.000
GR	581.800	600.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	1.250	1.240	2.500	0.000	134.000	21.000	8762.000	3.040	566.700	566.700

UPSTREAM SECTION FOR I-94 BRIDGE

X1	30620.000	0.000	0.000	0.000	145.000	145.000	145.000	0.000	0.000	0.000
BT	14.000	0.000	603.300	579.000	30.000	603.690	579.200	80.000	604.040	577.100
BT	130.000	604.520	600.840	183.000	604.750	601.070	233.000	604.870	601.190	283.000
BT	604.900	601.220	333.000	604.850	601.210	383.000	604.830	601.150	433.000	604.680
BT	601.000	483.000	604.550	600.870	533.000	603.990	580.800	583.000	603.770	581.500
BT	600.000	603.700	581.800	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	601.200	603.300	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	130.000	0.000	533.000	0.000	0.000	0.000	0.000
NC	.070	.070	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	30720.000	34.000	251.000	500.000	100.000	100.000	100.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	600.200	0.000	600.600	43.000	600.700	103.000	600.300	163.000	592.300	183.000
GR	579.000	212.000	580.800	236.000	581.200	251.000	580.600	262.000	577.300	272.000
GR	577.000	289.000	574.700	300.000	572.000	320.000	570.000	340.000	568.500	360.000
GR	567.000	370.000	567.100	380.000	565.500	400.000	565.600	420.000	565.000	430.000
GR	565.000	440.000	569.300	460.000	574.000	480.000	579.800	500.000	581.500	515.000
GR	582.100	534.000	582.000	548.000	581.500	559.000	587.400	573.000	593.400	596.000
GR	595.200	620.000	594.800	650.000	594.200	673.000	594.000	700.000	0.000	0.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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HEC2 RELEASE DATED NOV 76 UPDATED JULY1979
ERROR CORR - 01,02,03
MODIFICATION - 50,51,52,53
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T1      HARRISON TOWNSHIP - JOB NO. 5850-11  PROJECT MANAGER  OLE ANDERSON
T2      50 YEAR FLOOD   3300 CFS
T3          CLINTON RIVER    HARRISON TOWNSHIP

J1  ICHECK     INQ      NINV      IDIR      STRT      METRIC    HVINS      Q        WSEL      FQ
       -1.       3.        0.        0.  0.000000     0.00      0.0        0.    575.600    0.000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH      FN       ALLDC      IBW      CHNIM     ITRACE
     2.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
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HEC2 RELEASE DATED NOV 76 UPDATED JULY1979
ERROR CORR -  01,02,03
MODIFICATION -  50,51,52,53
****************************************************

T1      HARRISON TOWNSHIP - JOB NO. 5850-11  PROJECT MANAGER  OLE ANDERSON
T2      100 YEAR FLOOD   7100 CFS
T3          CLINTON RIVER  HARRISON TOWNSHIP

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC     HVINS      Q       WSEL      FQ
       -1.        4.        0.        0.  0.000000      0.00       0.0       0.   575.600    0.000

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN         ALLDC     IBW      CHNIM     ITRACE
       3.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
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*****************************************************
 HEC2 RELEASE DATED NOV 76 UPDATED JULY1979
 ERROR CORR -  01,02,03
 MODIFICATION -  50,51,52,53
*****************************************************

T1      HARRISON TOWNSHIP - JOB NO. 5850-11  PROJECT MANAGER  OLE ANDERSON
T2      500 YEAR FLOOD   9500 CFS
T3         CLINTON RIVER   HARRISON TOWNSHIP

J1  ICHECK     INQ      NINV     IDIR      STRT     METRIC    HVINS     Q       WSEL      FQ

      -1.        5.       0.       0.  0.000000     0.00      0.0       0.   575.600    0.000

J2  NPROF      IPLOT    PRFVS    XSECV     XSECH     FN       ALLDC     IBW     CHNIM     ITRACE

     15.000     0.000   -1.000    0.000     0.000    0.000    0.000    0.000    0.000    0.000
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*HEC2 RELEASE DATED NOV 76 UPDATED JULY1979
 ERROR CORR -  01,02,03
 MODIFICATION -  50,51,52,53
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

CLINTON RIVER HARRISON

SUMMARY PRINTOUT

SECNO	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	HV	OLOSS	EG	K*CHSL	TOPWID	AREA
0.000	0.00	0.00	565.80	3600.00	575.60	9.80	.05	0.00	575.65	0.00	271.56	2010.54
0.000	0.00	0.00	565.80	5900.00	575.60	9.80	.13	0.00	575.73	0.00	271.56	2010.54
0.000	0.00	0.00	565.80	6800.00	575.60	9.80	.18	0.00	575.78	0.00	271.56	2010.54
0.000	0.00	0.00	565.80	10000.00	575.60	9.80	.38	0.00	575.98	0.00	271.56	2010.54
3980.000	0.00	0.00	564.10	3600.00	575.85	11.75	.03	.00	575.89	-.43	230.39	2444.51
3980.000	0.00	0.00	564.10	5900.00	576.24	12.14	.08	.00	576.33	-.43	230.56	2534.44
3980.000	0.00	0.00	564.10	6800.00	576.43	12.33	.11	.01	576.54	-.43	230.65	2577.98
3980.000	0.00	0.00	564.10	10000.00	577.22	13.12	.20	.02	577.43	-.43	231.41	2760.77
4730.000	0.00	0.00	563.00	3600.00	575.88	12.88	.04	.00	575.93	-1.47	252.35	2122.30
4730.000	0.00	0.00	563.00	5900.00	576.32	13.32	.11	.01	576.43	-1.47	263.03	2232.33
4730.000	0.00	0.00	563.00	6800.00	576.53	13.53	.14	.01	576.67	-1.47	268.29	2288.22
4730.000	0.00	0.00	563.00	10000.00	577.40	14.40	.24	.01	577.64	-1.47	288.88	2530.74
6840.000	0.00	0.00	564.00	3600.00	576.00	12.00	.03	.00	576.03	.47	288.51	2794.03
6840.000	0.00	0.00	564.00	5900.00	576.60	12.60	.06	.00	576.66	.47	292.18	2968.07
6840.000	0.00	0.00	564.00	6800.00	576.88	12.88	.08	.01	576.95	.47	293.91	3050.77
6840.000	0.00	0.00	564.00	10000.00	577.99	13.99	.13	.01	578.12	.47	380.35	3426.99
7470.000	0.00	0.00	562.90	3600.00	576.02	13.12	.03	.00	576.05	-1.75	285.35	2772.15
7470.000	0.00	0.00	562.90	5900.00	576.65	13.75	.06	.00	576.71	-1.75	287.03	2948.13
7470.000	0.00	0.00	562.90	6800.00	576.93	14.03	.08	.00	577.01	-1.75	287.82	3030.91
7470.000	0.00	0.00	562.90	10000.00	578.08	15.18	.14	.00	578.22	-1.75	318.03	3373.05
8340.000	0.00	0.00	562.80	3600.00	576.05	13.25	.02	.00	576.08	-.11	285.07	2862.88
8340.000	0.00	0.00	562.80	5900.00	576.71	13.91	.05	.00	576.77	-.11	289.88	3051.58
8340.000	0.00	0.00	562.80	6800.00	577.01	14.21	.07	.00	577.09	-.11	292.15	3139.53
8340.000	0.00	0.00	562.80	10000.00	578.22	15.42	.13	.00	578.35	-.11	306.08	3500.18
9290.000	0.00	0.00	564.80	3600.00	576.07	11.27	.07	.01	576.14	2.11	195.78	1723.04
9290.000	0.00	0.00	564.80	5900.00	576.75	11.95	.16	.03	576.90	2.11	201.62	1855.95
9290.000	0.00	0.00	564.80	6800.00	577.06	12.26	.20	.04	577.25	2.11	236.88	1922.34
9290.000	0.00	0.00	564.80	10000.00	578.28	13.48	.32	.06	578.60	2.11	326.90	2302.95
9640.000	0.00	0.00	565.60	3600.00	576.13	10.53	.04	.00	576.17	2.29	269.51	2203.85
9640.000	0.00	0.00	565.60	5900.00	576.88	11.28	.09	.01	576.97	2.29	273.53	2406.86
9640.000	0.00	0.00	565.60	6800.00	577.22	11.62	.12	.01	577.33	2.29	277.57	2500.15
9640.000	0.00	0.00	565.60	10000.00	578.53	12.93	.19	.01	578.71	2.29	456.73	2965.63

SECNO	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	HV	OLOSS	EG	K*CHSL	TOPWID	AREA
10330.000	0.00	0.00	564.90	3600.00	576.17	11.27	.04	.00	576.22	-1.01	258.14	2215.30
10330.000	0.00	0.00	564.90	5900.00	576.97	12.07	.09	.00	577.06	-1.01	267.63	2423.04
10330.000	0.00	0.00	564.90	6800.00	577.33	12.43	.11	.00	577.44	-1.01	268.68	2518.58
10330.000	0.00	0.00	564.90	10000.00	578.68	13.78	.19	.00	578.86	-1.01	315.84	2913.42
10640.000	0.00	0.00	563.80	3600.00	576.20	12.40	.04	.00	576.23	-3.55	246.64	2342.37
10640.000	0.00	0.00	563.80	5900.00	577.02	13.22	.08	.00	577.10	-3.55	250.04	2545.41
10640.000	0.00	0.00	563.80	6800.00	577.38	13.58	.10	.00	577.48	-3.55	251.41	2636.60
10640.000	0.00	0.00	563.80	10000.00	578.75	14.95	.17	.00	578.93	-3.55	264.20	2987.94
13090.000	0.00	0.00	564.20	3600.00	576.33	12.13	.05	.00	576.38	.16	240.54	2098.14
13090.000	0.00	0.00	564.20	5900.00	577.29	13.09	.10	.00	577.39	.16	246.96	2333.58
13090.000	0.00	0.00	564.20	6800.00	577.71	13.51	.12	.01	577.83	.16	248.30	2436.40
13090.000	0.00	0.00	564.20	10000.00	579.23	15.03	.19	.00	579.42	.16	423.83	3013.86
13640.000	0.00	0.00	565.60	3600.00	576.37	10.77	.06	.00	576.43	2.55	217.82	1829.07
13640.000	0.00	0.00	565.60	5900.00	577.36	11.76	.13	.01	577.49	2.55	230.28	2048.68
13640.000	0.00	0.00	565.60	6800.00	577.78	12.18	.16	.01	577.94	2.55	242.50	2149.17
13640.000	0.00	0.00	565.60	10000.00	579.33	13.73	.23	.01	579.57	2.55	372.35	2686.14
15640.000	0.00	0.00	564.30	3600.00	576.53	12.23	.03	.00	576.56	-.65	259.38	2407.01
15640.000	0.00	0.00	564.30	5900.00	577.67	13.37	.07	.01	577.74	-.65	269.32	2706.23
15640.000	0.00	0.00	564.30	6800.00	578.15	13.85	.09	.01	578.24	-.65	290.77	2841.85
15640.000	0.00	0.00	564.30	10000.00	579.83	15.53	.14	.01	579.97	-.65	367.81	3410.19
17422.000	0.00	0.00	564.40	3600.00	576.61	12.21	.04	.00	576.65	.06	253.02	2351.63
17422.000	0.00	0.00	564.40	5900.00	577.83	13.43	.08	.00	577.90	.06	262.31	2665.24
17422.000	0.00	0.00	564.40	6800.00	578.33	13.93	.09	.00	578.43	.06	266.28	2798.71
17422.000	0.00	0.00	564.40	10000.00	580.07	15.67	.14	.00	580.22	.06	434.99	3364.60
17822.000	0.00	0.00	564.40	3600.00	576.63	12.23	.04	.00	576.67	0.00	252.88	2338.86
17822.000	0.00	0.00	564.40	5900.00	577.87	13.47	.08	.00	577.94	0.00	262.59	2657.00
17822.000	0.00	0.00	564.40	6800.00	578.38	13.98	.09	.00	578.47	0.00	266.61	2792.01
17822.000	0.00	0.00	564.40	10000.00	580.14	15.74	.14	.00	580.28	0.00	374.22	3337.39
17858.000	596.15	599.45	564.40	3600.00	576.64	12.24	.04	0.00	576.68	0.00	252.95	2341.13
17858.000	596.15	599.45	564.40	5900.00	577.88	13.48	.08	0.00	577.96	0.00	262.74	2662.07
17858.000	596.15	599.45	564.40	6800.00	578.40	14.00	.09	0.00	578.49	0.00	266.79	2798.30
17858.000	596.15	599.45	564.40	10000.00	580.17	15.77	.14	0.00	580.31	0.00	315.00	3318.74
17958.000	0.00	0.00	566.40	3600.00	576.64	10.24	.05	.00	576.69	20.00	236.13	2055.88
17958.000	0.00	0.00	566.40	5900.00	577.88	11.48	.10	.01	577.98	20.00	240.78	2351.69
17958.000	0.00	0.00	566.40	6800.00	578.39	11.99	.12	.01	578.51	20.00	243.08	2476.18
17958.000	0.00	0.00	566.40	10000.00	580.16	13.76	.18	.01	580.34	20.00	315.60	2964.39
20200.000	0.00	0.00	565.70	3600.00	576.82	11.12	.07	.01	576.88	-.31	209.31	1742.62
20200.000	0.00	0.00	565.70	5900.00	578.19	12.49	.13	.01	578.32	-.31	217.26	2035.29
20200.000	0.00	0.00	565.70	6800.00	578.74	13.04	.15	.01	578.90	-.31	228.60	2157.79
20200.000	0.00	0.00	565.70	10000.00	580.60	14.90	.23	.02	580.83	-.31	264.21	2617.15
21410.000	0.00	0.00	564.90	3600.00	576.94	12.04	.04	.00	576.98	-.66	231.60	2118.63
21410.000	0.00	0.00	564.90	5900.00	578.40	13.50	.09	.00	578.49	-.66	239.22	2464.29
21410.000	0.00	0.00	564.90	6800.00	578.98	14.08	.11	.00	579.08	-.66	242.22	2603.65
21410.000	0.00	0.00	564.90	10000.00	580.92	16.02	.14	.01	581.06	-.66	566.00	3709.29

SECNO	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	HV	OLOSS	EG	K*CHSL	TOPWID	AREA
23840.000	0.00	0.00	566.00	3600.00	577.16	11.16	.06	.01	577.23	.45	268.07	1799.24
23840.000	0.00	0.00	566.00	5900.00	578.76	12.76	.10	.00	578.86	.45	371.14	2353.58
23840.000	0.00	0.00	566.00	6800.00	579.37	13.37	.12	.00	579.49	.45	379.83	2584.01
23840.000	0.00	0.00	566.00	10000.00	581.35	15.35	.15	.00	581.50	.45	416.53	3364.92
26420.000	0.00	0.00	563.10	3600.00	577.45	14.35	.05	.00	577.51	-1.12	207.42	1945.22
26420.000	0.00	0.00	563.10	5900.00	579.17	16.07	.10	.00	579.27	-1.12	209.92	2301.13
26420.000	0.00	0.00	563.10	6800.00	579.81	16.71	.12	.00	579.93	-1.12	210.86	2435.45
26420.000	0.00	0.00	563.10	10000.00	581.86	18.76	.18	.01	582.04	-1.12	325.10	3093.79
27720.000	0.00	0.00	564.50	3600.00	577.56	13.06	.08	.01	577.64	1.08	198.34	1565.05
27720.000	0.00	0.00	564.50	5900.00	579.33	14.83	.15	.01	579.48	1.08	208.85	1925.70
27720.000	0.00	0.00	564.50	6800.00	579.99	15.49	.16	.01	580.15	1.08	332.07	2210.34
27720.000	0.00	0.00	564.50	10000.00	582.15	17.65	.11	.01	582.26	1.08	799.09	4550.97
30075.000	0.00	0.00	565.50	3600.00	577.93	12.43	.09	.00	578.02	.42	207.02	1467.70
30075.000	0.00	0.00	565.50	5900.00	579.86	14.36	.15	.00	580.01	.42	239.34	1902.02
30075.000	0.00	0.00	565.50	6800.00	580.55	15.05	.17	.00	580.71	.42	250.58	2069.77
30075.000	0.00	0.00	565.50	10000.00	582.57	17.07	.20	.03	582.77	.42	450.00	2971.16
30475.000	0.00	0.00	566.70	3600.00	578.00	11.30	.10	.00	578.11	3.00	210.61	1384.71
30475.000	0.00	0.00	566.70	5900.00	579.96	13.26	.16	.00	580.12	3.00	246.90	1830.79
30475.000	0.00	0.00	566.70	6800.00	580.66	13.96	.18	.00	580.84	3.00	290.61	2019.36
30475.000	0.00	0.00	566.70	10000.00	582.68	15.98	.22	.00	582.90	3.00	403.00	2785.74
30620.000	603.30	601.20	566.70	3600.00	578.03	11.33	.10	0.00	578.13	0.00	211.14	1391.77
30620.000	603.30	601.20	566.70	5900.00	580.00	13.30	.16	0.00	580.16	0.00	247.86	1842.70
30620.000	603.30	601.20	566.70	6800.00	580.70	14.00	.17	0.00	580.88	0.00	290.95	2031.48
30620.000	603.30	601.20	566.70	10000.00	582.73	16.03	.21	0.00	582.95	0.00	403.00	2806.02
30720.000	0.00	0.00	565.00	3600.00	578.09	13.09	.06	.00	578.15	-17.00	224.48	1762.02
30720.000	0.00	0.00	565.00	5900.00	580.08	15.08	.11	.00	580.19	-17.00	238.87	2221.88
30720.000	0.00	0.00	565.00	6800.00	580.78	15.78	.13	.00	580.91	-17.00	250.06	2393.77
30720.000	0.00	0.00	565.00	10000.00	582.80	17.80	.18	.00	582.98	-17.00	358.37	3077.73

SUMMARY OF ERRORS

```
*****************************************
HEC2 VERSION UPDATED JAN 1976
ERROR CORRECTIONS 01,02,03,04,05,06,07,08,09
MODIFICATIONS 52,53,54,55,56,57,58
*****************************************

T1        CLINTON TOWNSHIP - JOB NO. 5670-02          PROJECT MANAGER WILLIAM C ROSSOW
T2      100 YEAR FLOOD = 14200 CFS *
T3        CLINTON RIVER SPILLWAY

J1  ICHECK     INQ      NINV      IDIR      STRT      METRIC     HVINS      Q        WSEL       FQ
      -1.       4.       -0.       -0.  -0.000000     -0.00      -0.0      -0.     575.600   -0.000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH      FN        ALLDC      IBW      CHNIM     ITRACE
      3.000    -0.000    -1.000    -0.000    -0.000    -0.000    -0.000    -0.000    -0.000    -0.000
```

*st pt @ Lk St. Clair

```
CCHV=    .100 CEHV=      .300
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*    0.00     11.70    575.60      0.00    575.60    577.02      1.42      0.00      0.00    578.20
   14500.        0.    14500.        0.        0.     1516.        0.        0.        0.    577.20
     0.00      0.00      9.57      0.00      .030      .025      .030     0.000    563.90    199.30
  .001577        0.        0.        0.         0         0         1      0.00    181.32    380.63
```

* mean annual flood level, LK. St. Clair (HRC output data Harrison Twp FIS)

```
   121.00     12.10    576.00      0.00      0.00    577.21      1.21       .17       .02    580.20
   14500.        0.    14500.        0.        0.     1646.        0.        4.        1.    579.70
      .00      0.00      8.81      0.00      .030      .025      .030      .025    563.90    195.99
  .001227      121.      121.      121.         2         0         1      0.00    185.63    381.62

 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      582.00 ELREA=       581.96
```

ELLC @ 582.65 > 576.61 ⇒ unsubmerged outlet

```
            DOWNSTREAM SECTION FOR JEFFERSON BRIDGE

   521.00     12.71    576.61      0.00      0.00    577.67      1.05       .44       .02    576.90
   14500.        0.    14500.        0.        0.     1759.        0.       20.        2.    577.10
      .02      0.00      8.24      0.00      .030      .025      .030      .025    563.90    195.32
  .001003      400.      400.      400.         2         0         1      0.00    188.18    383.50

 SPECIAL BRIDGE
 SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
*     1.25      1.19      2.50      0.00     79.00      6.50   2567.00      2.94    563.90    563.90
 CLASS A LOW FLOW
 BRIDGE W.S.=    576.32  BRIDGE VELOCITY=     10.71
     EGPRS     EGLWC     H3        QWEIR     QPR       BAREA     ELLC      ELTRD     CLASS
      0.00    577.84       .22        0.    14500.     2567.    582.65    580.80      1.00
```

* topwidths @ d/s & u/s bridge sections should be 79 ft

```
 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      581.70 ELREA=       580.80

            UPSTREAM SECTION FOR JEFFERSON BRIDGE

   559.00     12.93    576.83      0.00      0.00    577.84      1.01       .17      0.00    576.90
   14500.        0.    14500.        0.        0.     1801.        0.       22.        2.    577.10
      .02      0.00      8.05      0.00      .030      .025      .030      .025    563.90    195.08
  .000935       38.       38.       38.         0         0         1      0.00    189.09    384.17

   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST
```

659.00	13.05	576.95	0.00	0.00	577.93	.98	.09	.00	580.20
14500.	0.	14500.	0.	0.	1823.	0.	26.	3.	579.70
.02	0.00	7.95	0.00	.030	.025	.030	.025	563.90	194.88
.000901	100.	100.	100.	2	0	1	0.00	189.66	384.54

2300.00	13.49	578.39	0.00	0.00	579.42	1.02	1.47	.01	582.60
14500.	0.	14500.	0.	0.	1786.	0.	94.	10.	580.50
.08	0.00	8.12	0.00	.030	.025	.030	.025	564.90	197.64
.000894	1641.	1641.	1641.	2	0	1	0.00	179.17	376.81

3090.00	15.35	579.25	0.00	0.00	580.03	.77	.58	.03	581.00
14500.	0.	14500.	0.	0.	2055.	0.	129.	13.	579.20
.11	0.00	7.06	.01	.030	.025	.030	.025	563.90	195.84
.000619	790.	790.	790.	2	0	1	0.00	194.89	390.73

3880.00	17.14	579.84	0.00	0.00	580.46	.62	.42	.02	579.50
14500.	0.	14431.	69.	0.	2281.	45.	168.	17.	578.00
.14	.32	6.33	1.52	.030	.025	.030	.025	562.70	191.25
.000452	790.	790.	790.	1	0	1	0.00	230.20	421.44

4150.00	17.27	579.97	0.00	0.00	580.58	.60	.12	.00	579.50
14500.	0.	14424.	76.	1.	2309.	49.	183.	18.	578.00
.16	.40	6.25	1.55	.030	.025	.030	.025	562.70	190.15
.000434	270.	270.	270.	1	0	1	0.00	231.97	422.12

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 588.26 ELREA= 587.66

ELLC = 587.86 > 580.05 ⇒ unsubmerged outlet

DOWNSTREAM SECTION FOR I-94 BRIDGE

4280.00	17.35	580.05	0.00	0.00	580.64	.59	.06	.00	580.00
14500.	0.	14500.	0.	0.	2348.	0.	190.	19.	578.00
.16	0.00	6.17	0.00	.030	.025	.030	.025	562.70	190.00
.000476	130.	130.	130.	0	0	1	0.00	222.00	422.20

SPECIAL BRIDGE

* topwidths d/s & u/s bridge sections should be 84 ft

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
1.25	1.26	2.50	0.00	84.00	9.00	3851.00	2.80	562.70	562.70

CLASS A LOW FLOW

BRIDGE W.S.= 579.94 BRIDGE VELOCITY= 6.82

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
0.00	580.73	.10	0.	14500.	3851.	587.86	591.60	1.00

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 593.80 ELREA= 591.60

UPSTREAM SECTION FOR I-94 BRIDGE

4416.00	17.45	580.15	0.00	0.00	580.73	.58	.09	0.00	580.00
14500	0	14500	0	0	2372	0	197.	20	578.00

```
      .17      0.00      6.11      0.00      .030      .025      .030      .025    562.70    190.00
  .000461      136.      136.      136.         0         0         1      0.00    222.00    422.73

 3265 DIVIDED FLOW

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA      LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST


 3470 ENCROACHMENT STATIONS=     155.0     600.0  TYPE=      1  TARGET=    -155.000
  4516.00     17.49    580.19      0.00      0.00    580.77       .58       .04       .00    579.50
   14500.        2.    14411.       87.        5.     2351.       55.      203.       20.    578.00
      .17       .39      6.13      1.59      .030      .025      .030      .025    562.70    155.00
  .000408      100.      100.      100.         0         0         1      0.00    251.98    423.14


  5133.00     19.79    580.39      0.00      0.00    581.06       .67       .26       .03    582.00
   14500.        0.    14481.       19.        0.     2211.       22.      236.       24.    579.40
      .20      0.00      6.55       .88      .030      .025      .030      .025    560.60    190.41
  .000447      617.      617.      617.         2         0         1      0.00    211.47    401.88


  5513.00     19.98    580.58      0.00      0.00    581.23       .64       .17       .00    582.00
   14500.        0.    14473.       27.        0.     2245.       28.      255.       26.    579.40
      .22      0.00      6.45       .96      .030      .025      .030      .025    560.60    189.90
  .000426      380.      380.      380.         2         0         1      0.00    214.82    404.72


 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      583.92 ELREA=      584.54

                DOWNSTREAM SECTION FOR METRO PARKWAY BRIDGE

  5533.00     20.01    580.61      0.00      0.00    581.24       .63       .01       .00    580.90
   14500.        0.    14500.        0.        0.     2280.        0.      256.       26.    580.60
      .22      0.00      6.36      0.00      .030      .025      .030      .025    560.60    189.59
  .000506       20.       20.       20.         1         0         1      0.00    214.38    403.98


 SPECIAL BRIDGE
 SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
      1.25      1.30      2.50      0.00     11.00     13.20   3044.00      5.04    560.60    560.60

 CLASS A LOW FLOW
 BRIDGE W.S.=     580.37  BRIDGE VELOCITY=       7.53

   EGPRS     EGLWC        H3     QWEIR       QPR     BAREA      ELLC     ELTRD     CLASS

    0.00    581.40       .18        0.    14500.     3044.    584.21    587.40      1.00


 OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA=      587.40 ELREA=      587.40

                UPSTREAM SECTION FOR METRO PARKWAY BRIDGE
```

should topwidth be less than 214 ft ?

581.4 EGL U/S side bridge

5666.00	20.19	580.79	0.00	0.00	581.40	.61	.16	0.00	580.90
14500.	0.	14500.	0.	0.	2321.	0.	263.	26.	580.60
.22	0.00	6.25	0.00	.030	.025	.030	.025	560.60	189.10
.000478	133.	133.	133.	0	0	1	0.00	214.90	404.00

5766.00	19.00	580.70	0.00	0.00	581.51	.81	.05	.06	581.40
14500.	0.	14496.	4.	0.	2012.	4.	268.	27.	579.20
.23	0.00	7.20	.94	.030	.025	.030	.025	561.70	193.24
.000549	100.	100.	100.	2	0	1	0.00	171.54	364.78

* HRC end section (Harrison Twp FIS)

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

VALLEY SECTION A 93

1.16	16.01	580.91	0.00	0.00	581.69	.79	.18	.00	589.20
14500.	0.	14500.	0.	0.	2038.	0.	284.	28.	583.70
.24	0.00	7.11	0.00	.030	.025	.030	.025	564.90	88.68
.000553	334.	334.	334.	2	0	1	0.00	169.17	257.85

* First V&A section (Clinton Twp FIS) see V&A C-S location map

VALLEY SECTION B 94

1.58	16.34	582.14	0.00	0.00	582.86	.72	1.16	.01	585.60
14500.	0.	14500.	0.	0.	2129.	0.	391.	37.	586.10
.33	0.00	6.81	0.00	.030	.025	.030	.025	565.80	186.80
.000486	2240.	2240.	2240.	0	0	1	0.00	173.32	360.13

1.70	19.96	582.56	0.00	0.00	583.13	.57	.26	.01	592.10
14500.	0.	14500.	0.	0.	2383.	0.	423.	39.	592.90
.36	0.00	6.08	0.00	.030	.025	.030	.025	562.60	382.71
.000369	610.	610.	610.	2	0	1	0.00	180.56	563.28

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD=20 MIN ELTRD= 591.10 MAX ELLC= 587.90

1.70	19.93	582.53	0.00	0.00	583.15	.62	.00	.01	592.10
14500.	0.	14500.	0.	0.	2295.	0.	423.	39.	592.90
.36	0.00	6.32	0.00	.030	.022	.030	.025	562.60	382.77
.000476	1.	1.	1.	2	0	1	0.00	175.71	563.24

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD=20 MIN ELTRD= 591.10 MAX ELLC= 587.90

BRIDGE SECTION C HARPER AVE. UPSTREAM FACE 95

1.71	19.96	582.56	0.00	0.00	583.18	.62	.03	.00	592.10
14500.	0.	14500.	0.	0.	2299.	0.	426.	40.	592.90
.36	0.00	6.31	0.00	.030	.022	.030	.025	562.60	382.72

```
 .000473      63.      63.      63.        0         0         1      0.00    175.79   563.27

    1.71    20.01   582.61     0.00     0.00    583.18      .57       .00      .00    592.10
  14500.       0.   14500.       0.       0.     2393.       0.      426.      40.    592.90
     .36     0.00     6.06     0.00     .030      .025     .030      .025   562.60   382.61
 .000365       1.       1.       1.        2         0         1      0.00    180.72   563.33

 1490 NH CARD USED

 3470 ENCROACHMENT STATIONS=       162.0      767.0  TYPE=      1  TARGET=       -162.000

                VALLEY SECTION D                                               96

    1.99    15.26   583.06     0.00     0.00    583.81      .75       .58      .05    570.60
  14500.     962.   13168.     370.     192.     1850.      91.      503.      46.    573.30
     .42     5.00     7.12     4.08     .025      .025     .025      .025   567.80   201.12
 .000415    1485.    1485.    1485.        2         0         1      0.00    176.75   377.86

 1490 NH CARD USED
   SECNO    DEPTH    CWSEL    CRIWS    WSELK     EG        HV        HL       OLOSS   BANK ELEV
     Q      QLOB     QCH      QROB     ALOB      ACH       AROB      VOL      TWA    LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL       XNCH      XNR       WTN      ELMIN     SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL    IDC       ICONT     CORAR    TOPWID    ENDST


 3470 ENCROACHMENT STATIONS=       226.8      671.8  TYPE=      1  TARGET=        445.000
    2.03    15.01   583.51     0.00     0.00    583.91      .40       .06      .04    571.30
  14500.     962.   13172.     366.     260.     2544.     120.      515.      47.    574.00
     .43     3.70     5.18     3.05     .025      .025     .025      .025   568.50   292.75
 .000224     198.     198.     198.        2         0         1      0.00    244.88   527.64

 CCHV=     .300 CEHV=     .800
 1490 NH CARD USED

 3470 ENCROACHMENT STATIONS=       275.4      620.4  TYPE=      1  TARGET=        345.000

 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       584.70 ELREA=       584.70

    2.06    14.38   583.58     0.00     0.00    583.96      .38       .04      .01    572.00
  14500.       0.   14500.       0.       0.     2947.       0.      528.      48.    574.70
     .44     0.00     4.92     0.00     .025      .025     .025      .025   569.20   387.51
 .000219     197.     197.     197.        0         0         1      0.00    220.95   608.46


 3301 HV CHANGED MORE THAN HVINS

 3470 ENCROACHMENT STATIONS=      1262.0     1823.0  TYPE=      1  TARGET=      -1262.000

                EXISTING CONTROL WEIR                                          11

    2.06     8.78   583.48     0.00     0.00    584.38      .91       .00      .43    584.70
  14500.       0.   14500.       0.       0.     1895.       0.      528.      48.    584.70
     .44     0.00     7.65     0.00     .025      .030     .025      .025   574.70  1340.00
 .001453       5.       5.       5.        2         0         1      0.00    216.00  1556.00

 1490 NH CARD USED

 3301 HV CH^NGED MORE TH N HVINS
```

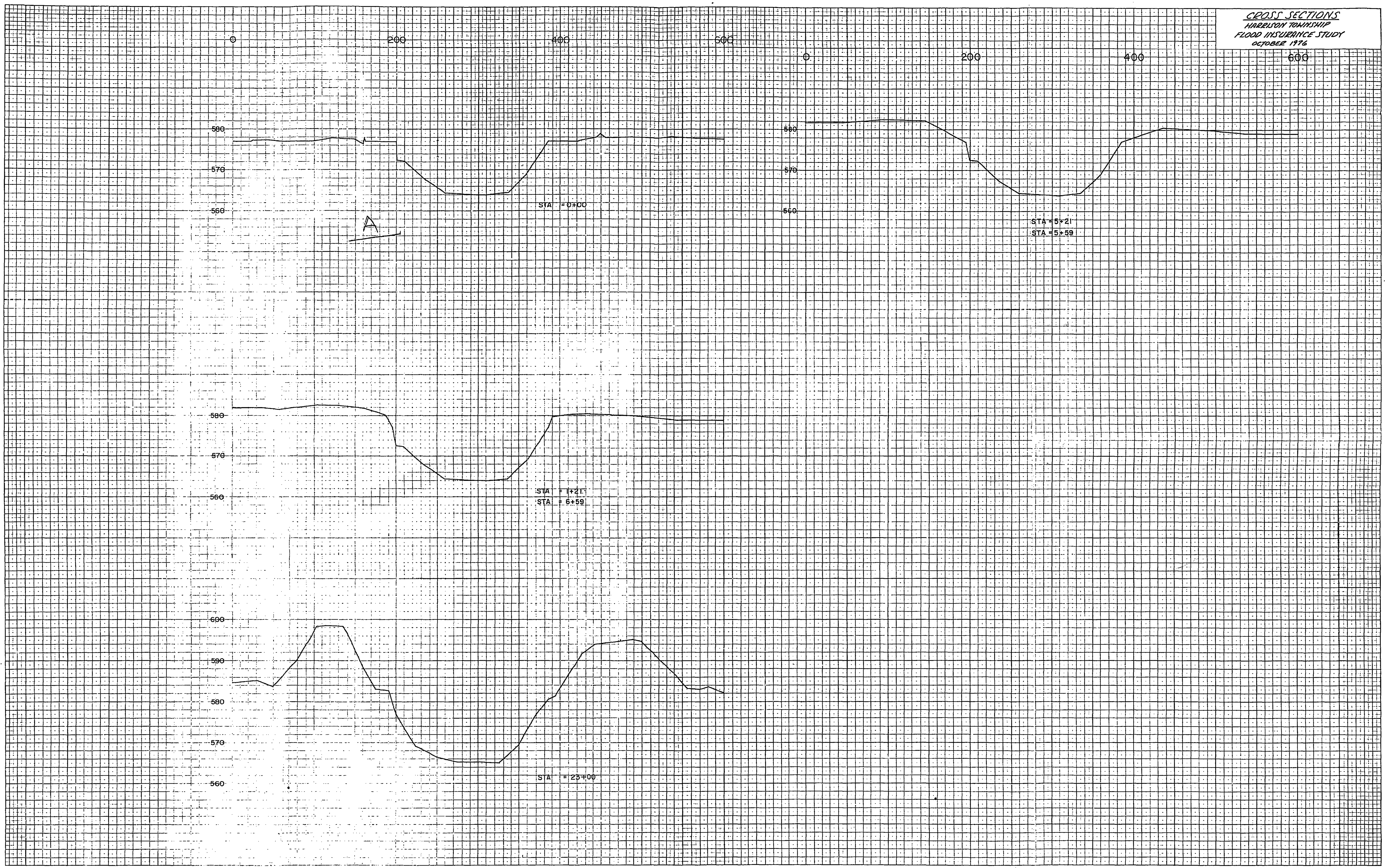
3470 ENCROACHMENT STATIONS= 738.0 975.0 TYPE= 1 TARGET= 237.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 100000.00 ELREA= 571.50

8.72	16.54	584.34	0.00	0.00	584.59	.25	.01	.20	100000.00
14500.	0.	13872.	628.	0.	3435.	192.	529.	48.	571.50
.44	0.00	4.04	3.27	.025	.031	.032	.025	567.80	738.00
.000182	20.	20.	20.	2	0	1	0.00	237.00	975.00

* EGL used for E-D curve
(confluence with Clinton River)

old Data from Corps



FINAL SURVEY
NOTE BOOK
NO.
SURVEYED
PLOTTED
TEMPLATE
AREAS
AREAS CHECKED
BY
DATE

ORIGINAL SURVEY
NOTE BOOK
NO.
SURVEYED
PLOTTED
TEMPLATE
AREAS
AREAS CHECKED
BY
DATE

PLATE 3 CROSS SECTION O. P. R. & R. E. STANDARD
TELEDYNE POST

SPILLWAY

FINAL SURVEY
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BY
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ORIGINAL SURVEY
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SPILLWAY

CROSS SECTIONS
HARRISON TOWNSHIP
FLOOD INSURANCE STUDY
OCTOBER 1976

FINAL SURVEY
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SURVEYED
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TEMPLATE
AREAS
AREAS CHECKED
BY
DATE

ORIGINAL SURVEY
NOTE BOOK
NO.
SURVEYED
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TEMPLATE
AREAS
AREAS CHECKED
BY
DATE

CLINTON RIVER

PLATE 3 CROSS SECTION O. P. R. & R. E. STANDARD
TELEDYNE POST

CLINTON RIVER

FINAL SURVEY | NOTE BOOK | NO. | SURVEYED | PLOTTED | TEMPLATE | AREAS | AREAS CHECKED | BY | DATE

ORIGINAL SURVEY | NOTE BOOK | NO. | SURVEYED | PLOTTED | TEMPLATE | AREAS | AREAS CHECKED | BY | DATE

CLINTON RIVER

CROSS SECTIONS
HARRISON TOWNSHIP
FLOOD INSURANCE STUDY
OCTOBER 1976

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SURVEYED
PLOTTED
TEMPLATE
AREAS
AREAS CHECKED
BY
DATE

ORIGINAL SURVEY
NOTE BOOK NO.
SURVEYED
PLOTTED
TEMPLATE
AREAS
AREAS CHECKED
BY
DATE

PLATE 3 CROSS SECTION O. P. R. & R.E. STANDARD
TELEDYNE POST

CLINTON RIVER

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BY
DATE

ORIGINAL SURVEY
NOTE BOOK
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SURVEYED
PLOTTED
TEMPLATE
AREAS
AREAS CHECKED
BY
DATE

FINAL SURVEY
NOTE BOOK
NO.
SURVEYED
PLOTTED
TEMPLATE
AREAS
AREAS CHECKED
BY
DATE

ORIGINAL SURVEY
NOTE BOOK
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TEMPLATE
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AREAS CHECKED
BY
DATE

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
Federal Insurance Administration

HARRISON TOWNSHIP, MI

WORK MAP FOR

FLOOD BOUNDARY AND FLOODWAY MAP

LEGEND

CORFORATE LIMITS (TWP. OR CITY)

FLOODWAY | 100 YR. FLOOD BOUNDARY | 500 YR. FLOOD BOUNDARY

(L)—(L) CROSS SECTION LINE

• M2 RIVER MILE

X RM2 ELEVATION REFERENCE MARK

SCALE 1" = 800'

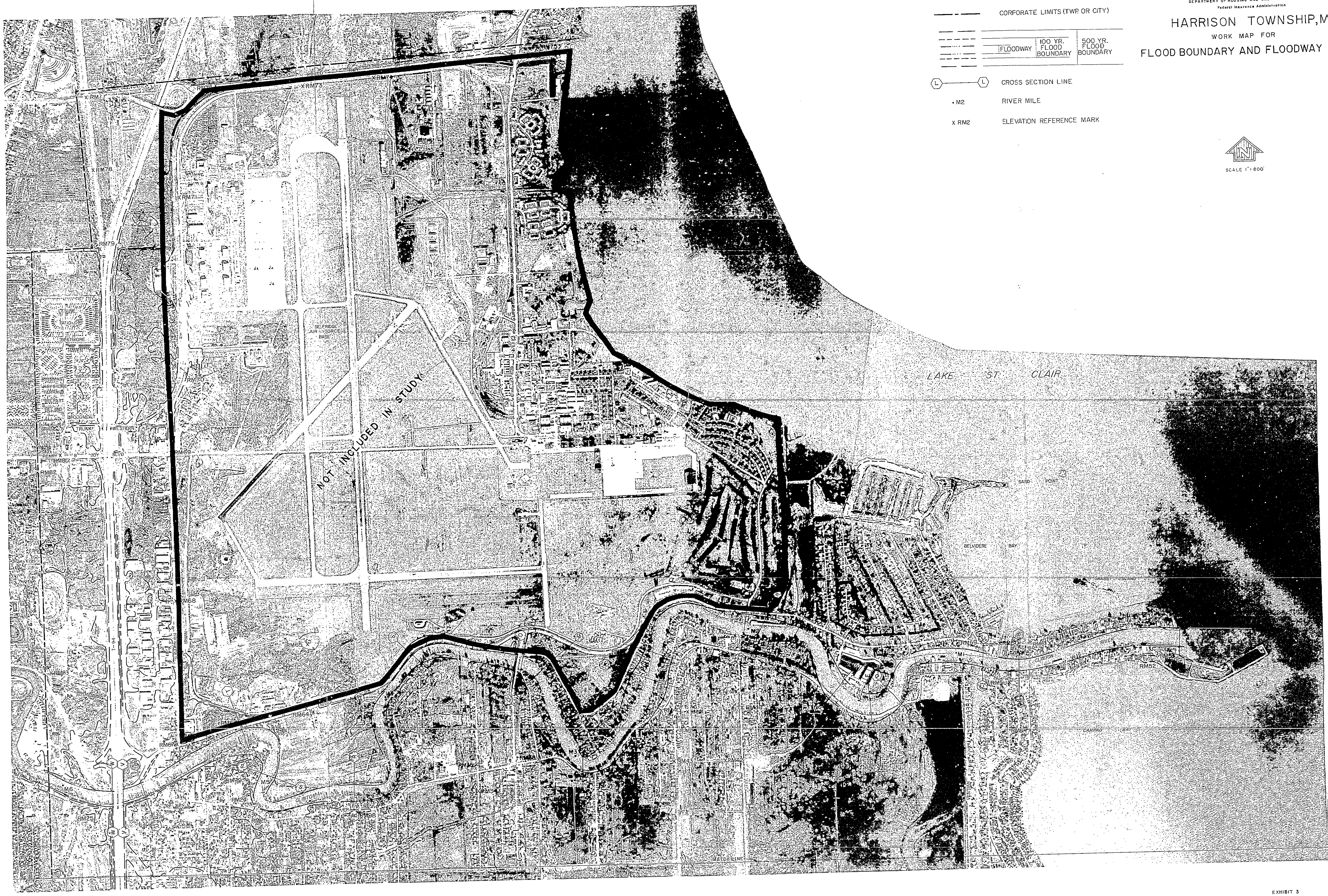

EXHIBIT 3

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Macomb

3) WATERCOURSE: Banister Drain

4) DOCUMENT TYPE: 10, 50, 100, 500 yr floods

00BREAK00

BANISTER DRAIN
J&A FILE No. 5850-03
MACOMB TWP. FIS
10-50-100-500 YEAR FLOODS

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*******************************************************
 HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
 ERROR CORR -  01,02
 MODIFICATION -  50,51,52,53
*******************************************************

C
T1      MACOMB TWP.FIS J&A FILE NO.5850-03
T2      10 YEAR FLOOD
T3      BANISTER DRAIN U/S OF NEW COMBINED DRAIN

J1  ICHECK    INQ      NINV      IDIR      STRT     METRIC    HVINS       Q        WSEL        FQ

        0.        2.        0.        0.  0.000000     0.00       0.0        0.   596.830     0.000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH       FN      ALLDC      IBW      CHNIM      ITRACE

       1.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

NC      .030      .030      .030      .300      .500     0.000     0.000     0.000     0.000     0.000
QT     4.000   205.000   295.000   335.000   470.000     0.000     0.000     0.000     0.000     0.000

            DESIGN SECTION AT CONFLUENCE (J&A)            SECT.A

X1     0.000     4.000     0.000    60.000     0.000     0.000     0.000     0.000     0.000     0.000
GR   601.000     0.000   591.000    21.300   591.000    39.000   601.000    60.000     0.000     0.000

            CHECK DAM (J&A)                               SECT.B

X1     1.000     4.000     0.000    60.000     1.000     1.000     1.000     0.000     0.000     0.000
GR   601.000     0.000   594.000    21.000   594.000    39.000   601.000    60.000     0.000     0.000

X1   117.000     4.000     0.000    60.000   116.000   116.000   116.000     0.000     0.000     0.000
X3     0.000     0.000     0.000    20.000     0.000    41.000     0.000     0.000     0.000     0.000
GR   601.000     0.000   594.500    20.000   594.500    41.000   601.000    60.000     0.000     0.000
NC      .040      .040      .032     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1   118.000    24.000    80.000   101.000     1.000     1.000     1.000     0.000     0.000     0.000
BT    20.000     0.000   602.200     0.000    80.000   602.200   596.300    80.600   602.200   598.300
BT    81.800   602.200   599.500    83.000   602.200   600.600    84.800   602.200   600.900    86.600
BT   602.200   600.600    87.800   602.200   599.500    89.000   602.200   598.300    89.500   602.200
BT   596.300    91.500   602.200   596.300    92.100   602.200   598.300    93.300   602.200   599.500
BT    94.500   602.200   600.600    96.300   602.200   600.900    98.100   602.200   600.600    99.300
BT   602.200   599.500   100.500   602.200   598.300   101.000   602.200   596.300   200.000   602.200
BT     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
GR   602.200     0.000   602.200    80.000   596.300    80.000   595.100    80.600   594.800    81.800
GR   594.600    83.000   594.500    84.800   594.600    86.600   594.800    87.800   595.100    89.000
GR   596.300    89.500   602.200    89.500   602.200    91.500   596.300    91.500   595.100    92.100
GR   594.800    93.300   594.600    94.500   594.500    96.300   594.600    98.100   594.800    99.300
GR   595.100   100.500   596.300   101.000   602.200   101.000   602.200   200.000     0.000     0.000

            BRECKENRIDGE VILLAGE STREET BRIDGE (J&A)      SECT.C

X1   208.000    24.000    80.000   101.000    90.000    90.000    90.000     0.000     0.000     0.000
BT    20.000     0.000   602.200     0.000    80.000   602.200   596.500    80.600   602.200   598.500
BT    81.800   602.200   599.500    83.000   602.200   600.800    84.800   602.200   601.100    86.600
BT   602.200   600.800    87.800   602.200   599.700    89.000   602.200   598.500    89.500   602.200
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BT	596.500	91.500	602.200	596.500	[illegible]	602.200	596.500	93.500	602.200	[illegible]
BT	94.500	602.200	600.800	96.300	602.200	601.100	98.100	602.200	600.800	99.300
BT	602.200	599.700	100.500	602.200	598.500	101.000	602.200	596.500	200.000	602.200
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	602.200	0.000	602.200	80.000	596.500	80.000	595.300	80.600	595.000	81.800
GR	597.800	83.000	594.700	84.800	594.800	86.600	595.000	87.800	595.300	89.000
GR	596.500	89.500	602.200	89.500	602.200	91.500	596.500	91.500	595.300	92.100
GR	595.000	93.300	594.800	94.500	594.700	95.300	594.800	98.100	595.000	99.300
GR	595.300	100.500	596.500	101.000	602.200	101.000	602.200	200.000	0.000	0.000
NC	.030	.030	.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	209.000	4.000	0.000	60.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	20.000	0.000	41.000	0.000	0.000	0.000	0.000
GR	602.000	0.000	594.700	20.000	594.700	41.000	602.000	60.000	0.000	0.000

DESIGN SECTION (J&A) SECT.D

X1	229.000	4.000	0.000	60.000	20.000	20.000	20.000	0.000	0.000	0.000
GR	602.000	0.000	594.800	19.000	594.800	41.000	602.000	60.000	0.000	0.000

CHECK DAM (J&A) SECT.E

X1	230.000	4.000	0.000	60.000	1.000	1.000	1.000	0.000	0.000	0.000
GR	602.000	0.000	596.000	24.000	596.000	36.000	602.000	60.000	0.000	0.000

DESIGN SECTION (J&A) SECT.F

X1	480.000	4.000	0.000	60.000	250.000	250.000	250.000	0.000	0.000	0.000
GR	602.000	0.000	596.600	22.000	596.600	38.000	602.000	60.000	0.000	0.000
NC	.050	.050	.033	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	724.000	4.000	22.000	38.000	244.000	244.000	244.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	600.000	600.000	0.000
GR	602.000	0.000	597.100	22.000	597.100	33.000	602.000	60.000	0.000	0.000
NC	.060	.060	.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	725.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	600.000	600.000	0.000
SB	0.000	2.380	3.020	0.000	9.750	0.000	39.000	0.000	597.100	597.100

HAYES ROAD (MCS) SECT.G

X1	765.000	20.000	393.000	407.000	40.000	40.000	40.000	.866	.100	0.000
X2	0.000	0.000	1.000	601.100	602.200	0.000	0.000	0.000	.866	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	602.200	602.200	0.000
BT	12.000	0.000	602.200	0.000	200.000	602.400	0.000	393.000	603.200	598.700
BT	394.000	603.200	600.300	396.000	603.200	600.900	398.000	603.200	600.300	399.000
BT	603.200	598.700	401.000	603.300	598.600	402.000	603.300	600.200	404.000	603.300
BT	600.800	406.000	603.300	600.200	407.000	603.300	598.600	0.000	0.000	0.000
GR	602.100	0.000	602.300	200.000	603.000	370.000	598.600	393.000	597.600	393.000
GR	597.100	394.000	597.100	395.000	597.100	398.000	597.600	399.000	598.600	399.000
GR	598.500	401.000	597.500	401.000	597.000	402.000	597.000	404.000	597.000	406.000
GR	597.500	407.000	598.500	407.000	603.100	430.000	602.700	600.000	602.600	800.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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*********************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
*********************************************

T1      MACOMB TWP.FIS J&A FILE NO.5850-03
T2      100 YEAR FLOOD
T3      BANISTER DRAIN U/S OF NEW COMBINED DRAIN

J1  ICHECK     INQ       NINV      IDIR       STRT      METRIC     HVINS       Q         WSEL       FQ

          0.        4.        0.        0.   0.000000      0.00       0.0        0.   597.130     0.000

J2  NPROF     IPLOT     PREVS      XSECV      XSECH       FN        ALLDC      IBW       CHNIM     ITRACE

        3.000     0.000    -1.000     0.000      0.000     0.000     0.000     0.000     0.000     0.000
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*PROF 3

CCHV=     .300 CEHV=     .500
*SECNO .000
    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST


                    DESIGN SECTION AT CONFLUENCE (J&A)                    SECT.A

      0.00      6.18    597.18      0.00    597.18    597.23       .05      0.00      0.00    601.00
      335.        0.      335.        0.        0.      191.        0.        0.        0.    601.00
      0.00      0.00      1.75      0.00      .030      .030      .030     0.000    591.00      8.02
   .000190        0.        0.        0.         0         0         0      0.00     43.96     51.98


*SECNO 1.000

                    CHECK DAM (J&A)                                       SECT.B

      1.00      3.08    597.08      0.00      0.00    597.33       .25       .00       .10    601.00
      335.        0.      335.        0.        0.       84.        0.        0.        0.    601.00
       .00      0.00      3.99      0.00      .030      .030      .030      .015    594.00     11.76
   .002217        1.        1.        1.         2         0         0      0.00     36.49     48.24


*SECNO 117.000

3470 ENCROACHMENT STATIONS=       20.0       41.0  TYPE=       1  TARGET=       21.000
    117.00      2.81    597.31      0.00      0.00    597.31       .50       .36       .13100000.00
      335.        0.      335.        0.        0.       59.        0.        0.        0. 100000.00
       .01      0.00      5.67      0.00      .030      .030      .030      .029    594.50     20.00
   .004560      116.      116.      116.         2         0         0      0.00     21.00     41.00


*SECNO 118.000

3265 DIVIDED FLOW


3370 NORMAL BRIDGE,NRD= 20 MIN ELTRD=   602.20 MAX ELLC=   600.90

    118.00      2.58    597.08      0.00      0.00    598.06       .98       .01       .24    602.20
      335.        0.      335.        0.        0.       42.        0.        0.        0.    602.20
       .01      0.00      7.95      0.00      .040      .032      .040      .029    594.50     80.00
   .014954        1.        1.        1.         2         0         0      -.96     19.00    101.00


*SECNO 208.000

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST
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Q on Dunn is 287 when [illegible] is a Q100, sec [illegible]

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 3570  OR AL BRIDGE,NRD= 20  1. ELTRD=   2.2    AX ELLL=   601.10

                        BRECKENRIDGE VILLAGE STREET BRIDGE (J&A)  1.38 ft      SECT.C

      208.00      3.96    598.66      0.00      0.00    599.12       .46       .90       .16    602.20
        335.        0.      335.        0.        0.       62.        0.        0.        0.    602.20
         .01      0.00      5.43      0.00      .040      .032      .040      .030    594.70     80.00
     .007199       90.       90.       90.         4         0         0     -2.95     19.00    101.00

 *SECNO 209.000

 3470 ENCROACHMENT STATIONS=      20.0      41.0  TYPE=       1  TARGET=       21.000
      209.00      4.28    598.98      0.00      0.00    599.19       .22       .00       .07100000.00
        335.        0.      335.        0.        0.       90.        0.        0.        0. 100000.00
         .01      0.00      3.73      0.00      .030      .030      .030      .030    594.70     20.00
     .001289        1.        1.        1.         2         0         0      0.00     21.00     41.00

 *SECNO 229.000

                        DESIGN SECTION (J&A)                                   SECT.D

      229.00      4.37    599.17      0.00      0.00    599.25       .08       .01       .04    602.00
        335.        0.      335.        0.        0.      146.        0.        0.        0.    602.00
         .01      0.00      2.29      0.00      .030      .030      .030      .030    594.80      7.47
     .000464       20.       20.       20.         2         0         0      0.00     45.06     52.53

 *SECNO 230.000

                        CHECK DAM (J&A)                                        SECT.E

      230.00      3.05    599.05      0.00      0.00    599.37       .32       .00       .12    602.00
        335.        0.      335.        0.        0.       74.        0.        0.        0.    602.00
         .01      0.00      4.54      0.00      .030      .030      .030      .030    596.00     11.80
     .003357        1.        1.        1.         2         0         0      0.00     36.41     48.20

 *SECNO 480.000

                        DESIGN SECTION (J&A)                                   SECT.F

      480.00      3.22    599.82      0.00      0.00    600.02       .20       .51       .04    602.00
        335.        0.      335.        0.        0.       94.        0.        1.        0.    602.00
         .03      0.00      3.58      0.00      .030      .030      .030      .030    596.60      8.90
     .001849      250.      250.      250.         2         0         0      0.00     42.21     51.10

 *SECNO 724.000
       SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS   BANK ELEV
           Q      QLOB       QCH      QROB      ALOB       ACH      AROB       VOL       TWA  LEFT/RIGHT
        TIME      VLOB       VCH      VROB       XNL      XNCH       XNR       WTN     ELMIN      SSTA
       SLOPE     XLOBL      XLCH     XLOBR    ITRIAL       IDC     ICONT     CORAR    TOPWID     ENDST

      724.00      3.19    600.29      0.00      0.00    600.57       .28       .51       .04    597.10
        335.       45.      245.       45.       23.       51.       23.        1.        1.    597.10
         .05      1.96      4.80      1.96      .050      .033      .050      .031    597.10      7.67
     .002422      244.      244.      244.         2         0         0      0.00     44.65     52.33

 *SECNO 725.000
      725.00      3.16    600.26      0.00      0.00    600.60       .34       .00       .03    597.10
        335.       36.      263.       36.       22.       51.       22.        1.        1.    597.10
```

ΔEG = 1.38 ft

hand comps indicate possibly .3 ft. lower

.05	1.61	[illegible]	1.61	[illegible]	.030	[illegible]	[illegible]	597.10	[illegible]
.002363	1.	1.	1.	2	0	0	0.00	44.41	52.21

SPECIAL BRIDGE

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
0.00	2.38	3.02	0.00	9.75	0.00	39.00	0.00	597.10	597.10

55.2

*SECNO 765.000

3265 DIVIDED FLOW

3280 CROSS SECTION 765.00 EXTENDED .02 FEET

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
602.99	601.75	0.00	36.	301.	39.	39.	601.10	602.20

HAYES ROAD (MCS) SECT.G

765.00	5.13	602.23	0.00	0.00	602.47	.24	1.87	0.00	593.70
335.	39.	256.	40.	28.	58.	28.	1.	1.	598.60
.05	1.37	4.42	1.40	.060	.030	.060	.031	597.10	0.00
.001510	40.	40.	40.	2	0	4	0.00	60.86	368.14

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*************************************************
 HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
 ERROR CORR -  01,02
 MODIFICATION -  50,51,52,53
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

BANISTER DRAIN U/S OF NE

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	0.000	0.00	0.00	0.00	591.00	205.00	596.83	0.00	596.85	.90	1.16	176.32	216.68
	0.000	0.00	0.00	0.00	591.00	295.00	597.07	0.00	597.11	1.58	1.58	186.63	234.37
	0.000	0.00	0.00	0.00	591.00	335.00	597.18	0.00	597.23	1.90	1.75	191.44	242.74
	0.000	0.00	0.00	0.00	591.00	470.00	597.59	0.00	597.67	2.91	2.24	209.82	275.36
	1.000	1.00	0.00	0.00	594.00	205.00	596.78	0.00	596.90	12.20	2.80	73.22	58.68
	1.000	1.00	0.00	0.00	594.00	295.00	596.99	0.00	597.19	19.34	3.67	80.48	67.07
	1.000	1.00	0.00	0.00	594.00	335.00	597.08	0.00	597.33	22.17	3.99	83.93	71.15
	1.000	1.00	0.00	0.00	594.00	470.00	597.45	0.00	597.81	28.36	4.80	97.86	88.26
	117.000	116.00	0.00	0.00	594.50	205.00	596.92	0.00	597.17	27.15	4.04	50.76	39.34
	117.000	116.00	0.00	0.00	594.50	295.00	597.19	0.00	597.61	40.38	5.22	56.53	46.42
	117.000	116.00	0.00	0.00	594.50	335.00	597.31	0.00	597.81	45.60	5.67	59.04	49.61
	117.000	116.00	0.00	0.00	594.50	470.00	597.71	0.00	598.47	59.74	6.96	67.51	60.81
	118.000	1.00	602.20	600.90	594.50	205.00	596.81	0.00	597.28	79.49	5.50	37.29	22.99
	118.000	1.00	602.20	600.90	594.50	295.00	597.00	0.00	597.82	127.71	7.24	40.74	26.10
	118.000	1.00	602.20	600.90	594.50	335.00	597.08	0.00	598.06	149.54	7.95	42.15	27.39
*	118.000	1.00	602.20	600.90	594.50	470.00	597.50	597.50	598.90	187.32	9.50	49.49	34.34
	208.000	90.00	602.20	601.10	594.70	205.00	597.61	0.00	597.95	62.38	4.71	43.56	25.95
	208.000	90.00	602.20	601.10	594.70	295.00	598.29	0.00	598.73	65.13	5.30	55.66	36.55
	208.000	90.00	602.20	601.10	594.70	335.00	598.66	0.00	599.12	71.99	5.43	61.72	39.48
	208.000	90.00	602.20	601.10	594.70	470.00	599.63	0.00	600.23	85.34	6.22	75.54	50.88
	209.000	1.00	0.00	0.00	594.70	205.00	597.87	0.00	598.01	11.88	3.08	66.53	59.48
	209.000	1.00	0.00	0.00	594.70	295.00	598.60	0.00	598.80	13.15	3.60	81.97	81.34
	209.000	1.00	0.00	0.00	594.70	335.00	598.98	0.00	599.19	12.89	3.73	89.92	93.30
	209.000	1.00	0.00	0.00	594.70	470.00	600.06	0.00	600.33	13.13	4.17	112.72	129.72
	229.000	20.00	0.00	0.00	594.80	205.00	597.98	0.00	598.05	5.63	2.12	96.74	86.40
	229.000	20.00	0.00	0.00	594.80	295.00	598.77	0.00	598.85	5.14	2.29	129.01	130.09
	229.000	20.00	0.00	0.00	594.80	335.00	599.17	0.00	599.25	4.64	2.29	146.47	155.56
	229.000	20.00	0.00	0.00	594.80	470.00	600.32	0.00	600.40	3.74	2.33	201.74	243.19
*	230.000	1.00	0.00	0.00	596.00	205.00	597.70	597.70	598.34	126.18	6.39	32.08	18.25
	230.000	1.00	0.00	0.00	596.00	295.00	598.62	0.00	599.01	48.33	5.01	58.92	42.43
	230.000	1.00	0.00	0.00	596.00	335.00	599.05	0.00	599.37	33.57	4.54	73.85	57.82
	230.000	1.00	0.00	0.00	596.00	470.00	600.25	0.00	600.47	16.45	3.82	123.13	115.87

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
480.000	250.00	0.00	0.00	596.60	205.00	599.21	0.00	599.35	15.70	2.94	69.65	51.73
480.000	250.00	0.00	0.00	596.60	295.00	599.60	0.00	599.79	19.05	3.49	84.45	67.59
480.000	250.00	0.00	0.00	596.60	335.00	599.82	0.00	600.02	18.49	3.58	93.60	77.90
480.000	250.00	0.00	0.00	596.60	470.00	600.67	0.00	600.86	14.04	3.55	132.48	125.44
724.000	244.00	0.00	0.00	597.10	205.00	599.64	0.00	600.04	36.78	5.04	40.65	33.80
724.000	244.00	0.00	0.00	597.10	295.00	600.09	0.00	600.34	24.30	4.60	87.74	59.85
724.000	244.00	0.00	0.00	597.10	335.00	600.29	0.00	600.57	24.22	4.80	96.76	68.07
724.000	244.00	0.00	0.00	597.10	470.00	601.03	0.00	601.33	21.04	5.15	132.36	102.47
725.000	1.00	0.00	0.00	597.10	205.00	599.65	0.00	600.04	30.22	5.03	40.72	37.29
725.000	1.00	0.00	0.00	597.10	295.00	600.06	0.00	600.37	23.45	4.95	86.82	60.92
725.000	1.00	0.00	0.00	597.10	335.00	600.26	0.00	600.60	23.63	5.19	95.57	68.92
725.000	1.00	0.00	0.00	597.10	470.00	600.99	0.00	601.37	21.19	5.64	130.24	102.11
* 765.000	40.00	602.20	601.10	597.10	205.00	599.53	599.53	600.84	279.35	9.16	22.38	12.27
765.000	40.00	602.20	601.10	597.10	295.00	601.56	0.00	602.18	37.54	5.76	51.25	48.15
765.000	40.00	602.20	601.10	597.10	335.00	602.23	0.00	602.47	15.10	4.42	114.58	86.21
765.000	40.00	602.20	601.10	597.10	470.00	602.37	0.00	602.79	25.68	5.89	133.97	92.74

BANISTER DRAIN U/S OF NE

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	0.000	205.00	596.83	0.00	0.00	0.00	42.49	0.00
	0.000	295.00	597.07	.24	0.00	0.00	43.49	0.00
	0.000	335.00	597.18	.11	0.00	0.00	43.96	0.00
	0.000	470.00	597.59	.41	0.00	0.00	45.68	0.00
	1.000	205.00	596.78	0.00	-.05	0.00	34.68	1.00
	1.000	295.00	596.99	.21	-.08	0.00	35.91	1.00
	1.000	335.00	597.08	.10	-.10	0.00	36.49	1.00
	1.000	470.00	597.45	.37	-.14	0.00	38.71	1.00
	117.000	205.00	596.92	0.00	.14	0.00	21.00	116.00
	117.000	295.00	597.19	.27	.21	0.00	21.00	116.00
	117.000	335.00	597.31	.12	.23	0.00	21.00	116.00
	117.000	470.00	597.71	.40	.26	0.00	21.00	116.00
	118.000	205.00	596.81	0.00	-.10	0.00	19.00	1.00
	118.000	295.00	597.00	.19	-.19	0.00	19.00	1.00
	118.000	335.00	597.08	.08	-.23	0.00	19.00	1.00
*	118.000	470.00	597.50	.42	-.22	0.00	19.00	1.00
	208.000	205.00	597.61	0.00	.79	0.00	18.81	90.00
	208.000	295.00	598.29	.68	1.29	0.00	19.00	90.00
	208.000	335.00	598.66	.37	1.58	0.00	19.00	90.00
	208.000	470.00	599.63	.97	2.13	0.00	19.00	90.00
	209.000	205.00	597.87	0.00	.26	0.00	21.00	1.00
	209.000	295.00	598.60	.73	.31	0.00	21.00	1.00
	209.000	335.00	598.98	.38	.32	0.00	21.00	1.00
	209.000	470.00	600.06	1.08	.43	0.00	21.00	1.00
	229.000	205.00	597.98	0.00	.12	0.00	38.80	20.00
	229.000	295.00	598.77	.79	.17	0.00	42.96	20.00
	229.000	335.00	599.17	.40	.19	0.00	45.06	20.00
	229.000	470.00	600.32	1.15	.25	0.00	51.12	20.00
*	230.000	205.00	597.70	0.00	-.28	0.00	25.64	1.00
	230.000	295.00	598.62	.91	-.15	0.00	32.97	1.00
	230.000	335.00	599.05	.43	-.12	0.00	36.41	1.00
	230.000	470.00	600.25	1.20	-.07	0.00	45.98	1.00
	480.000	205.00	599.21	0.00	1.51	0.00	37.30	250.00
	480.000	295.00	599.60	.39	.98	0.00	40.40	250.00
	480.000	335.00	599.82	.22	.77	0.00	42.21	250.00
	480.000	470.00	600.67	.85	.42	0.00	49.14	250.00
	724.000	205.00	599.64	0.00	.43	0.00	16.00	244.00
	724.000	295.00	600.09	.44	.49	0.00	42.80	244.00
	724.000	335.00	600.29	.20	.47	0.00	44.65	244.00
	724.000	470.00	601.03	.74	.36	0.00	51.31	244.00
	725.000	205.00	599.65	0.00	.01	0.00	16.00	1.00
	725.000	295.00	600.06	.41	-.02	0.00	42.60	1.00
	725.000	335.00	600.26	.20	-.03	0.00	44.41	1.00
	725.000	470.00	600.99	.73	-.04	0.00	50.94	1.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	765.000	205.00	599.53	0.00	-.11	0.00	12.12	40.00
	765.000	295.00	601.66	2.13	1.60	0.00	12.12	40.00
	765.000	335.00	602.23	.56	1.96	0.00	50.86	40.00
	765.000	470.00	602.37	.15	1.38	0.00	193.98	40.00

SUMMARY OF ERRORS

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CAUTION  SECNO=  118.000  PROFILE= 4  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  118.000  PROFILE= 4  MINIMUM SPECIFIC ENERGY

CAUTION  SECNO=  230.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  230.000  PROFILE= 1  MINIMUM SPECIFIC ENERGY

CAUTION  SECNO=  765.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  765.000  PROFILE= 1  MINIMUM SPECIFIC ENERGY
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00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Macomb

3) WATERCOURSE: Lewis Drain

4) DOCUMENT TYPE: 100 year flood

00BREAK00

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 $      $     $$     $$$$$$   $$$$$$$$   $$$$$ $  $$$$$$$$  $$$$$$$$
 $$    $$    $$$$    $$    $$    $$      $$    $        $$        $$
 $$$  $$$   $$  $$   $$          $$      $$   $$$      $$        $$
 $$$$$$$$  $$    $$  $$          $$      $$  $ $$     $$         $$
 $$ $$ $$  $$    $$  $$          $$      $$ $$ $$    $$          $$
 $$    $$  $$$$$$$$  $$          $$      $$ $  $$   $$           $$
 $$    $$  $$    $$  $$          $$      $$$   $$  $$            $$
 $$    $$  $$    $$  $$     $$ $$ $$     $     $$ $$             $$
 $$    $$  $$    $$   $$$$$$    $$$      $ $$$$$  $$$$$$$$       $$
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LEWIS DRAIN
J&A FILE No. 5850-03
MACOMB TWP. FIS
"NATURAL FLOODWAY"
100 YEAR FLOOD

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*************************************************
 HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
 ERROR CORR -  01,02
 MODIFICATION -  50,51,52,53
*************************************************


C
T1              MACOMB TWP. FIS J&A FILE NO. 5850-03-1
T2              100 YEAR FLOOD
T3              LEWIS DRAIN

J1  ICHECK     INQ       NINV      IDIR      STRT     METRIC    HVINS     Q         WSEL     FQ

        0.        4.        0.        0.  0.000000      0.00      0.0       0.  596.910    0.000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH      FN      ALLDC     IBW      CHNIM     ITRACE

     1.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

NC       .040      .040      .032      .300      .500     0.000     0.000     0.000     0.000     0.000
QT      4.000   605.000   895.000   980.000  1385.000     0.000     0.000     0.000     0.000     0.000

X1     54.000    24.000   384.500   415.500     0.000     0.000     0.000     0.000      .100     0.000
GR    598.800     0.000   598.500   200.000   598.500   384.500   591.200   384.500   589.500   385.100
GR    588.300   387.500   588.000   390.700   588.000   391.500   588.000   392.300   588.300   395.500
GR    589.500   397.900   591.200   398.500   591.200   401.500   589.500   402.100   588.300   404.500
GR    588.000   407.700   588.000   408.500   588.000   409.300   588.300   412.500   589.500   414.900
GR    591.200   415.500   598.500   415.500   598.000   600.000   598.200   800.000     0.000     0.000

X1     55.000     0.000     0.000     0.000     1.000     1.000     1.000     0.000     0.000     0.000
BT     22.000     0.000   598.900     0.000   200.000   598.600     0.000   384.500   598.600   591.300
BT    385.100   598.600   593.400   387.500   598.600   596.400   390.700   598.600   597.500   391.500
BT    598.600   597.600   392.300   598.600   597.500   395.500   598.600   596.400   397.900   598.600
BT    593.400   398.500   598.600   591.300   401.500   598.600   591.300   402.100   598.600   593.400
BT    404.500   598.600   596.400   407.700   598.600   597.500   408.500   598.600   597.600   409.300
BT    598.600   597.500   412.500   598.600   596.400   414.900   598.600   593.400   415.500   598.600
BT    591.300   600.000   598.100     0.000   800.000   598.300     0.000     0.000     0.000     0.000

                LAKESIDE VILLA ENTRANCE ROAD      (MCS)          SECT.A

                2-14' X 9'8" CMP ARCH PIPES

X1    120.000     0.000     0.000     0.000    65.000    65.000    65.000     0.000     0.000     0.000
X2      0.000     0.000     0.000     0.000     0.000     0.000     1.000     0.000     0.000     0.000
NC       .042      .042      .036     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1    121.000     0.000     0.000     0.000     1.000     1.000     1.000     0.000     0.000     0.000

                VALLEY SECTION B (MCS)                           SECT.B

X1    640.000     9.000   400.000   444.000   520.000   520.000   520.000     0.000      .100     0.000
GR    600.700     0.000   600.700   200.000   596.700   400.000   590.900   414.000   588.400   421.000
GR    589.900   428.000   595.300   444.000   600.400   644.000   600.600   844.000     0.000     0.000
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X1	13.4[illegible]	17.[illegible]	40.7[illegible]	42.[illegible]	744.0[illegible]	744.[illegible]0	744.00	0.00	.100	0.[illegible]
X3	0.000	0.000	0.000	0.000	0.000	580.000	0.000	0.000	0.000	0.000
GR	601.000	0.000	599.900	200.000	595.700	400.000	595.700	409.700	590.600	409.700
GR	589.400	410.300	588.800	412.100	588.500	413.900	588.400	415.000	588.500	416.100
GR	588.800	417.900	589.400	419.700	590.600	420.400	595.300	420.400	595.300	430.000
GR	598.700	630.000	600.900	830.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.042	.042	.032	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	1385.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	580.000	0.000	0.000	0.000	0.000
BT	14.000	0.000	601.100	0.000	200.000	600.000	0.000	400.000	595.800	0.000
BT	409.700	595.800	590.700	410.300	595.800	592.500	412.100	595.700	594.500	413.900
BT	595.600	595.200	415.000	595.600	595.400	416.100	595.600	595.200	417.900	595.500
BT	594.500	419.700	595.400	592.500	420.400	595.400	590.700	430.000	595.400	0.000
BT	580.000	598.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

PRIVATE CULVERT BRIDGE SECTION C (MCS) SECT.C

83" X 128" CMP

X1	1400.000	0.000	0.000	0.000	15.000	15.000	15.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	580.000	0.000	0.000	0.000	0.000
NC	.042	.042	.036	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	1401.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	580.000	0.000	0.000	0.000	0.000
QT	4.000	100.000	150.000	170.000	240.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION FROM MCS LEWIS DRAIN DESIGN

X1	1971.000	7.000	215.000	230.000	570.000	570.000	570.000	0.000	.100	0.000
X3	0.000	0.000	0.000	100.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	597.400	0.000	596.400	100.000	596.400	200.000	589.200	215.000	596.200	230.000
GR	597.500	320.000	599.000	450.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION D (MCS) SECT.D

X1	2855.000	10.000	450.000	500.000	884.000	884.000	884.000	0.000	.100	0.000
GR	598.500	0.000	598.500	50.000	596.800	250.000	597.000	450.000	591.200	467.000
GR	590.100	476.000	591.800	485.000	598.300	500.000	598.800	700.000	600.300	900.000

VALLEY SECTION E (MCS) SECT.E

X1	3965.000	9.000	400.000	441.000	1300.000	800.000	1110.000	0.000	.100	0.000
GR	600.000	0.000	600.100	200.000	598.500	400.000	591.800	418.000	591.600	424.000
GR	591.800	431.000	598.000	441.000	599.600	641.000	600.300	841.000	0.000	0.000

X1	4095.000	0.000	0.000	0.000	130.000	130.000	130.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	230.000	0.000	540.000	0.000	0.000	0.000	0.000

VALLEY SECTION F (MCS) SECT.F

X1	4770.000	8.000	400.000	438.000	625.000	700.000	675.000	0.000	.100	0.000
X3	0.000	0.000	0.000	0.000	0.000	448.000	0.000	0.000	0.000	0.000
GR	600.600	0.000	600.300	200.000	600.700	400.000	593.000	417.000	592.200	423.000
GR	593.100	430.000	598.800	438.000	600.000	638.000	0.000	0.000	0.000	0.000

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X1   4819.000    10.000   100.000   120.800    49.000    49.000    49.000     0.000      .100     0.000
X3     10.000     0.000     0.000     0.000     0.000     0.000     0.000   600.500   600.500     0.000
GR    600.500     0.000   600.500    75.000   590.700   100.000   590.700   110.000   597.200   110.000
GR    597.200   110.800   590.700   110.800   590.700   120.800   600.500   146.000   600.500   200.000
NC       .040      .040      .021     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1   4820.000     0.000     0.000     0.000     1.000     1.000     1.000     0.000     0.000     0.000
X3     10.000     0.000     0.000     0.000     0.000     0.000     0.000   600.500   600.500     0.000
SB      0.000     1.810     3.000     0.000    20.000     0.000   130.000     0.000   590.800   590.800

             21 MILE ROAD  BRIDGE SECTION 7.1 (MCS)           SECT.G

             CONCRETE BOX CULVERT

X1   4880.000     0.000     0.000     0.000    60.000    60.000    60.000     0.000     0.000     0.000
X2      0.000     0.000     1.000   597.300   600.600     0.000     0.000     0.000     0.000     0.000
X3     10.000     0.000     0.000     0.000     0.000     0.000     0.000   600.600   600.600     0.000
BT      6.000     0.000   600.600     0.000   100.000   600.600   590.800   100.000   600.600   597.300
BT    120.800   600.600   597.300   120.800   600.600   590.800   200.000   600.600     0.000     0.000
NC       .038      .038      .034     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1   4881.000     0.000     0.000     0.000     1.000     1.000     1.000     0.000     0.000     0.000
X3     10.000     0.000     0.000     0.000     0.000     0.000     0.000   600.500   600.500     0.000

             VALLEY SECTION 8.1 (MCS)                         SECT.H

X1   4950.000     7.000    40.000   100.000    69.000    69.000    69.000     0.000      .100     0.000
GR    601.800     0.000   599.800    20.000   597.800    40.000   592.800    60.000   592.800    80.000
GR    599.500   100.000   600.500   120.000     0.000     0.000     0.000     0.000     0.000     0.000

X1   5115.000     0.000     0.000     0.000   165.000   165.000   165.000     0.000      .100     0.000

X1   5280.000     0.000     0.000     0.000   165.000   165.000   165.000     0.000      .200     0.000

             VALLEY SECTION 11.1 (MCS)                        SECT.I

X1   5281.000     8.000    40.000   100.000     1.000     1.000     1.000     0.000      .100     0.000
GR    602.100     0.000   600.100    20.000   598.100    40.000   593.100    60.000   593.100    80.000
GR    598.100   100.000   600.100   120.000   602.100   140.000     0.000     0.000     0.000     0.000

X1   5493.000     0.000     0.000     0.000   212.000   212.000   212.000     0.000      .200     0.000

X1   5705.000     0.000     0.000     0.000   212.000   212.000   212.000     0.000      .200     0.000

X1   5908.000     6.000    59.000   141.000   203.000   203.000   203.000     0.000      .100     0.000
X3      0.000     0.000     0.000    93.000     0.000   107.000     0.000     0.000     0.000     0.000
GR    602.600     0.000   602.600    59.000   593.800    93.000   593.800   107.000   602.300   141.000
GR    602.300   200.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
NC       .040      .040      .032     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1   5909.000     0.000     0.000     0.000     1.000     1.000     1.000     0.000     0.000     0.000
X3      0.000     0.000     0.000    93.000     0.000   107.000     0.000     0.000     0.000     0.000
SB      0.000     4.350     3.000     0.000    19.510     0.000    80.000     0.000   593.900   593.900
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*PROF 1

CCHV=      .300 CEHV=      .500
*SECNO 5281.000
   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA     LEFT/RIGHT
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN        SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID       ENDST

   5281.00      5.63     598.83       0.00     598.83     598.86       .01       0.00       0.00    598.20
     170.         0.       170.         0.         2.       238.        2.         0.         0.     598.20
     0.00        .12        .71        .12       .038       .034      .038      0.000     593.20     33.70
  .000044         0.         0.         0.          0          0         0       0.00      72.60    106.30

*SECNO 5493.000
   5493.00      5.44     598.84       0.00       0.00     598.85       .01        .01        .00    598.40
     170.         0.       170.         0.         1.       226.        1.         1.         0.     598.40
      .08        .10        .75        .10       .038       .034      .038       .034     593.40     35.61
  .000052       212.       212.       212.          0          0         0       0.00      68.78    104.39

*SECNO 5705.000
   5705.00      5.25     598.85       0.00       0.00     598.86       .01        .01        .00    598.60
     170.         0.       170.         0.         0.       215.        0.         2.         1.     598.60
      .15        .08        .79        .08       .038       .034      .038       .034     593.60     37.50
  .000061       212.       212.       212.          0          0         0       0.00      64.99    102.50

*SECNO 5908.000

3670 ENCROACHMENT STATIONS=       93.0      107.0   TYPE=      1   TARGET=       14.000
   5908.00      6.94     598.84       0.00       0.00     598.93       .09        .03      .04100000.10
     170.         0.       170.         0.         0.        69.        0.         3.         1. 100000.10
      .16       0.00       2.46       0.00       .038       .034      .038       .034     593.90     93.00
  .000771       203.       203.       203.          2          0         0       0.00      14.00    107.00

*SECNO 5909.000
   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA     LEFT/RIGHT
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN        SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID       ENDST

3670 ENCROACHMENT STATIONS=       93.0      107.0   TYPE=      1   TARGET=       14.000
   5909.00      4.94     598.84       0.00       0.00     598.93       .09        .00      .00100000.00
     170.         0.       170.         0.         0.        69.        0.         3.         1. 100000.00
      .18       0.00       2.45       0.00       .040       .032      .040       .034     593.90     93.00
  .000683         1.         1.         1.          0          0         0       0.00      14.00    107.00

SPECIAL BRIDGE

SB  XK          XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
     0.00        4.35       3.00       0.00      10.20       0.00      41.50       0.00     593.90     593.90

*SECNO 6021.000
PRESSURE FLOW
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   EGPRS      EGLWC        H3        QWEIR       QPR        BAREA   TRAPEZOID     ELLC      ELTRD
                                                                      AREA
   599.97     598.94      0.00         0.        170.        42.       42.       598.00    602.40

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       602.40 ELREA=       602.40

   6021.00      6.01    599.91      0.00      0.00    599.97       .07      1.04      0.00    594.90
     170.         0.      170.        0.        0.       82.        0.        3.        1.    594.90
      .19       0.00      2.07      0.00      .040      .032      .040      .033    593.90     93.00
   .000365      112.      112.      112.         2         0         0      0.00     14.00    107.00

 *SECNO 6022.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       602.30 ELREA=       602.30

   6022.00      6.01    599.91      0.00      0.00    599.97       .07       .00       .00    594.90
     170.         0.      170.        0.        0.       82.        0.        3.        1.    594.90
      .19       0.00      2.07      0.00      .038      .034      .038      .033    593.90     93.00
   .000412        1.        1.        1.         0         0         0      0.00     14.00    107.00

 *SECNO 6071.000
   6071.00      6.09    599.99      0.00      0.00    600.00       .01       .00       .02    598.90
     170.         1.      133.       37.        6.      194.       78.        3.        1.    593.90
      .21        .14       .69       .47      .038      .034      .038      .033    593.90     39.11
   .000031       49.       49.       49.         2         0         0      0.00     81.78    120.89

 *SECNO 6319.000
   6319.00      5.90    600.00      0.00      0.00    600.00       .01       .01       .00    599.10
     170.         1.      134.       36.        4.      186.       72.        5.        1.    594.10
      .32        .14       .72       .50      .038      .034      .038      .034    594.10     41.03
   .000036      248.      248.      248.         2         0         0      0.00     77.94    118.97

 *SECNO 6567.000
    SECNO      DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS   BANK ELEV
    Q          QLOB      QCH       QROB      ALOB       ACH       AROB      VOL      TWA   LEFT/RIGHT
    TIME       VLOB      VCH       VROB      XNL        XNCH      XNR       WTN      ELMIN      SSTA
    SLOPE      XLOBL     XLCH      XLOBR     ITRIAL     IDC       ICONT     CORAR    TOPWID     ENDST

   6567.00      5.71    600.01      0.00      0.00    600.01       .01       .01       .00    599.30
     170.         0.      135.       35.        2.      178.       67.        6.        2.    594.30
      .41        .13       .76       .52      .038      .034      .038      .034    594.30     42.95
   .000042      248.      248.      248.         0         0         0      0.00     74.10    117.05

 *SECNO 6815.000
   6815.00      5.52    600.02      0.00      0.00    600.02       .00       .01       .00    599.50
     110.         0.       88.       22.        1.      171.       62.        8.        2.    594.50
      .56        .07       .52       .36      .038      .034      .038      .034    594.50     44.84
   .000021      248.      248.      248.         0         0         0      0.00     70.31    115.16

 *SECNO 7063.000
   7063.00      5.32    600.02      0.00      0.00    600.03       .00       .01       .00    599.70
     110.         0.       89.       21.        1.      163.       57.        9.        3.    594.70
      .69        .06       .54       .37      .038      .034      .038      .034    594.70     46.73
   .000024      248.      248.      248.         0         0         0      0.00     66.54    113.27
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*SECNO 7311.000

7311.00	5.13	600.03	0.00	0.00	600.04	.00	.01	.00	599.90
110.	0.	89.	21.	0.	155.	53.	10.	3.	594.90
.82	.00	.58	.39	.038	.034	.038	.034	594.90	48.70
.000029	248.	248.	248.	0	0	0	0.00	62.60	111.30

*SECNO 7558.000

7558.00	4.94	600.04	0.00	0.00	600.05	.01	.01	.00	597.10
110.	3.	104.	3.	10.	132.	10.	11.	3.	597.10
.91	.32	.79	.32	.038	.034	.038	.034	595.10	25.47
.000046	247.	247.	247.	0	0	0	0.00	63.06	68.53

*SECNO 7559.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
7559.00	2.52	600.02	0.00	0.00	600.07	.05	.00	.02	602.50
110.	0.	110.	0.	0.	61.	0.	11.	3.	602.50
.91	0.00	1.82	0.00	.038	.034	.038	.034	597.50	29.93
.000823	1.	1.	1.	2	0	0	0.00	34.13	64.07

*SECNO 7608.000

7608.00	2.46	600.06	0.00	0.00	600.11	.06	.04	.00	601.60
110.	0.	110.	0.	0.	58.	0.	11.	3.	601.60
.92	0.00	1.89	0.00	.038	.034	.038	.034	597.60	53.21
.000919	49.	49.	49.	1	0	0	0.00	33.58	86.79

*SECNO 7777.000

7777.00	2.51	600.21	0.00	0.00	600.26	.05	.15	.00	601.70
110.	0.	110.	0.	0.	60.	0.	11.	3.	601.70
.96	0.00	1.83	0.00	.038	.034	.038	.034	597.70	52.98
.000839	169.	169.	169.	0	0	0	0.00	34.03	87.02

*SECNO 7946.000

7946.00	2.46	600.36	0.00	0.00	600.41	.05	.15	.00	601.90
110.	0.	110.	0.	0.	59.	0.	12.	4.	601.90
.97	0.00	1.88	0.00	.038	.034	.038	.034	597.90	53.17
.000903	169.	169.	169.	0	0	0	0.00	33.67	86.83

*SECNO 8112.000

8112.00	2.36	600.56	0.00	0.00	600.79	.23	.29	.09	605.30
110.	0.	110.	0.	0.	29.	0.	12.	4.	605.30
.98	0.00	3.81	0.00	.038	.034	.038	.034	598.20	93.00
.004786	166.	166.	166.	2	0	0	0.00	14.00	107.00

*SECNO 8113.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3370 NORMAL BRIDGE,NRD= 12 MIN ELTRD= 605.30 MAX ELLC= 601.80

8113.00	2.34	600.54	0.00	0.00	600.[illegible]	.29	.11	3	6[illegible]5.30

110.	0.	110.	0.	0.	26.	0.	12.	4.	605.30
.98	0.00	4.30	0.00	.040	.033	.040	.034	598.20	93.00
.007630	1.	1.	1.	2	0	0	-2.95	14.00	107.00

*SECNO 8184.000

3370 NORMAL BRIDGE,NRD= 12 MIN ELTRD= 605.30 MAX ELLC= 601.80

8184.00	2.85	601.05	0.00	0.00	601.25	.20	.40	.03	605.30
110.	0.	110.	0.	0.	31.	0.	12.	4.	605.30
.98	0.00	3.58	0.00	.040	.033	.040	.034	598.20	93.00
.004382	71.	71.	71.	2	0	0	-5.02	14.00	107.00

*SECNO 8185.000

8185.00	2.94	601.14	0.00	0.00	601.27	.14	.00	.02	605.30
110.	0.	110.	0.	0.	37.	0.	12.	4.	605.30
.98	0.00	2.98	0.00	.038	.034	.038	.034	598.20	93.00
.002267	1.	1.	1.	2	0	0	0.00	14.00	107.00

*SECNO 8234.000

8234.00	3.12	601.32	0.00	0.00	601.34	.03	.04	.03	602.20
110.	0.	110.	0.	0.	82.	0.	12.	4.	602.20
.99	0.00	1.34	0.00	.038	.034	.038	.034	598.20	50.57
.000355	49.	49.	49.	1	0	0	0.00	38.86	89.43

*SECNO 8373.000

8373.00	3.07	601.37	0.00	0.00	601.39	.03	.05	.00	602.30
110.	0.	110.	0.	0.	80.	0.	12.	4.	602.30
1.02	0.00	1.37	0.00	.038	.034	.038	.034	598.30	50.74
.000376	139.	139.	139.	2	0	0	0.00	38.52	89.26

*SECNO 8512.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
8512.00	2.92	601.42	0.00	0.00	601.45	.03	.06	.00	602.50
110.	0.	110.	0.	0.	75.	0.	12.	4.	602.50
1.05	0.00	1.47	0.00	.038	.034	.038	.034	598.50	51.33
.000459	139.	139.	139.	0	0	0	0.00	37.33	88.67

*SECNO 8651.000

8651.00	2.89	601.49	0.00	0.00	601.52	.03	.07	.00	602.60
110.	0.	110.	0.	0.	73.	0.	13.	4.	602.60
1.07	0.00	1.50	0.00	.038	.034	.038	.034	598.60	51.48
.000483	139.	139.	139.	0	0	0	0.00	37.03	88.52

*SECNO 8790.000

3470 ENCROACHMENT STATIONS= 59.0 81.0 TYPE= 1 TARGET= 22.000

8790.00	2.75	601.55	0.00	0.00	601.61	.06	.08	.01	100000.00
110.	0.	110.	0.	0.	57.	0.	13.	4.	100000.00
1.09	0.00	1.95	0.00	.038	.034	.038	.034	598.80	59.00
.000695	139.	139.	139.	0	0	0	0.00	22.00	81.00

*SECNO 8[illegible]

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 3470 ENCROACHMENT STATIONS=      62.0      79.0  TYPE=      1  TARGET=      17.000
   8800.00      2.33    601.53      0.00      0.00    601.66       .12       .01       .03100000.00
      110.        0.      110.        0.        0.       39.        0.       13.        4. 100000.00
      1.09      0.00      2.82      0.00      .038      .034      .038      .034    599.20     62.00
   .001822       10.       10.       10.         2         0         0      0.00     17.00     79.00

 *SECNO 8810.000

 3470 ENCROACHMENT STATIONS=      64.0      76.0  TYPE=      1  TARGET=      12.000
   8810.00      1.71    601.41      0.00      0.00    601.85       .45       .04       .16100000.00
      110.        0.      110.        0.        0.       20.        0.       13.        4. 100000.00
      1.10      0.00      5.37      0.00      .038      .034      .038      .034    599.70     64.00
   .010310       10.       10.       10.         2         0         0      0.00     12.00     76.00

 *SECNO 8819.000

 3301 HV CHANGED MORE THAN HVINS

      SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS   BANK ELEV
          Q      QLOB       QCH      QROB      ALOB       ACH      AROB       VOL       TWA  LEFT/RIGHT
       TIME      VLOB       VCH      VROB       XNL      XNCH       XNR       WTN     ELMIN      SSTA
      SLOPE     XLOBL      XLCH     XLOBR    ITRIAL       IDC     ICONT     CORAR    TOPWID     ENDST

 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
   8819.00      2.06    602.16    602.16      0.00    603.14       .98       .13       .26    606.90
      110.        0.      110.        0.        0.       14.        0.       13.        4.    606.90
      1.10      0.00      7.93      0.00      .038      .034      .038      .034    600.10     96.40
   .022221        9.        9.        9.        20        11         0      0.00      7.20    103.60

 *SECNO 8820.000

 3370 NORMAL BRIDGE,NRD=   7 MIN ELTRD=   606.90 MAX ELLC=   605.30

   8820.00      2.52    602.62      0.00      0.00    603.25       .63       .02       .10    606.90
      110.        0.      110.        0.        0.       17.        0.       13.        4.    606.90
      1.10      0.00      6.39      0.00      .040      .033      .040      .034    600.10     96.40
   .011423        1.        1.        1.         7         0         0      0.00      7.20    103.60

 *SECNO 8858.000

 3370 NORMAL BRIDGE,NRD=   7 MIN ELTRD=   606.90 MAX ELLC=   605.30

   8858.00      3.16    603.26      0.00      0.00    603.67       .42       .35       .06    606.90
      110.        0.      110.        0.        0.       21.        0.       13.        4.    606.90
      1.10      0.00      5.18      0.00      .040      .033      .040      .034    600.10     96.40
   .007713       38.       38.       38.         0         0         0      -.58      7.20    103.60

 *SECNO 8859.000
   8859.00      3.21    603.31      0.00      0.00    603.69       .38       .01       .01    606.90
      110.        0.      110.        0.        0.       22.        0.       13.        4.    606.90
      1.10      0.00      4.97      0.00      .040      .033      .040      .034    600.10     96.40
   .005776        1.        1.        1.         2         0         0      0.00      7.20    103.60
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 ****************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
 ****************************************************

 T1
 T2
 T3

 J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC     HVINS      Q        WSEL       FQ
        0.        4.        0.        0.  0.000000      0.00       0.0       0.   598.830    0.000

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH      FN        ALLDC     IBW      CHNIM     ITRACE
      1.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

 NC      .038      .038      .034      .300      .500     0.000     0.000     0.000     0.000     0.000
 QT     4.000   100.000   150.000   170.000   260.000     0.000     0.000     0.000     0.000     0.000

 X1  5281.000     8.000    40.000   100.000     0.000     0.000     0.000     0.000      .100     0.000
 GR   602.100     0.000   600.100    20.000   593.100    40.000   593.100    60.000   593.100    80.000
 GR   598.100   100.000   600.100   120.000   602.100   140.000     0.000     0.000     0.000     0.000

 X1  5493.000     0.000     0.000     0.000   212.000   212.000   212.000     0.000      .200     0.000

 X1  5705.000     0.000     0.000     0.000   212.000   212.000   212.000     0.000      .200     0.000

 X1  5908.000     6.000    59.000   141.000   203.000   203.000   203.000     0.000      .100     0.000
 X3     0.000     0.000     0.000    93.000     0.000   107.000     0.000     0.000     0.000     0.000
 GR   602.600     0.000   602.600    59.000   593.800    93.000   593.800   107.000   602.300   141.000
 GR   602.300   200.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
 NC      .040      .040      .032     0.000     0.000     0.000     0.000     0.000     0.000     0.000

 X1  5909.000     0.000     0.000     0.000     1.000     1.000     1.000     0.000     0.000     0.000
 X3     0.000     0.000     0.000    93.000     0.000   107.000     0.000     0.000     0.000     0.000
 SB     0.000     4.350     3.000     0.000    10.200     0.000    41.500     0.000   593.900   593.900

 X1  6021.000    20.000    93.000   107.000   112.000   112.000   112.000     0.000      .100     0.000
 X2     0.000     0.000     1.000   598.000   602.400     0.000     0.000     0.000     0.000     0.000
 X3    10.000   593.800     0.000     0.000     0.000     0.000     0.000   602.400   602.400     0.000
 BT    14.000     0.000   602.700     0.000    93.000   602.600   594.900    94.000   602.600   597.400
 BT    95.000   602.600   597.900    97.000   602.600   597.900    98.000   602.600   597.400    99.000
 BT   602.600   594.900   101.000   602.500   594.900   102.000   602.500   597.400   103.000   602.500
 BT   597.900   105.000   602.500   597.900   106.000   602.500   597.400   107.000   602.500   594.900
 BT   200.000   602.400     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
 GR   602.600     0.000   602.500    68.000   594.800    93.000   593.800    93.000   592.300    94.000
 GR   591.800    95.000   591.800    97.000   592.300    98.000   593.800    99.000   594.800    99.000
 GR   594.800   101.000   593.800   101.000   592.300   102.000   591.800   103.000   591.800   105.000
 GR   592.300   106.000   593.800   107.000   594.800   107.000   602.400   132.000   602.300   200.000
 NC      .038      .038      .034     0.000     0.000     0.000     0.000     0.000     0.000     0.000
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X1	6022.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	602.300	602.300	0.000
X1	6071.000	8.000	50.000	90.000	49.000	49.000	49.000	0.000	.100	0.000
GR	603.800	0.000	600.800	30.000	598.800	50.000	593.800	70.000	593.800	90.000
GR	598.800	110.000	600.800	130.000	603.800	160.000	0.000	0.000	0.000	0.000
X1	6319.000	0.000	0.000	0.000	248.000	248.000	248.000	0.000	.200	0.000
X1	6567.000	0.000	0.000	0.000	248.000	248.000	248.000	0.000	.200	0.000
QT	4.000	70.000	100.000	110.000	155.000	0.000	0.000	0.000	0.000	0.000
X1	6815.000	0.000	0.000	0.000	248.000	248.000	248.000	0.000	.200	0.000
X1	7063.000	0.000	0.000	0.000	248.000	248.000	248.000	0.000	.200	0.000
X1	7311.000	0.000	0.000	0.000	248.000	248.000	248.000	0.000	.200	0.000
X1	7558.000	8.000	32.000	62.000	247.000	247.000	247.000	0.000	.100	0.000
GR	604.400	0.000	602.400	20.000	597.000	32.000	595.000	40.000	595.000	54.000
GR	597.000	62.000	602.400	74.000	604.400	94.000	0.000	0.000	0.000	0.000
X1	7559.000	6.000	20.000	74.000	1.000	1.000	1.000	0.000	.100	0.000
GR	604.400	0.000	602.400	20.000	597.400	40.000	597.400	54.000	602.400	74.000
GR	604.400	94.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	7608.000	8.000	47.000	93.000	49.000	49.000	49.000	0.000	.100	0.000
GR	606.200	0.000	604.200	20.000	601.500	47.000	597.500	63.000	597.500	77.000
GR	601.500	93.000	604.200	120.000	606.200	140.000	0.000	0.000	0.000	0.000
X1	7777.000	0.000	0.000	0.000	169.000	169.000	169.000	0.000	.100	0.000
X1	7946.000	0.000	0.000	0.000	169.000	169.000	169.000	0.000	.200	0.000
X1	8112.000	18.000	93.000	107.000	166.000	166.000	166.000	0.000	.100	0.000
GR	605.200	0.000	605.200	93.000	599.700	93.000	598.600	93.000	598.100	94.000
GR	598.100	96.000	598.100	98.000	593.600	99.000	599.700	99.000	599.700	101.000
GR	598.600	101.000	598.100	102.000	598.100	104.000	598.100	106.000	598.600	107.000
GR	599.700	107.000	605.200	107.000	605.200	200.000	0.000	0.000	0.000	0.000
NC	.040	.040	.033	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	8113.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	12.000	0.000	605.300	0.000	93.000	605.300	599.800	94.000	605.300	601.300
BT	96.000	605.300	601.800	98.000	605.300	601.300	99.000	605.300	599.800	101.000
BT	605.300	599.800	102.000	605.300	601.300	104.000	605.300	601.800	106.000	605.300
BT	601.300	107.000	605.300	599.800	200.000	605.300	0.000	0.000	0.000	0.000
X1	8184.000	0.000	0.000	0.000	71.000	71.000	71.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NC	.038	.038	.034	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	8185.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X1	8234.000	8.000	47.000	93.000	49.000	49.000	49.000	0.000	.100	0.000
GR	606.800	0.000	604.800	20.000	602.100	47.000	598.100	63.000	598.100	77.000
GR	602.100	93.000	604.800	120.000	606.800	140.000	0.000	0.000	0.000	0.000
X1	8373.000	0.000	0.000	0.000	139.000	139.000	139.000	0.000	.100	0.000
X1	8512.000	0.000	0.000	0.000	139.000	139.000	139.000	0.000	.200	0.000
X1	8651.000	0.000	0.000	0.000	139.000	139.000	139.000	0.000	.100	0.000
X1	8790.000	0.000	0.000	0.000	139.000	139.000	139.000	0.000	.200	0.000
X3	0.000	0.000	0.000	59.000	0.000	81.000	0.000	0.000	0.000	0.000
X1	8800.000	0.000	0.000	0.000	10.000	10.000	10.000	0.000	.400	0.000
X3	0.000	0.000	0.000	62.000	0.000	79.000	0.000	0.000	0.000	0.000
X1	8810.000	0.000	0.000	0.000	10.000	10.000	10.000	0.000	.500	0.000
X3	0.000	0.000	0.000	64.000	0.000	76.000	0.000	0.000	0.000	0.000
X1	8819.000	11.000	96.400	103.600	9.000	9.000	9.000	0.000	.100	0.000
GR	606.800	0.000	606.800	96.400	602.800	96.400	600.600	96.400	600.000	98.000
GR	600.000	100.000	600.000	102.000	600.600	103.600	602.800	103.600	606.800	103.600
GR	606.800	200.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.040	.040	.033	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	8820.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	7.000	0.000	606.900	0.000	96.400	606.900	602.900	98.000	606.900	604.900
BT	100.000	606.900	605.300	102.000	606.900	604.900	103.600	606.900	602.900	200.000
BT	606.900	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	8858.000	0.000	0.000	0.000	38.000	38.000	38.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
X1	8859.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

00BREAK00

1) COUNTY: macomb

2) STUDY NAME: macomb

3) WATERCOURSE: Lewis Drain

4) DOCUMENT TYPE: 100 year flood
REVISED TILCH ROAD
Culvert AREA

00BREAK00

79/07/12. 13.37.44.   NOS 1.3 - L485.   VYDOG4I   EXPRESS   MCAUTO - CYBER 175-1 1005.

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HH          HH EEEEEEEEEEEE    CCCCCCCC                    22222222
HH          HH EEEEEEEEEEEE  CCCCCCCCCC                  2222222222
HH          HH EE           CCC        CC               22        222
HH          HH EE           CC                                     22
HH          HH EE           CC                                     22
HH          HH EE           CC                                     22
HH          HH EE           CC                                     22
HHHHHHHHHHHHHH EEEEEEEEEEE  CC          ----------                222
HHHHHHHHHHHHHH EEEEEEEEEEE  CC          ----------        22222222
HH          HH EE           CC                          22222222
HH          HH EE           CC                          222
HH          HH EE           CC                          22
HH          HH EE           CC                          22
HH          HH EE           CCC        CC               22
HH          HH EEEEEEEEEEEE  CCCCCCCCCC                 222222222222
HH          HH EEEEEEEEEEEE    CCCCCCCC                 222222222222

   IIIIIIII    NN          NN PPPPPPPPPP    UU          UU TTTTTTTTTTTT
   IIIIIIII    NN          NN PPPPPPPPPPP   UU          UU TTTTTTTTTTTT
      II       NNN         NN PP        PPP UU          UU      TT
      II       NNN         NN PP         PP UU          UU      TT
      II       NNNN        NN PP         PP UU          UU      TT
      II       NN NN       NN PP         PP UU          UU      TT
      II       NN  NN      NN PP        PPP UU          UU      TT
      II       NN   NN     NN PPPPPPPPPPP   UU          UU      TT
      II       NN    NN    NN PPPPPPPPPP    UU          UU      TT
      II       NN     NN   NN PP            UU          UU      TT
      II       NN      NNNN   PP            UU          UU      TT
      II       NN       NNN   PP            UU          UU      TT
      II       NN       NNN   PP            UU          UU      TT
      II       NN        NN   PP            UUU        UUU      TT
   IIIIIIII    NN        NN   PP             UUUUUUUUUU         TT
   IIIIIIII    NN        NN   PP              UUUUUUUU          TT

EEEEEEEEEEEE    CCCCCCCC    HH          HH    00000000
EEEEEEEEEEEE  CCCCCCCCCC    HH          HH  0000000000
EE           CCC        CC  HH          HH 000        000
EE           CC             HH          HH 00          00
EE           CC             HH          HH 00          00
EE           CC             HH          HH 00          00
EE           CC             HH          HH 00          00
EEEEEEEEEEE  CC             HHHHHHHHHHHHHH 00          00
EEEEEEEEEEE  CC             HHHHHHHHHHHHHH 00          00
EE           CC             HH          HH 00          00
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EE           CC             HH          HH 00          00
EE           CC             HH          HH 00          00
EE           CCC        CC  HH          HH 000        000
EEEEEEEEEEEE  CCCCCCCCCC    HH          HH  0000000000
EEEEEEEEEEEE    CCCCCCCC    HH          HH    00000000
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LEWIS DRAIN
J&A FILE No. 5850-03
MACOMB TWP. AS
"NATURAL FLOODWAY"
100 YR FLOOD

-REVISED TILCH ROAD
CULVERT AREA
8-10-79

T1										
T2										
T3										
J1		4							598.83	
J2	1		-1							
NC	.038	.038	.034	.3	.5					
QT	4	100	150	170	240					
X1	5281	8	40	100					.1	
GR	602.1	0	600.1	20	598.1	40	593.1	60	593.1	80
GR	598.1	100	600.1	120	602.1	140				
X1	5493				212	212	212		.2	
X1	5705				212	212	212		.2	
X1	5908	6	59	141	203	203	203		.1	
X3				93		107				
GR	602.6	0	602.6	59	593.8	93	593.8	107	602.3	141
GR	602.3	200								
NC	.04	.04	.032							
X1	5909				1	1	1			
X3				93		107				
SB		4.35	3.0		10.2		41.5		593.9	593.9
X1	6021	20	93	107	112	112	112		.1	
X2			1	593.0	602.4					
X3	10	593.8						602.4	602.4	
BT	14	0	602.7	0.0	93	602.6	594.9	94	602.6	597.4
BT	95	602.6	597.9	97	602.6	597.9	98	602.6	597.4	99
BT	602.6	594.9	101	602.5	594.9	102	602.5	597.4	103	602.5
BT	597.9	105	602.5	597.9	106	602.5	597.4	107	602.5	594.9
BT	200	602.4	0.0							
GR	602.6	0	602.5	68	594.8	93	593.8	93	592.3	94
GR	591.8	95	591.8	97	592.3	98	593.8	99	594.8	99
GR	594.8	101	593.8	101	592.3	102	591.8	103	591.8	105
GR	592.3	106	593.8	107	594.8	107	602.4	132	602.3	200
NC	.038	.038	.034							
X1	6022				1	1	1			
X3	10							602.3	602.3	
X1	6071	8	50	90	49	49	49		.1	
GR	603.8	0	600.8	30	598.8	50	593.8	70	593.8	90
GR	598.8	110	600.8	130	603.8	160				
X1	6319				248	248	248		.2	
X1	6567				248	248	248		.2	
QT	4	70	100	110	155					
X1	6815				248	248	248		.2	
X1	7063				248	248	248		.2	
X1	7311				248	248	248		.2	
X1	7558	8	32	62	247	247	247		.1	
GR	604.4	0	602.4	20	597.0	32	595.0	40	595.0	54
GR	597.0	62	602.4	74	604.4	94				
X1	7559	6	20	74	1	1	1		.1	
GR	604.4	0	602.4	20	597.4	40	597.4	54	602.4	74
GR	604.4	94								
X1	7608	8	47	93	49	49	49		.1	
GR	606.2	0	604.2	20	601.5	47	597.5	63	597.5	77
GR	601.5	93	604.2	120	606.2	140				
X1	7777				169	169	169		.1	
X1	7946				169	169	169		.2	
X1	8112	18	93	107	166	166	166		.1	
GR	605.2	0	605.2	93	599.7	93	598.6	93	598.1	94
GR	598.1	96	598.1	98	598.6	99	599.7	99	599.7	101
GR	598.6	101	598.1	102	598.1	104	598.1	106	598.6	107
GR	599.7	107	605.2	107	605.2	200				
NC	.04	.04	.033							
X1	8113				1	1	1			
BT	12	0	605.3	0.0	93	605.3	599.8	94	605.3	601.3
BT	96	605.3	601.8	98	605.3	601.3	99	605.3	599.8	101

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BT 605.3   599.8     102   605.3   601.3     104   605.3   601.8     106   605.3
BT 601.3     107   605.3   599.8     200   605.3     0.0
X1  8184                                71      71      71
X2                                                       1
NC  .038    .038    .034
X1  8185                                 1       1       1
X1  8234       8      47      93      49      49      49                .1
GR 606.8       0   604.8      20   602.1      47   598.1      63   598.1      77
GR 602.1      93   604.8     120   606.8     140
X1  8373                               139     139     139              .1
X1  8512                               139     139     139              .2
X1  8651                               139     139     139              .1
X1  8790                               139     139     139              .2
X3                            59              81
X1  8800                                10      10      10              .4
X3                            62              79
X1  8810                                10      10      10              .5
X3                            64              75
X1  8819      11    96.4   103.6       9       9       9                .1
GR 606.8       0   606.8    96.4   602.8    96.4   600.6    96.4   600.0      98
GR 600.0     100   600.0     102   600.6   103.6   602.8   103.6   606.8   103.6
GR 606.8     200
NC   .04     .04    .033
X1  8820                                 1       1       1
BT     7       0   606.9     0.0    96.4   606.9   602.9      98   606.9   604.9
BT   100   606.9   605.3     102   606.9   604.9   103.6   606.9   602.9     200
BT 606.9     0.0
X1  8858                                38      38      38
X2                                                       1
X1  8859                                 1       1       1
EJ

ER
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*PROF 1

CCHV=     .300 CEHV=     .500
*SECNO 54.000
     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS     BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA     LEFT/RIGHT
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN       SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID      ENDST

       54.00       8.81     596.91       0.00     596.91     597.15        .24       0.00       0.00     598.60
        980.         0.       980.         0.         0.       247.         0.         0.         0.      598.60
        0.00       0.00       3.96       0.00       .040       .032       .040      0.000     588.10     384.50
     .000823         0.         0.         0.          0          0          0       0.00      31.00     415.50

*SECNO 55.000

3370 NORMAL BRIDGE,NRD= 22 MIN ELTRD=  598.10 MAX ELLC=  597.60

       55.00       8.74     596.84       0.00       0.00     597.23        .39        .00        .07     598.60
        980.         0.       980.         0.         0.       196.         0.         0.         0.      598.60
         .00       0.00       4.99       0.00       .040       .032       .040       .016     588.10     384.50
     .002663         1.         1.         1.          2          0          0     -48.83      31.00     415.50

*SECNO 120.000

3370 NORMAL BRIDGE,NRD= 22 MIN ELTRD=  598.10 MAX ELLC=  597.60

                    LAKESIDE VILLA ENTRANCE ROAD      (MCS)           SECT.A

                    2-14' X 9'8" CMP ARCH PIPES

      120.00       8.92     597.02       0.00       0.00     597.40        .38        .17        .00     598.60
        980.         0.       980.         0.         0.       198.         0.         0.         0.      598.60
         .00       0.00       4.95       0.00       .040       .032       .040       .031     588.10     384.50
     .002605        65.        65.        65.          2          0          0     -52.68      31.00     415.50

*SECNO 121.000
      121.00       9.12     597.22       0.00       0.00     597.45        .23        .00        .05     598.60
        980.         0.       980.         0.         0.       257.         0.         0.         0.      598.60
         .00       0.00       3.81       0.00       .042       .036       .042       .031     588.10     384.50
     .000933         1.         1.         1.          2          0          0       0.00      31.00     415.50

*SECNO 640.000
     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS     BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA     LEFT/RIGHT
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN       SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID      ENDST

                    VALLEY SECTION B (MCS)                            SECT.B

      640.00       9.24     597.74       0.00       0.00     597.90        .16        .43        .02     596.80
        980.        13.       854.       114.        22.       250.       107.         4.         1.      595.40
         .05        .58       3.42       1.06       .042       .036       .042       .035     588.50     353.15
     .000733       520.       520.       520.          2          0          0       0.00     182.49     535.64
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596.22

Out @ 589.0

Invert 586.72

Glade El. = 597.8

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*SECNO 1384.000

3470 ENCROACHMENT STATIONS=        .0      580.0  TYPE=      1  TARGET=      579.999
  1384.00      9.91    598.41      0.00      0.00    598.48      .07      .56       .03    595.80
    980.       238.     315.       428.      188.      100.      289.      12.        5.     595.40
    .16        1.27     3.13       1.48      .042      .036      .042     .036    588.50    275.64
  .000769      744.     744.       744.        2         0         0      0.00    304.36    580.00

*SECNO 1385.000

3370 NORMAL BRIDGE,NRD= 14 MIN ELTRD=  595.40 MAX ELLC=  595.40

3470 ENCROACHMENT STATIONS=        .0      580.0  TYPE=      1  TARGET=      579.999
  1385.00      9.94    598.44      0.00      0.00    598.49      .05      .00       .01    595.80
    980.       283.     197.       499.      191.       85.      290.      12.        5.     595.40
    .16        1.48     2.33       1.72      .042      .032      .042     .036    588.50    274.39
  .001042       1.       1.         1.         2         0         0    -19.85    305.61    580.00

*SECNO 1400.000

3370 NORMAL BRIDGE,NRD= 14 MIN ELTRD=  595.40 MAX ELLC=  595.40

3470 ENCROACHMENT STATIONS=        .0      580.0  TYPE=      1  TARGET=      579.999
                  PRIVATE CULVERT  BRIDGE SECTION C (MCS)          SECT.C

                  83" X 128" CMP

  1400.00      9.95    598.45      0.00      0.00    598.50      .05      .02       .00    595.80
    980.       284.     196.       500.      193.       85.      292.      12.        6.     595.40
    .16        1.47     2.31       1.71      .042      .032      .042     .036    588.50    273.74
  .001021       15.      15.        15.        0         0         0    -19.85    306.25    580.00

*SECNO 1401.000

3470 ENCROACHMENT STATIONS=        .0      580.0  TYPE=      1  TARGET=      579.999
  1401.00      9.95    598.45      0.00      0.00    598.51      .07      .00       .01    595.80
    980.       240.     308.       432.      194.      101.      296.      12.        6.     595.40
    .16        1.24     3.05       1.46      .042      .036      .042     .036    588.50    273.56
  .000725       1.       1.         1.         0         0         0      0.00    306.44    580.00

*SECNO 1971.000
   SECNO      DEPTH     CWSEL     CRIWS     WSELK      EG        HV        HL      OLOSS   BANK ELEV
   Q          QLOB      QCH       QROB      ALOB       ACH       AROB      VOL     TWA    LEFT/RIGHT
   TIME       VLOB      VCH       VROB      XNL        XNCH      XNR       WTN     ELMIN     SSTA
   SLOPE      XLOBL     XLCH      XLOBR     ITRIAL     IDC       ICONT     CORAR   TOPWID    ENDST

3470 ENCROACHMENT STATIONS=     100.0      450.0  TYPE=      1  TARGET=     -100.000
                  VALLEY SECTION FROM MCS LEWIS DRAIN DESIGN

  1971.00      9.35    598.65      0.00      0.00    598.66      .00      .12       .02    589.30
    170.        89.      45.        36.      302.       88.      201.      20.       10.     596.30
    .64         .29      .51        .18      .042      .036      .042     .036    589.30    100.00
  .000017      570.      70.       570.                  0         0      0.00    311.29    411.29
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*SECNO 2855.000
3280 CROSS SECTION   2855.00 EXTENDED      .07 FEET

                 VALLEY SECTION D (MCS)                          SECT.D

   2855.00     8.47    598.67     0.00      0.00    598.67      .00      .01      .00    597.10
      170.      69.      100.       0.      520.      268.      14.      34.      19.    598.40
      1.53      .13       .37      .03      .042      .036     .042     .036   590.20      0.00
   .000009     884.      884.     884.         2         0        0     0.00   606.26    606.26

*SECNO 3965.000

                 VALLEY SECTION E (MCS)                          SECT.E

   3965.00     6.98    598.68     0.00      0.00    598.70      .01      .02      .01    598.60
      170.       0.      167.       3.        0.      188.      21.      48.      29.    598.10
      1.90      .03       .89      .13      .042      .036     .042     .035   591.70    390.05
   .000067    1300.     1110.     800.         0         0        0     0.00   123.41    513.45

*SECNO 4095.000

3470 ENCROACHMENT STATIONS=     230.0     540.0  TYPE=      1  TARGET=      310.000
   4095.00     6.99    598.69     0.00      0.00    598.70      .01      .01      .00    598.60
      170.       0.      167.       3.        0.      188.      22.      49.      29.    598.10
      1.94      .04       .89      .13      .042      .036     .042     .035   591.70    389.00
   .000067     130.      130.     130.         0         0        0     0.00   125.49    514.49

*SECNO 4770.000

3470 ENCROACHMENT STATIONS=        .0     448.0  TYPE=      1  TARGET=      447.999

                 VALLEY SECTION F (MCS)                          SECT.F

   4770.00     6.45    598.75     0.00      0.00    598.78      .02      .07      .01    600.80
      170.       0.      170.       0.        0.      135.       0.      52.      30.    598.90
      2.09     0.00      1.26     0.00      .042      .036     .042     .036   592.30    404.54
   .000162     625.      675.     700.         1         0        0     0.00    33.24    437.78

*SECNO 4819.000
    SECNO     DEPTH     CWSEL     CRIWS     WSELK       EG       HV       HL     OLOSS   BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH      AROB     VOL      TWA   LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL       XNCH     XNR      WTN      ELMIN      SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC      ICONT    CORAR    TOPWID     ENDST

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      600.50 ELREA=       600.50

   4819.00     7.97    598.77     0.00      0.00    598.78      .02      .01      .00    590.80
      170.       0.      170.       0.        0.      160.       0.      52.      30.    590.80
      2.10     0.00      1.06     0.00      .042      .036     .042     .036   590.80    100.00
   .000092      49.       49.      49.         0         0        0     0.00    20.80    120.80

*SECNO 4820.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      600.50 ELREA=       600.50
```

4820.00	[illegible]	[illegible]	0.00	0.00	[illegible]	[illegible]	[illegible]	.00	[illegible]
170.	0.	170.	0.	0.	161.	0.	52.	30.	590.80
2.10	0.00	1.06	0.00	.040	.021	.040	.036	590.80	100.00
.000031	1.	1.	1.	0	0	0	0.00	20.80	120.80

SPECIAL BRIDGE

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
0.00	1.81	3.00	0.00	20.00	0.00	130.00	0.00	590.80	590.80

*SECNO 4880.000
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
598.82	598.78	0.00	0.	170.	130.	130.	597.30	600.60

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 600.60 ELREA= 600.60

21 MILE ROAD BRIDGE SECTION 7.1 (MCS) SECT.G

CONCRETE BOX CULVERT

4880.00	8.00	598.80	0.00	0.00	598.82	.02	.03	0.00	590.80
170.	0.	170.	0.	0.	161.	0.	52.	30.	590.80
2.12	0.00	1.05	0.00	.040	.021	.040	.035	590.80	100.00
.000031	60.	60.	60.	1	0	0	0.00	20.80	120.80

*SECNO 4881.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 600.50 ELREA= 600.50

4881.00	8.00	598.80	0.00	0.00	598.82	.02	.00	.00	590.80
170.	0.	170.	0.	0.	161.	0.	52.	30.	590.80
2.12	0.00	1.05	0.00	.038	.034	.038	.035	590.80	100.00
.000081	1.	1.	1.	0	0	0	0.00	20.80	120.80

*SECNO 4950.000

VALLEY SECTION 8.1 (MCS) SECT.H

4950.00	5.91	598.81	0.00	0.00	598.82	.01	.00	.00	597.90
170.	1.	169.	0.	4.	238.	0.	52.	30.	599.60
2.14	.15	.71	0.00	.038	.034	.038	.035	592.90	30.92
.000041	69.	69.	69.	1	0	0	0.00	66.72	97.64

*SECNO 5115.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
5115.00	5.82	598.82	0.00	0.00	598.83	.01	.01	.00	598.00
170.	0.	170.	0.	3.	234.	0.	53.	31.	599.70
2.21	.14	.73	0.00	.038	.034	.038	.035	593.00	31.75

```
  .0044     165.     165.     165.      0        0        0     0.00    65.63    97.3

*SECNO 5280.000
   5280.00     5.63   598.83     0.00     0.00   598.84      .01      .01      .00   598.20
      170.       0.     170.       0.       2.     222.       0.      54.      31.    599.90
      2.27      .13      .76     0.00     .038     .034     .038     .035   593.20    33.72
   .000051     165.     165.     165.        0        0        0     0.00    63.09    96.80

*SECNO 5281.000

                 VALLEY SECTION 11.1 (MCS)                       SECT.I

   5281.00     5.63   598.83     0.00     0.00   598.84      .01      .00      .00   598.20
      170.       0.     170.       0.       2.     238.       2.      54.      31.    598.20
      2.27      .12      .71      .12     .038     .034     .038     .035   593.20    33.71
   .000044       1.       1.       1.        0        0        0     0.00    72.58   106.29

*SECNO 5493.000
   5493.00     5.44   598.84     0.00     0.00   598.85      .01      .01      .00   598.40
      170.       0.     170.       0.       1.     226.       1.      55.      31.    598.40
      2.35      .10      .75      .10     .038     .034     .038     .035   593.40    35.60
   .000051     212.     212.     212.        0        0        0     0.00    68.81   104.40

*SECNO 5705.000
   5705.00     5.25   598.85     0.00     0.00   598.86      .01      .01      .00   598.60
      170.       0.     170.       0.       0.     215.       0.      56.      32.    598.60
      2.42      .08      .79      .08     .038     .034     .038     .035   593.60    37.50
   .000061     212.     212.     212.        0        0        0     0.00    65.00   102.50

*SECNO 5908.000
    SECNO     DEPTH    CWSEL    CRIWS    WSELK       EG       HV       HL    OLOSS  BANK ELEV
    Q         QLOB     QCH      QROB     ALOB       ACH      AROB     VOL      TWA  LEFT/RIGHT
    TIME      VLOB     VCH      VROB     XNL        XNCH     XNR      WTN    ELMIN       SSTA
    SLOPE     XLOBL    XLCH     XLOBR    ITRIAL     IDC      ICONT    CORAR  TOPWID      ENDST


3470 ENCROACHMENT STATIONS=      93.0      107.0  TYPE=       1  TARGET=     14.000
   5908.00     4.94   598.84     0.00     0.00   598.93      .09      .03      .04100000.10
      170.       0.     170.       0.       0.      69.       0.      57.      32. 100000.10
      2.44     0.00     2.46     0.00     .038     .034     .038     .035   593.90    93.00
   .000771     203.     203.     203.        2        0        0     0.00    14.00   107.00

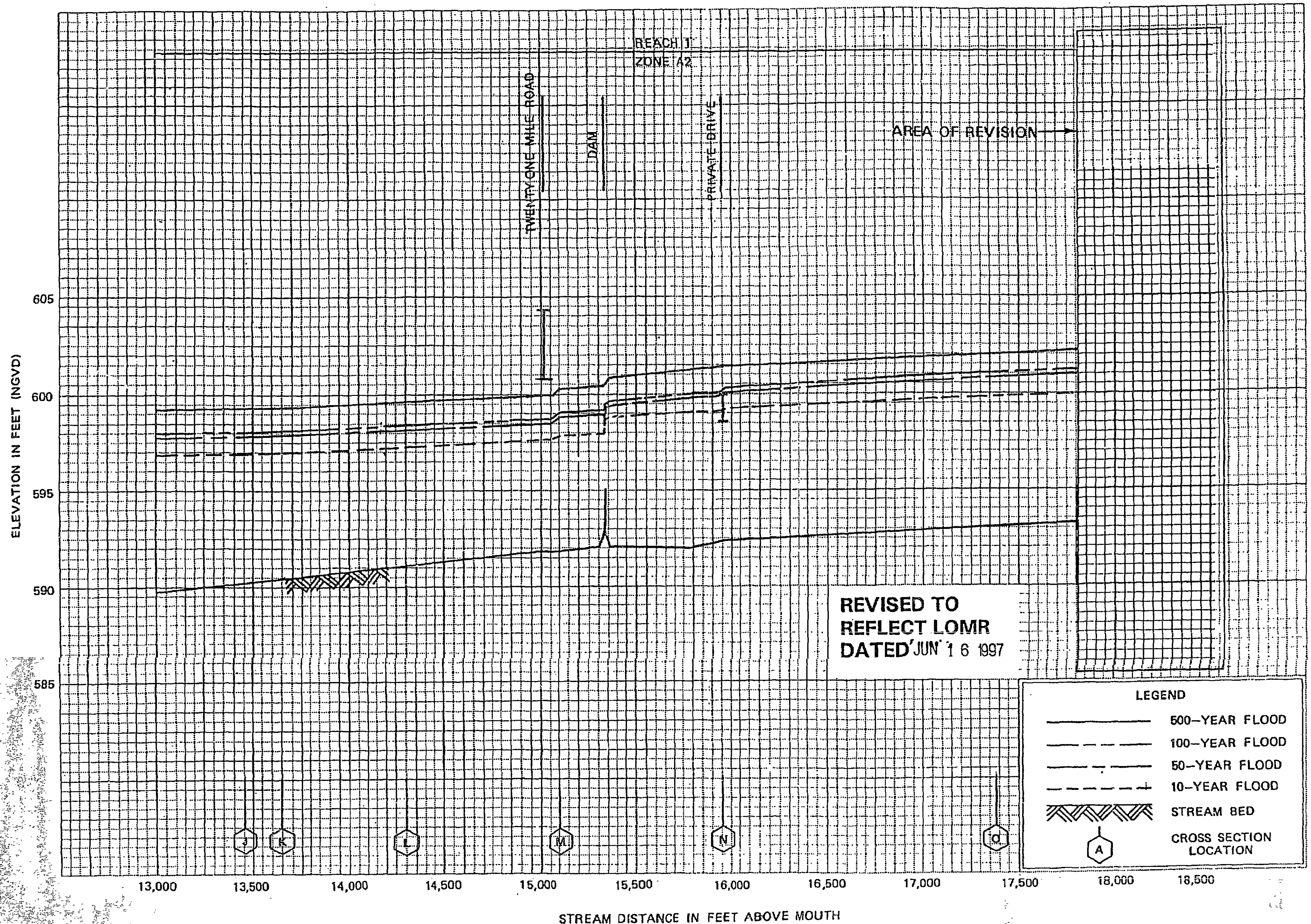
*SECNO 5909.000

3470 ENCROACHMENT STATIONS=      93.0      107.0  TYPE=       1  TARGET=     14.000
   5909.00     4.94   598.84     0.00     0.00   598.93      .09      .00      .00100000.00
      170.       0.     170.       0.       0.      69.       0.      57.      32. 100000.00
      2.44     0.00     2.46     0.00     .040     .032     .040     .035   593.90    93.00
   .000683       1.       1.       1.        0        0        0     0.00    14.00   107.00


SPECIAL BRIDGE

SB   XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.00      4.35      3.00      0.00      19.51     0.00      80.00     0.00      593.90    593.90

*SECNO 6021.000                      25/4 x 2 = 56.6 (but pipe 1/3 full of silt)
PRESSURE FLOW
```



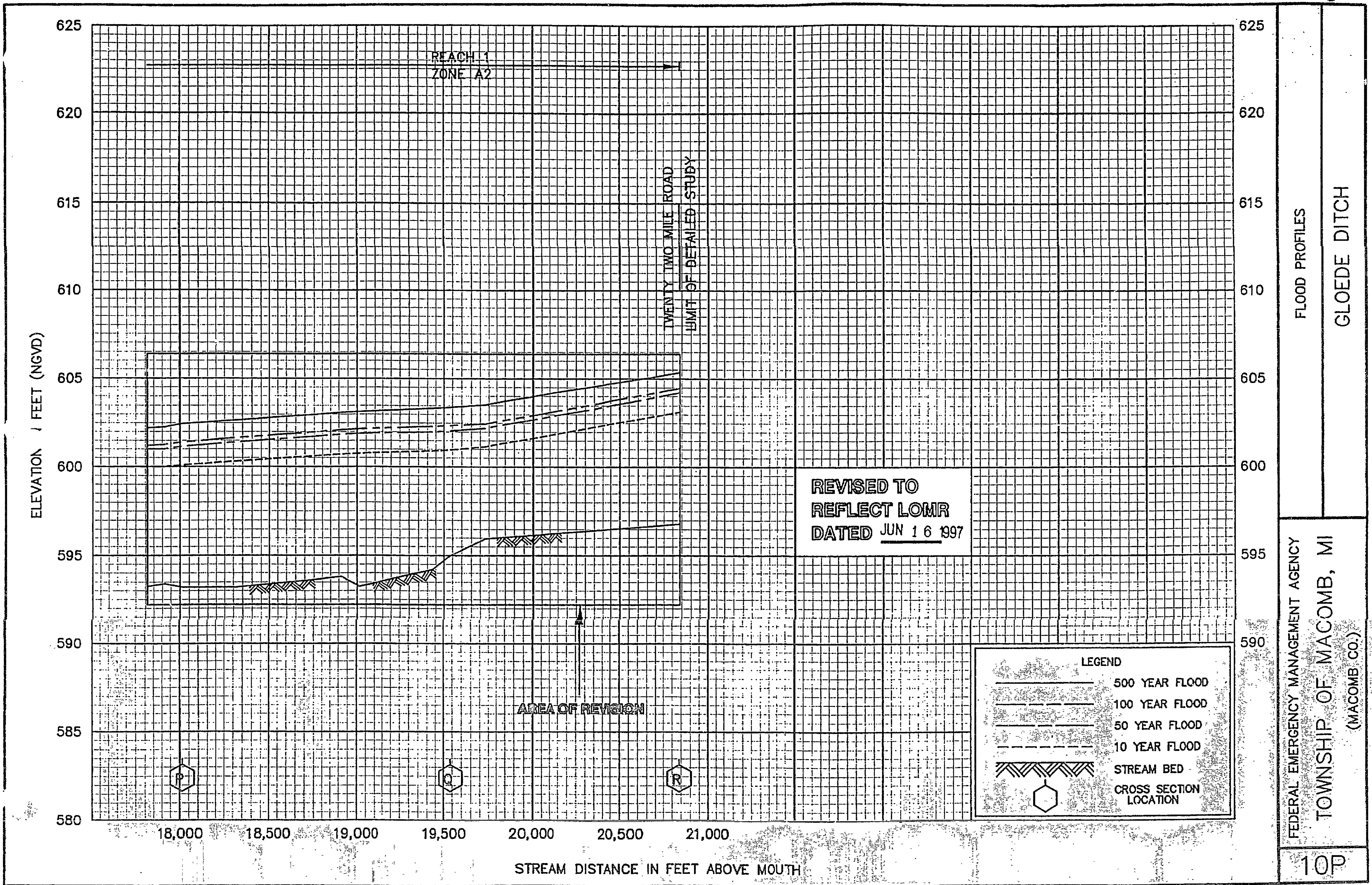
FLOOD PROFILES

GLOEDE DITCH

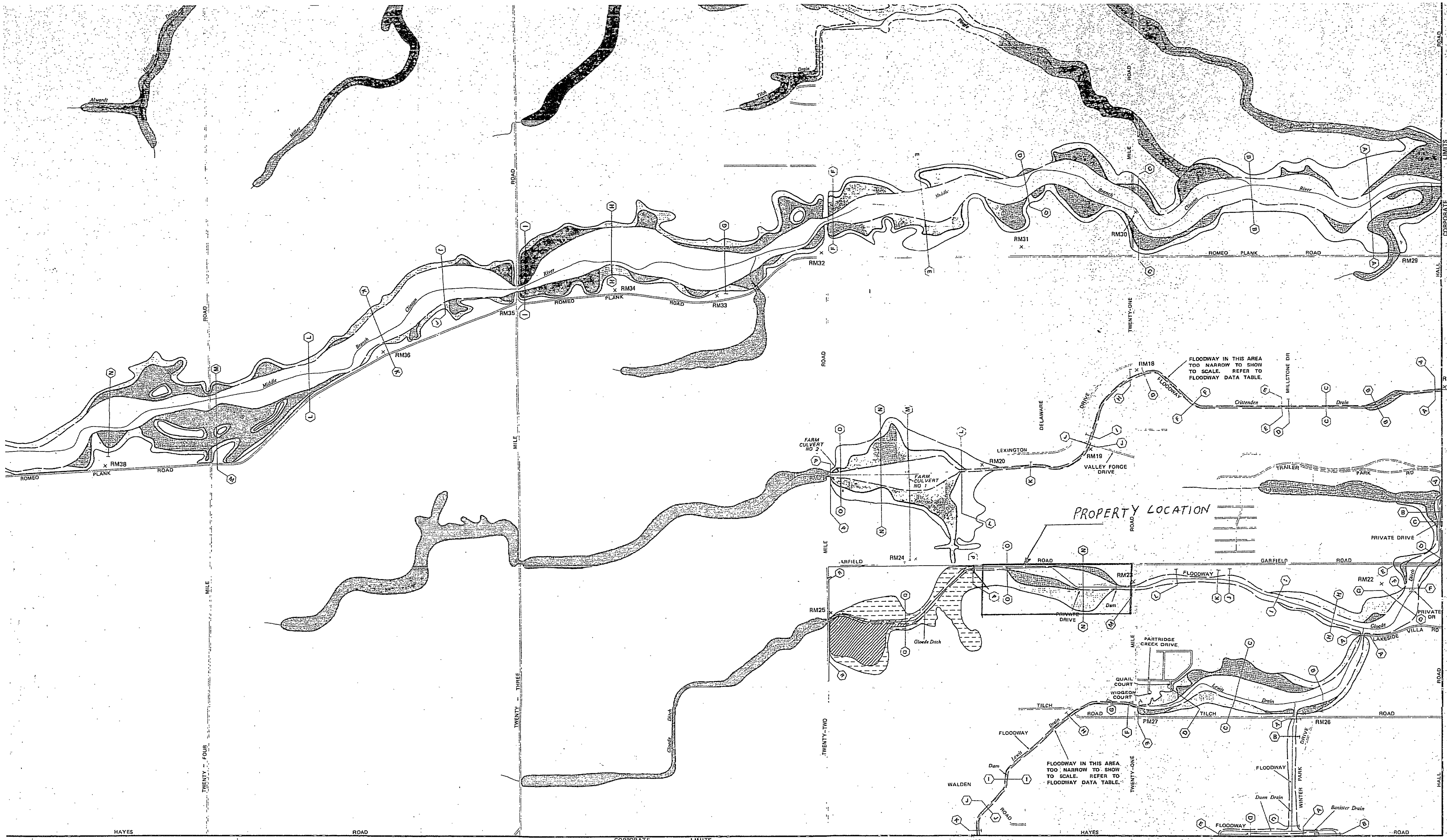
FEDERAL EMERGENCY MANAGEMENT AGENCY
Federal Insurance Administration

TOWNSHIP OF MACOMB, MI
(MACOMB CO.)

09P



REACH 1
ZONE A2
TWENTY TWO MILE ROAD
LIMIT OF DETAILED STUDY
REVISED TO
REFLECT LOMR
DATED JUN 1 6 1997
AREA OF REVISION
LEGEND
500 YEAR FLOOD
100 YEAR FLOOD
50 YEAR FLOOD
10 YEAR FLOOD
STREAM BED
CROSS SECTION LOCATION
P
Q
R
ELEVATION IN FEET (NGVD)
STREAM DISTANCE IN FEET ABOVE MOUTH
580
585
590
595
600
605
610
615
620
625
18,000
18,500
19,000
19,500
20,000
20,500
21,000
FLOOD PROFILES
GLOEDE DITCH
FEDERAL EMERGENCY MANAGEMENT AGENCY
TOWNSHIP OF MACOMB, MI
(MACOMB CO.)
10P



500-Year Flood Boundary

Approximate 100-Year Flood Boundary

Cross Section Line

Elevation Reference Mark RM7×

River Mile •M1.5

NOTES TO USER

Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the Federal Insurance Administration.

This map was prepared to facilitate flood plain management activities only; it may not show all special flood hazard areas in the community or all planimetric features outside of the flood plain. Refer to the latest official Flood Insurance Rate Map for any additional areas of special flood hazard.

For adjoining map panels, see separately printed Index to Map Panels.

NATIONAL FLOOD INSURANCE PROGRAM

FLOODWAY

FLOOD BOUNDARY AND FLOODWAY MAP

TOWNSHIP OF MACOMB, MICHIGAN
MACOMB COUNTY

PANEL 20 OF 20
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
260445 0020 B

EFFECTIVE DATE:
FEBRUARY 4, 1981

federal emergency management agency
federal insurance administration

ELEVATION REFERENCE MARKS

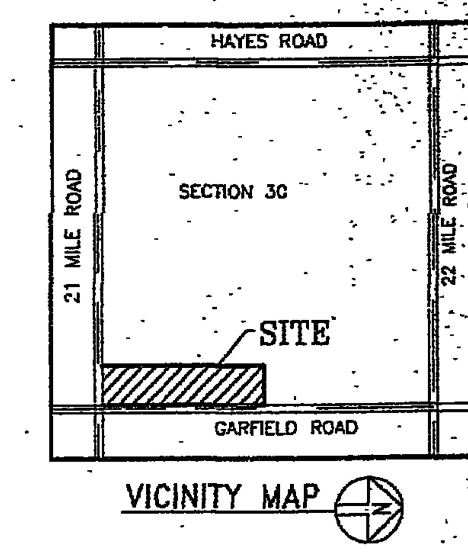
REFERENCE MARKS	ELEVATION FEET (NGVD)	DESCRIPTION OF LOCATION
RM 17	601.59	Top of the flange nut on the east side of fire hydrant located on the south side of Hall Road, about 100 feet east of Crittenden Drain.
RM 18	601.42	Spike in northwest side of power pole located southeast of the Twenty One Mile Road bridge over Crittenden Drain.
RM 19	603.86	Top of end vertical post at southeast end of guardrail located at the Valley Forge Drive bridge over Crittenden Drain.
RM 20	599.70	PK nail in west side of power pole located on the east side of Crittenden Drain, about 200 feet northwest of the north end of Lexington Drive.
RM 21	603.15	PK nail in south side of power pole located 39 feet west of Crittenden Drain, 24 feet south of Twenty Two Mile Road.
RM 22	601.67	Flange on north leg of Detroit Edison tower No. 8007 located about 435 feet west of Garfield Road, about 1050 feet north of Hall Road.
RM 23	604.27	Top of northwest corner of northeast wingwall of the Twenty One Mile Road bridge over Gloede Ditch.
RM 24	606.00	Boat spike in west side of 28–inch oak tree located on the east side of Garfield Road, about 1500 feet south of Twenty Two Mile Road.

ELEVATION REFERENCE MARKS

REFERENCE MARKS	ELEVATION FEET (NGVD)	DESCRIPTION OF LOCATION
RM 25	607.16	Chiseled square located in the southeast corner of the Twenty Two Mile Road bridge over Gloede Ditch.
RM 26	600.22	Railroad spike in utility pole located 20 feet east of Tilch Road, about 2300 feet south of Hall Road, south of Dunn Drain.
RM 27	600.92	Boat spike in north face of Detroit Edison pole located at the southeast corner of the inter–section of Twenty One Mile Road and Tilch Road.
RM 28	605.97	Boat spike in west face of Detroit Edison pole located 30 feet east of Hayes Road, about 2857 feet north of Twenty One Mile Road.
RM 29	593.85	Chiseled square located in east headwall of culvert crossing under Romeo Plank Road, about 700 feet north of Hall Road.
RM 30	597.95	Chiseled square located 1.5 feet northeast of southwest corner of southwest wingwall of the Twenty One Mile Road bridge over the Middle Branch Clinton River.
RM 31	603.53	Chiseled cross on nut just below lowest horizontal brace on south leg of high voltage tower No. 7997 located about 125 feet east of Romeo Plank Road, about 1900 feet north of Twenty One Mile Road.
RM 32	603.92	Macomb County Road Commission brass washer with white nail located flush with ground at the northeast corner of the intersection of Romeo Plank Road and Twenty Two Mile Road.

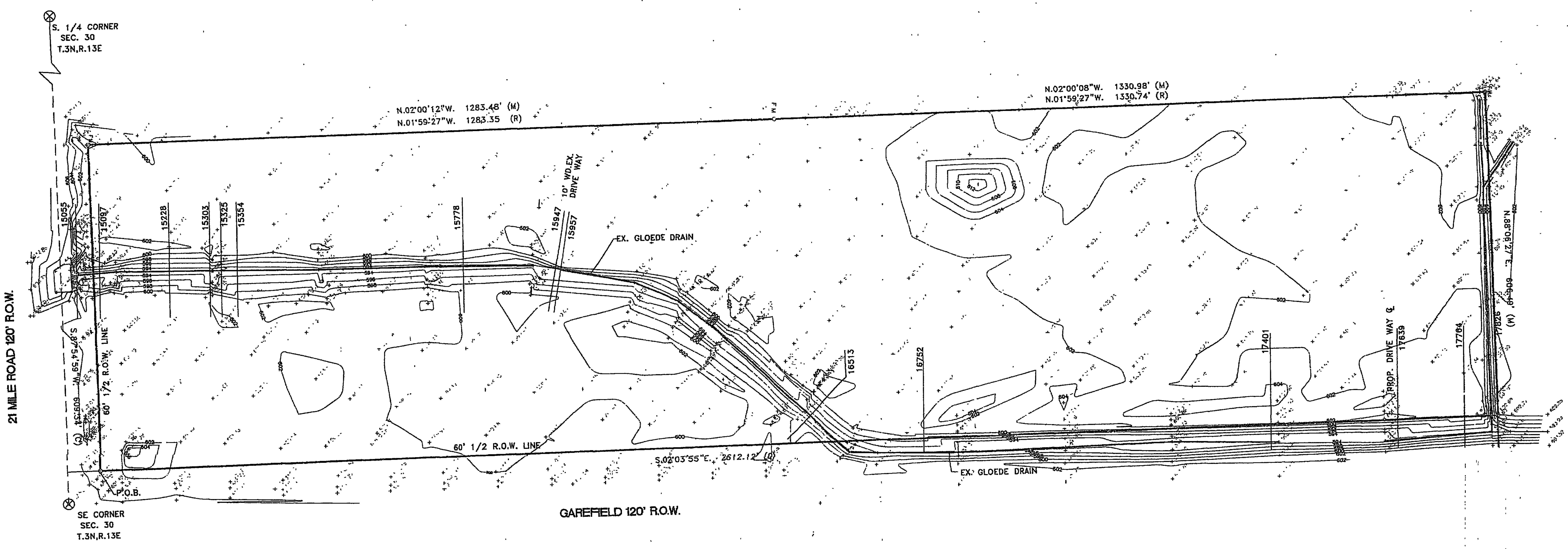
REFERENCE MARKS	ELEVATION FEET (NGVD)	DESCRIPTION OF LOCATION
RM 33	596.93	Railroad spike in east side of power pole located 41 feet east of Romeo Plank Road, about 1900 feet north of Twenty Two Mile Road, across road from house No. 49625.
RM 34	607.60	Railroad spike in southwest side of power pole located 30 feet east of Romeo Plank Road, 1700 feet south of Twenty Three Mile Road, 75 feet south of house No. 50470.
RM 35	609.19	Chiseled cross on east flange bolt of fire hydrant located at the northeast corner of the inter–section of Romeo Plank Road and Twenty Three Mile Road.
RM 36	611.68	Railroad spike in southeast side of power pole located 36 feet east of Romeo Plank Road, 2300 feet north of Twenty Three Mile Road, 75 feet north of house No. 51800.
RM 37	616.25	Chiseled cross located on the southeast bolt in the north concrete guardrail of the Twenty Four Mile Road bridge over the Middle Branch Clinton River.
RM 38	618.31	Railroad spike in east side of power pole located 33 feet east of Romeo Plank Road, 1800 feet north of Twenty Four Mile Road, 100 feet north of house No. 53663.
RM 39	620.12	Railroad spike in west side of power pole located 32 feet east of Romeo Plank Road, 1600 feet south of Twenty Five Mile Road, 75 feet north of house No. 54450.

GLOEDE DRAIN IMPROVEMENT



N

SCALE 1" = 100'



LEGAL DESCRIPTION

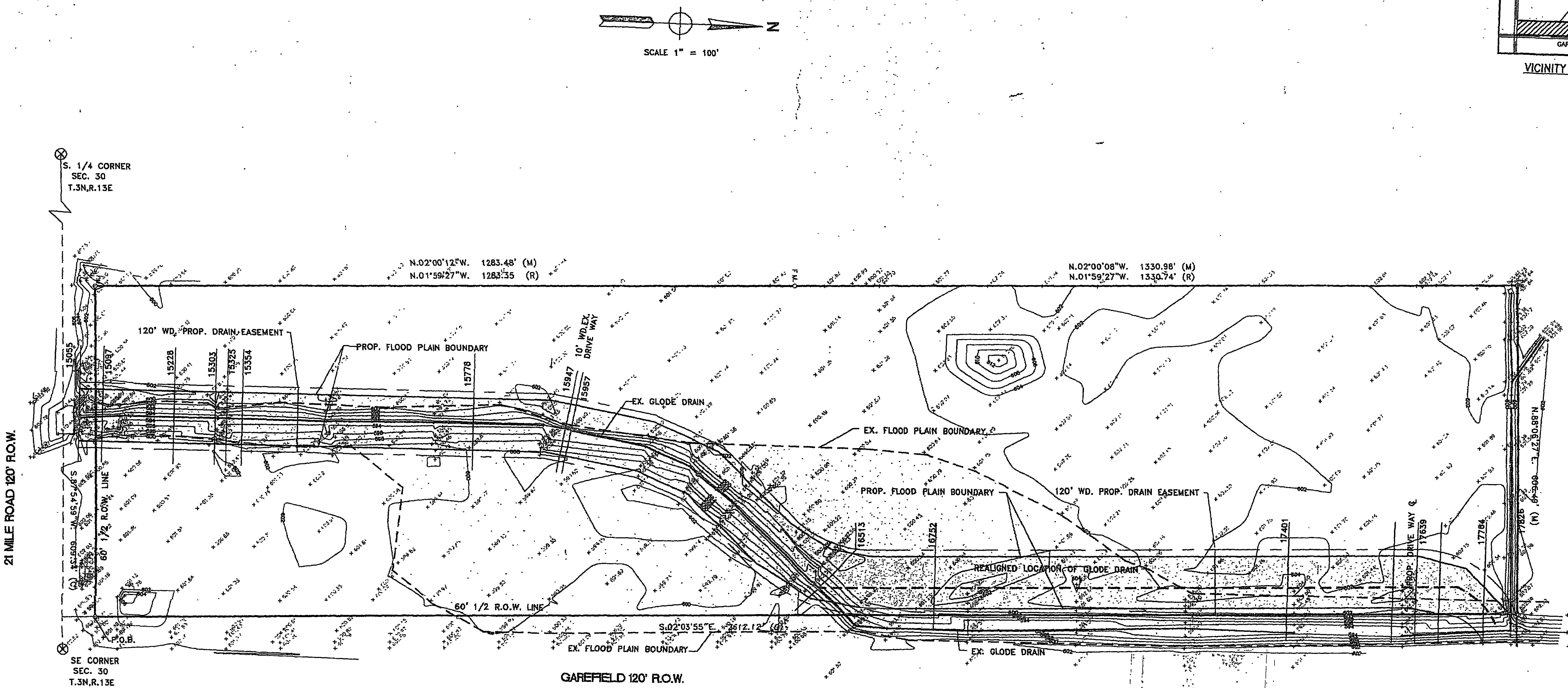
PART OF THE SOUTHEAST OF SECTION 30, T. 3N., R. 12 E., MACOMB TOWNSHIP MACOMB COUNTY, MICHIGAN. BEING DESCRIBED AS:

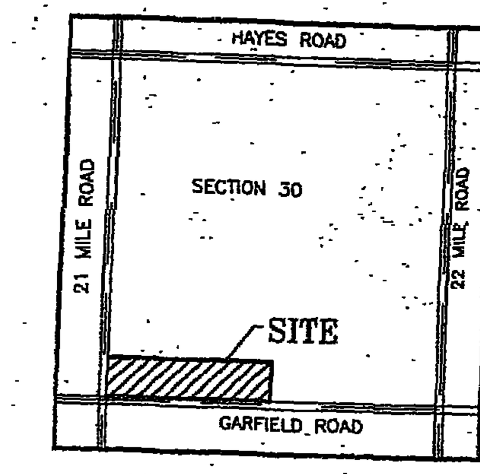
COMMENCING AT THE S.E. CORNER OF SECTION 30, THENCE S.87°54'59"W., 60 FT. ALONG THE SOUTH LINE OF SECTION 30, T.3N, R.12E; THENCE S.02°03'55"E., 60.00' TO THE POINT OF BEGINNING; THENCE CONTINUING ALONG NORTH R.O.W. LINE OF 23 MILE RD. S.87°54'59"W., 609.34 FT.; TO THE SE CORNER OF "FREEDOM VALLEY SUB. NO. 1" ACCORDING TO THE PLAT THEREOF AS RECORDED IN MACOMB COUNTY RECORDS, PLAT BOOK 85, PAGE 31, THENCE ALONG THE EAST LINE OF SAID PLAT N.02°00'12"W., 1283.48 FT; TO THE NE CORNER OF "FREEDOM VALLEY SUB. NO. 1" AND S.E. CORNER OF " FREEDEM VALLEY SUBDIVISION # 2" ACCORDING TO THE PLAT THEREOF AS RECORDED IN MACOMB COUNTY RECORDS, PLAT BOOK 88, PAGE 44, THENCE ALONG THE EAST LINE OF SAID PLAT N.01°59'27"W., 1330.74 FT; TO THE NE CORNER OF "FREEDOM VALLEY SUB. NO. 2" THENCE N.88°06'27"E. 606.49 FEET TO THE WEST R.O.W. LINE OF GAREFIELD ROAD. THENCE ALONG EAST R.O.W. LINE OF GAREFIELD ROAD S.02°03'55"E. 2612.12 FEET TO THE POINT OF BEGINNING.
SUBJECT TO ANY EASEMENTS AND RESTRICTIONS OF RECORD IF ANY. CONTAINING 39.35 ACRES.

B.M.
ARROW ON HYD LOCATED @ SW CORNER OF GARFIELD & 21 MILE ROAD ELEV. = 602.90
ARROW ON HYD N. SIDE OF 21 MILE ROAD @ HSE# 16319 ELEV. = 601.28

R.K. ENGINEERING & SURVEYING ASSOCIATES, INC. 48653 VAN DYKE, UTICA, MICHIGAN 48317		(810)254-2080
SCALE: 1" = 100' / DATE: 1/28/98	EXISTING SITE TOPOGRAPHY	DRAWN BY: P.M. / RK JOB # 96-30
GLOEDE DRAIN IMPROVEMENT		
		DRAWING NO. 1

GLOEDE DRAIN IMPROVEMENT





VICINITY MAP

B.M.
ARROW ON HYD LOCATED @ SW CORNER OF GARFIELD & 21 MILE ROAD ELEV. = 602.90
ARROW ON HYD N. SIDE OF 21 MILE ROAD @ HSE# 16319 ELEV. = 601.28

LEGAL DESCRIPTION

PART OF THE SOUTHEAST OF SECTION 30, T. 3N., R. 12 E., MACOMB TOWNSHIP MACOMB COUNTY, MICHIGAN. BEING DESCRIBED AS:

COMMENCING AT THE S.E. CORNER OF SECTION 30, THENCE S.87°54'59"W., 60 FT. ALONG THE SOUTH LINE OF SECTION 30, T.3N, R.12E; THENCE S.02°03'55"E., 60.00' TO THE POINT OF BEGINNING; THENCE CONTINUING ALONG NORTH R.O.W. LINE OF 23 MILE RD. S.87°54'59"W., 609.34 FT.; TO THE SE CORNER OF "FREEDOM VALLEY SUB. NO. 1" ACCORDING TO THE PLAT THEREOF AS RECORDED IN MACOMB COUNTY RECORDS, PLAT BOOK 85, PAGE 31, THENCE ALONG THE EAST LINE OF SAID PLAT N.02°00'12"W., 1283.48 FT; TO THE NE CORNER OF "FREEDOM VALLEY SUB. NO. 1" AND S.E. CORNER OF " FREEDEM VALLEY SUBDIVISION # 2" ACCORDING TO THE PLAT THEREOF AS RECORDED IN MACOMB COUNTY RECORDS, PLAT BOOK 88, PAGE 44, THENCE ALONG THE EAST LINE OF SAID PLAT N.01°59'27"W., 1330.74 FT; TO THE NE CORNER OF "FREEDOM VALLEY SUB. NO. 2" THENCE N.88°06'27"E. 606.49 FEET TO THE WEST R.O.W. LINE OF GAREFIELD ROAD. THENCE ALONG EAST R.O.W. LINE OF GAREFIELD ROAD S.02°03'55"E. 2612.12 FEET TO THE POINT OF BEGINNING.
SUBJECT TO ANY EASEMENTS AND RESTRICTIONS OF RECORD IF ANY. CONTAINING 39.35 ACRES,

LEGAL DESCRIPTION FOR FLOOD AREA

PART OF THE SOUTHEAST OF SECTION 30, T. 3N., R. 12 E., MACOMB TOWNSHIP MACOMB COUNTY, MICHIGAN. BEING DESCRIBED AS:

COMMENCING AT THE S.E. CORNER OF SECTION 30, THENCE S.87°54'59"W., 60 FT. ALONG THE SOUTH LINE OF SECTION 30, T.3N, R.12E; THENCE S.02°03'55"E., 60.00' THENCE CONTINUING ALONG NORTH R.O.W. LINE OF 23 MILE RD. S 87°54'59"W. 322.73 FEET TO THE POINT OF BEGINNING THENCE S.87°54'59"W. 96.03 FEET, THENCE S.00°36'37"E. 835.51 FEET, THENCE S.09°45'52"W. 193.74 FEET, THENCE S.23°05'33"W. 129.78 FEET, THENCE S.43°04'09"W. 186.55 FEET, THENCE S.30°53'36"W. 89.43 FEET, THENCE S.08°19'33"W. 76.48 FEET, THENCE S.02°03'55"E. 1003.53 FEET, THENCE S.12°27'52"W. 94.33 FEET THENCE S.44°38'18"W. 115.87 FEET, THENCE S.02°03'55"E 136.71 FEET, THENCE N.12°27'52"E. 47.83 FEET THENCE N.02°03'55"W. 1000.02 FEET, THENCE N.08°19'33"E. 104.36 FEET, THENCE N.30°53'36"E. 118.82 FEET THENCE N.43°04'09"E. 179.88 FEET, THENCE N.23°05'33'E. 101.65 FEET, THENCE N.09°45'52"E. 173.81 FEET THENCE N.00°36'37"W. 824.32 FEET TO THE POINT OF BEGINNING.

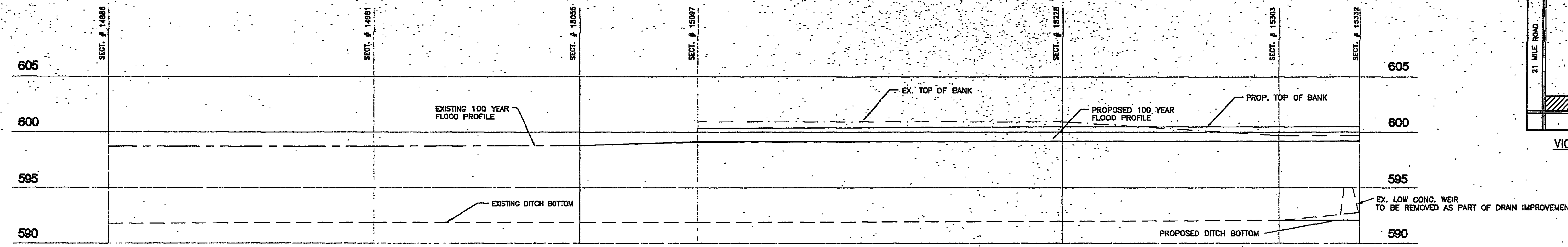
FLOOD FREE AREA

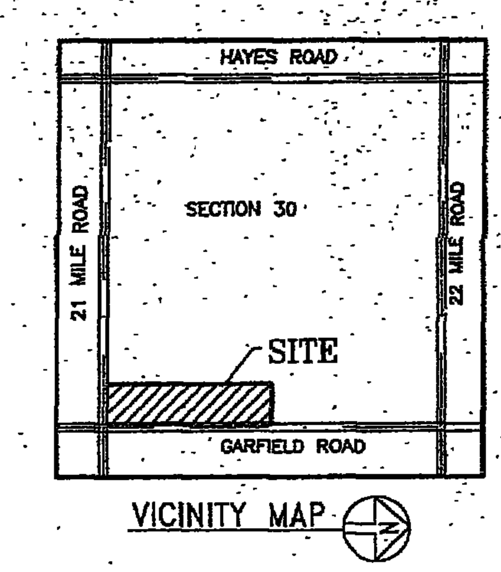
FLOOD AREA

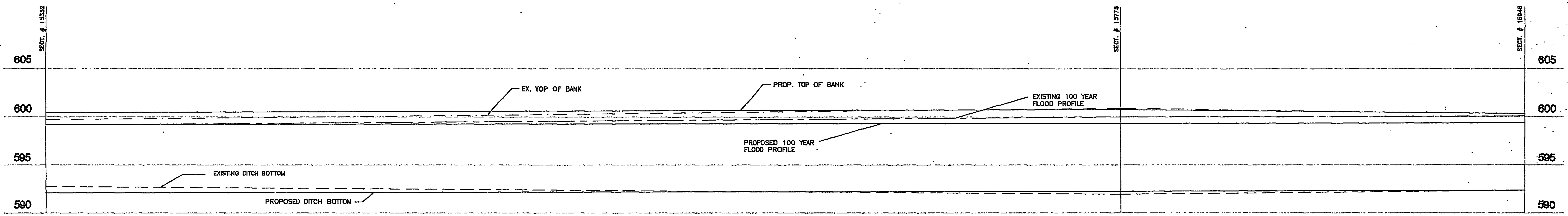
R.K. ENGINEERING & SURVEYING ASSOCIATES, INC. 48653 VAN DYKE, UTICA, MICHIGAN 48317		(810)254-2080
SCALE: 1" = 100' / DATE: 1/28/98	FLOOD FREE & FLOOD AREA DWG	DRAWN BY: P.M. / RK JOB # 96-30
GLOEDE DRAIN IMPROVEMENT		
		DRAWING NO. 2

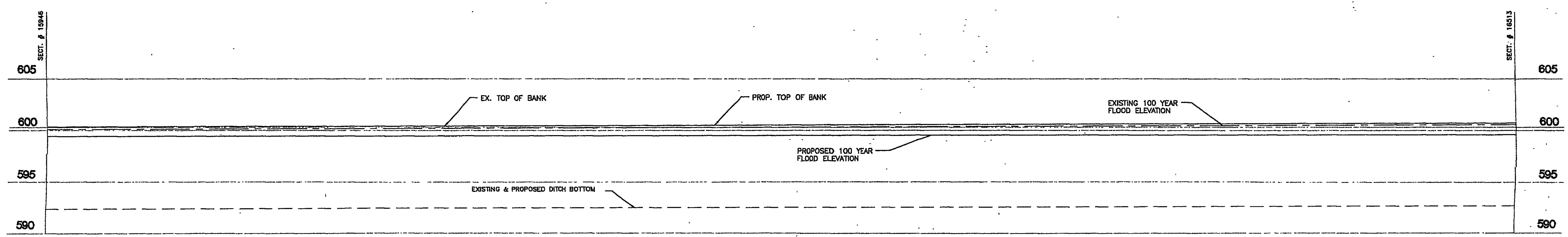

GLOEDE DRAIN IMPROVEMENT
HAYES ROAD
SECTION 30
21 MILE ROAD
22 MILE ROAD
SITE
GARFIELD ROAD
VICINITY MAP
N
SCALE 1" = 50'
21 MILE ROAD 120' R.O.W.
15055
15097
15228
15303
15325
15354
15778
15947
15957
10' WD.EX. DRIVE WAY (FARMER ACCESS ROAD TO BE REMOVED)
EX. GLOEDE DRAIN
EXIST 21 MILE ROAD BRIDGE
60' 1/2 R.O.W. LINE
EX. LOW WEIR CONCRETE STRUCTURE (TO BE REMOVED)
120' WD. PROPOSED DRAIN EASEMENT
MATCH LINE A-A
℄ Roadway
℄ Culvert
16'-0 3/4"
32'-1 1/2"
LOCATION PLAN
24'-0" Span
24'-0" Span x 10'-0" Rise Precast Culvert Unit
10'-0" Rise
2'-6"
3'-8"
4'-0"
Flow Line
Rebar not shown in foundation for clarity.
Unreinforced Concrete Footing
SECTION A-A
1/4" = 1'- 0"
PROP. 24' SPAN BRIDGE DETAIL
120' EASEMENT
NEAR TO EAST PROPERTY LINE
NEAR TO WEST PROPERTY LINE
600
595
590
PROPOSED CROSS SECTION FOR DRAIN
16513
16752
17401
17639
17764
17826
℄ OF EASEMENT
REALLIGNED LOCATION OF GLOEDE DRAIN
PROPERTY LINE
PROP. DRIVE WAY ℄
PROP. 24' SPAN BRIDGE TO CROSS DRAIN
100' TRANSITION
EX. GLOEDE DRAIN
120' WD. PROPOSED DRAIN EASEMENT
R.K. ENGINEERING & SURVEYING ASSOCIATES, INC.
48653 VAN DYKE, UTICA, MICHIGAN 48317
(810)254-2080
SCALE: 1" = 50'
DATE: 1/28/98
PROPOSED DRAIN CLEAN-OUT PLAN
DRAWN BY: P.M.
RK JOB # 96-30
GLOEDE DRAIN IMPROVEMENT
CLIENT: MIKE VENTIMIGLIA
DRAWING NO. 3

GLOEDE DRAIN IMPROVEMENT









X-SECTION#	A	B	C	D	E	F
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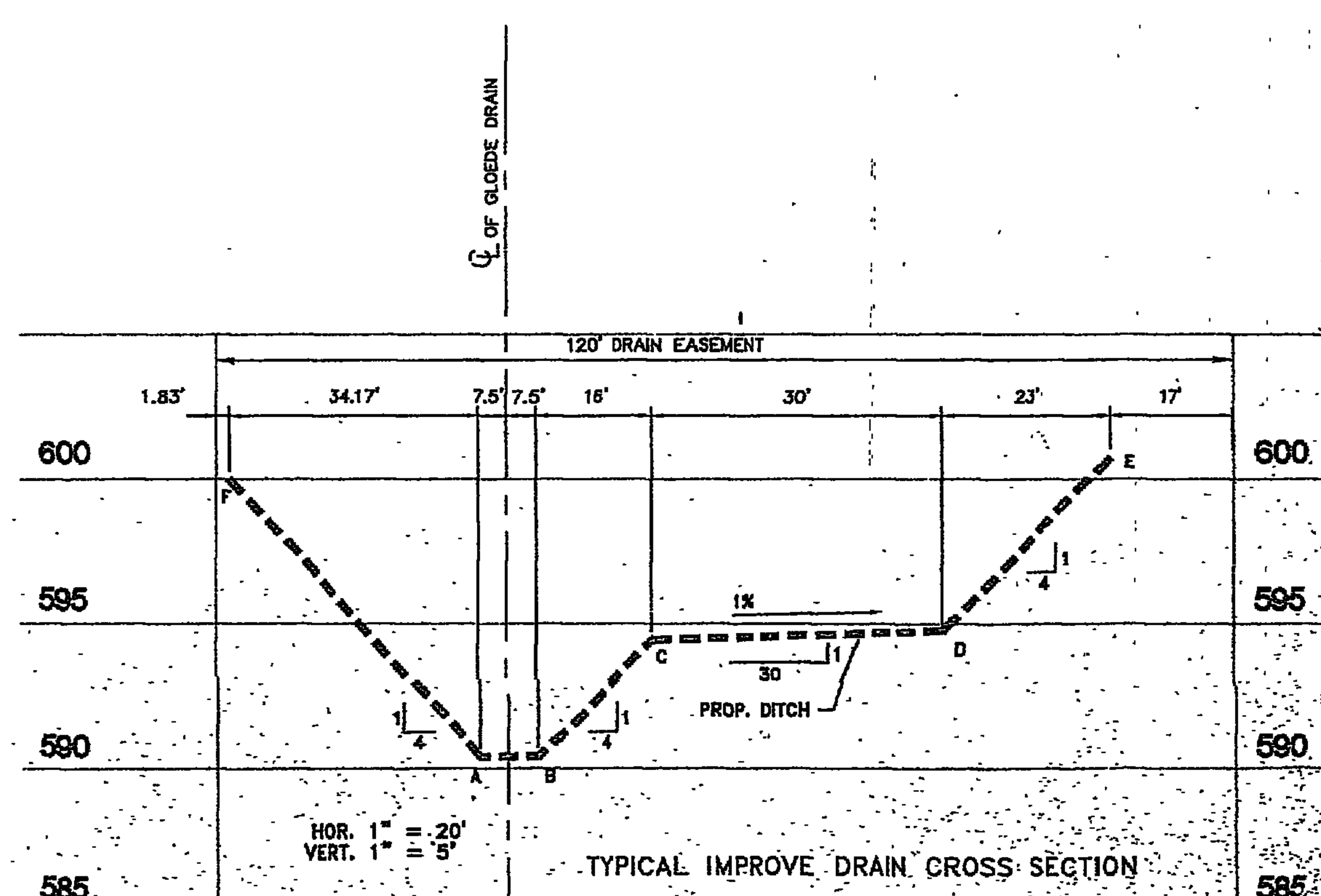
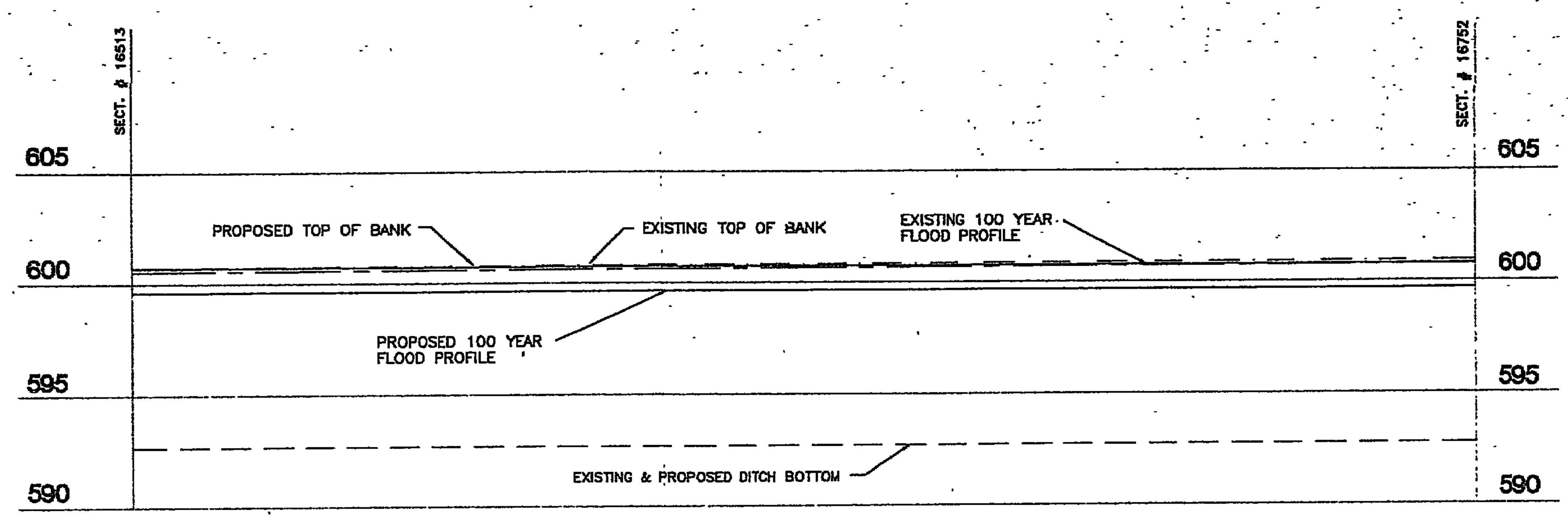
15228	591.96	591.96	595.96	596.96	600.46	600.46
15303	592.06	592.06	596.06	597.06	600.46	600.66
15332	592.09	592.09	596.09	597.09	600.46	600.66
15778	592.26	592.26	596.26	597.26	600.76	600.76
15946	592.36	592.36	596.70	597.36	600.36	599.99
16513	592.66	592.66	596.70	597.70	600.70	600.90
16752	592.76	592.76	596.76	597.76	600.76	600.96
17368	593.04	593.04	597.04	598.04	601.94	601.24
17594	593.10	593.10	597.10	598.10	602.00	601.30
17764	593.24	593.24	597.24	598.24	601.84	601.54
17826						

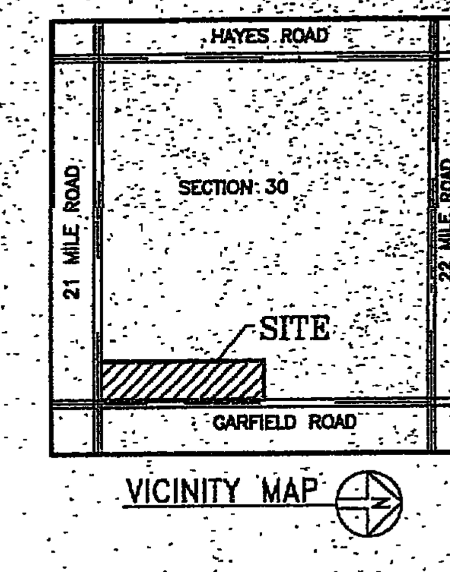


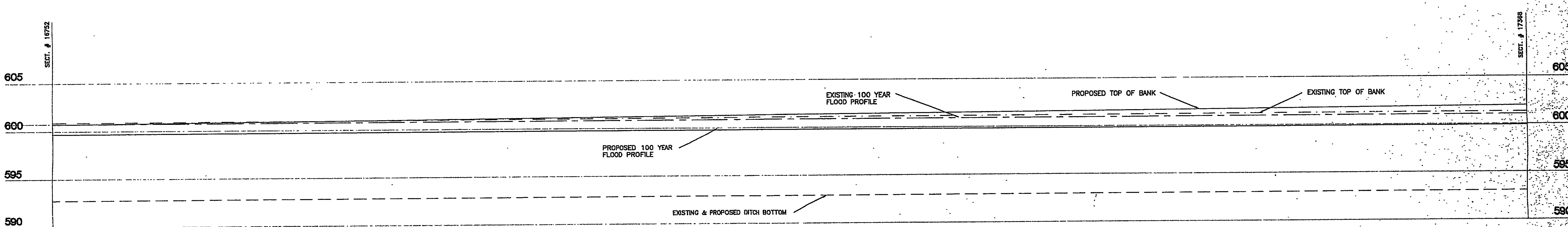
TYPICAL IMPROVE DRAIN CROSS SECTION

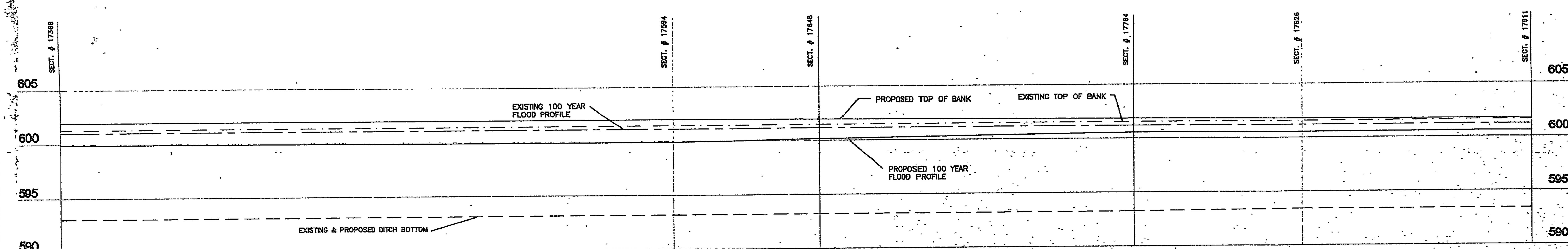
R.K. ENGINEERING & SURVEYING ASSOCIATES, INC. 48653 VAN DYKE, UTICA, MICHIGAN 48317		(810)254-2080
SCALE: 1" = 20' / DATE: 1/28/98	PROPOSED DRAIN CLEAN-OUT PROFILES	DRAWN BY: P.M. / RK JOB # 96-30
GLOEDE DRAIN IMPROVEMENT		
CLIENT: MIKE VENTIMIGLIA		DRAWING NO. 4

GLOEDE DRAIN IMPROVEMENT









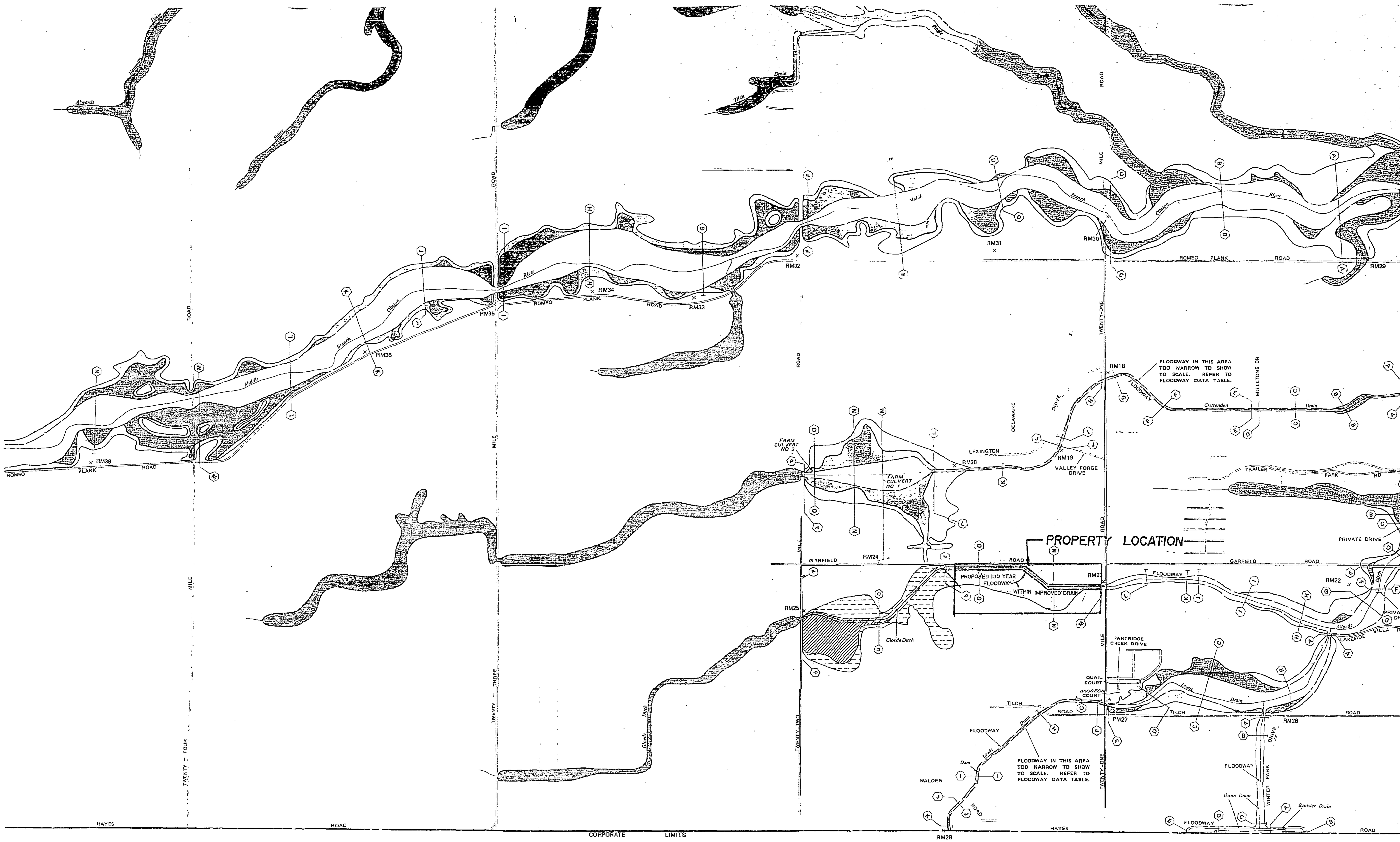
R.K. ENGINEERING & SURVEYING ASSOCIATES, INC.
48653 VAN DYKE, UTICA, MICHIGAN 48317
(810)254-2080

SCALE: 1" = 20'	PROPOSED DRAIN CLEAN-OUT PROFILES	DRAWN BY: P.M.
DATE: 1/28/98		RK JOB #: 96-30

GLOEDE DRAIN IMPROVEMENT

CLIENT: MIKE VENTIMIGLIA

DRAWING NO: 5



100-Year Flood Boundary
500-Year Flood Boundary
Approximate 100-Year Flood Boundary
Cross Section Line (A)—(A)
Elevation Reference Mark RM7x
River Mile •M1.5

NOTES TO USER

Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the Federal Insurance Administration.

This map was prepared to facilitate flood plain management activities only; it may not show all special flood hazard areas in the community or all planimetric features outside of the flood plain. Refer to the latest official Flood Insurance Rate Map for any additional areas of special flood hazard.

For adjoining map panels, see separately printed Index to Map Panels.

REVISED

APPROXIMATE SCALE

500 0 1000 FEET

ELEVATION REFERENCE MARKS

REFERENCE MARKS	ELEVATION FEET (NGVD)	DESCRIPTION OF LOCATION
RM 17	601.59	Top of the flange nut on the east side of fire hydrant located on the south side of Hall Road, about 100 feet east of Crittenden Drain.
RM 18	601.42	Spike in northwest side of power pole located southeast of the Twenty One Mile Road bridge over Crittenden Drain.
RM 19	603.86	Top of end vertical post at southeast end of guardrail located at the Valley Forge Drive bridge over Crittenden Drain.
RM 20	599.70	PK nail in west side of power pole located on the east side of Crittenden Drain, about 200 feet northwest of the north end of Lexington Drive.
RM 21	603.15	PK nail in south side of power pole located 39 feet west of Crittenden Drain, 24 feet south of Twenty Two Mile Road.
RM 22	601.67	Flange on north leg of Detroit Edison tower No. 8007 located about 435 feet west of Garfield Road, about 1050 feet north of Hall Road.
RM 23	604.27	Top of northwest corner of northeast wingwall of the Twenty One Mile Road bridge over Gloede Ditch.
RM 24	606.00	Boat spike in west side of 28–inch oak tree located on the east side of Garfield Road, about 1500 feet south of Twenty Two Mile Road.

ELEVATION REFERENCE MARKS

REFERENCE MARKS	ELEVATION FEET (NGVD)	DESCRIPTION OF LOCATION
RM 25	607.16	Chiseled square located in the southeast corner of the Twenty Two Mile Road bridge over Gloede Ditch.
RM 26	600.22	Railroad spike in utility pole located 20 feet east of Tilch Road, about 2300 feet south of Hall Road, south of Dunn Drain.
RM 27	600.92	Boat spike in north face of Detroit Edison pole located at the southeast corner of the intersection of Twenty One Mile Road and Tilch Road.
RM 28	605.97	Boat spike in west face of Detroit Edison pole located 30 feet east of Hayes Road, about 2857 feet north of Twenty One Mile Road.
RM 29	593.85	Chiseled square located in east headwall of culvert crossing under Romeo Plank Road, about 700 feet north of Hall Road.
RM 30	597.95	Chiseled square located 1.5 feet northeast of southwest corner of southwest wingwall of the Twenty One Mile Road bridge over the Middle Branch Clinton River.
RM 31	603.63	Chiseled cross on nut just below lowest horizontal brace on south leg of high voltage tower No. 7997 located about 125 feet east of Romeo Plank Road, about 1900 feet north of Twenty One Mile Road.
RM 32	603.92	Macomb County Road Commission brass washer with white nail located flush with ground at the northeast corner of the intersection of Romeo Plank Road and Twenty Two Mile Road.

REFERENCE MARKS	ELEVATION FEET (NGVD)	DESCRIPTION OF LOCATION
RM 33	606.93	Railroad spike in east side of power pole located 41 feet east of Romeo Plank Road, about 1900 feet north of Twenty Two Mile Road, across road from house No. 49525
RM 34	607.60	Railroad spike in southwest side of power pole located 30 feet east of Romeo Plank Road, 1700 feet south of Twenty Three Mile Road, 75 feet south of house No 50470.
RM 35	609.19	Chiseled cross on east flange bolt of fire hydrant located at the northeast corner of the intersection of Romeo Plank Road and Twenty Three Mile Road.
RM 36	611.68	Railroad spike in southeast side of power pole located 36 feet east of Romeo Plank Road, 2300 feet north of Twenty Three Mile Road, 75 feet north of house No. 51800.
RM 37	616.25	Chiseled cross located on the southeast bolt in the north concrete guardrail of the Twenty Four Mile Road bridge over the Middle Branch Clinton River.
RM 38	618.31	Railroad spike in east side of power pole located 33 feet east of Romeo Plank Road, 1800 feet north of Twenty Four Mile Road, 100 feet north of house No. 53663.
RM 39	620.12	Railroad spike in west side of power pole located 32 feet east of Romeo Plank Road, 1600 feet south of Twenty Five Mile Road, 75 feet north of house No. 54450.

NATIONAL FLOOD INSURANCE PROGRAM

FLOODWAY

FLOOD BOUNDARY AND FLOODWAY MAP

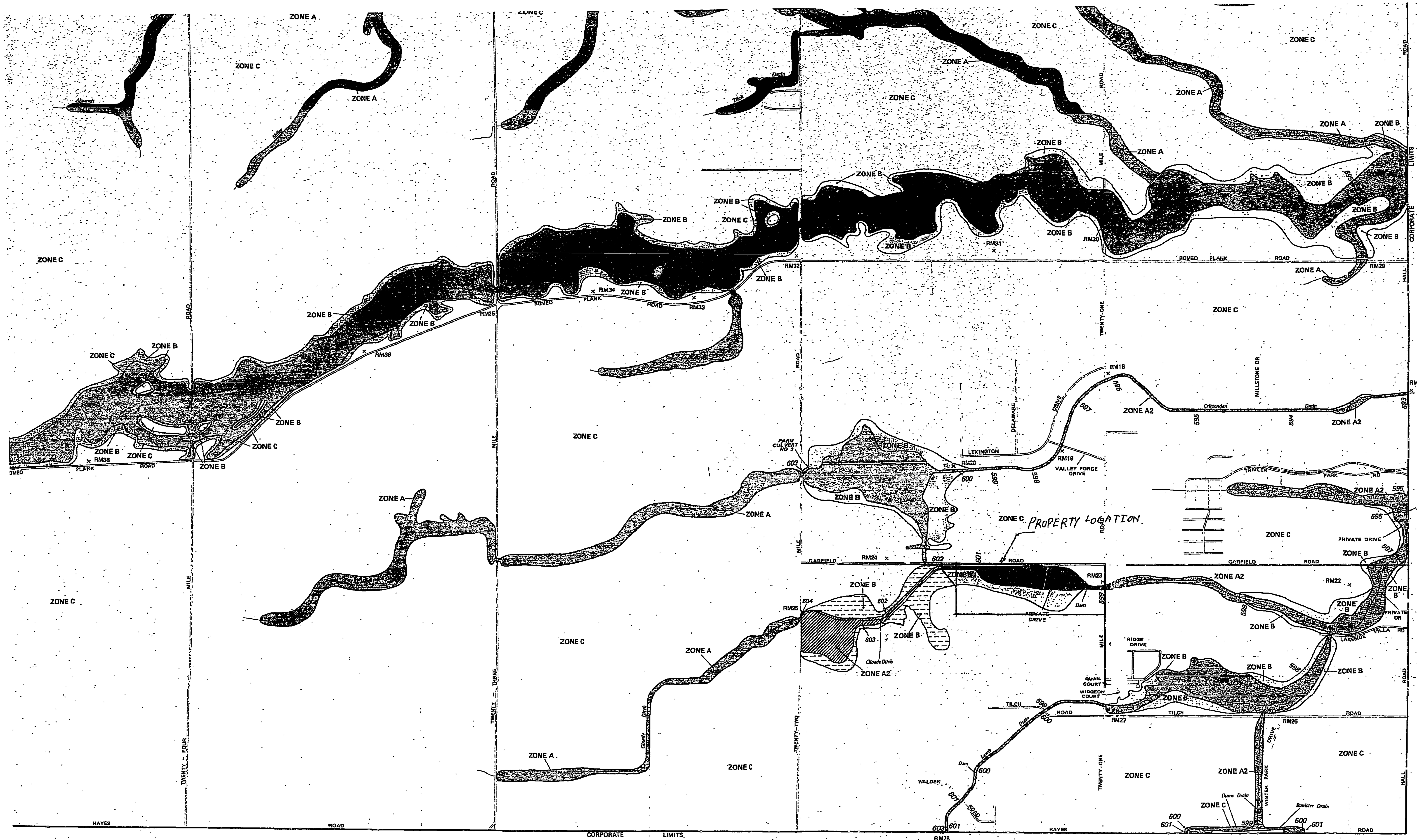
TOWNSHIP OF
MACOMB,
MICHIGAN
MACOMB COUNTY

PANEL 20 OF 20
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
260445 0020 B

EFFECTIVE DATE:
FEBRUARY 4, 1981

federal emergency management agency
federal insurance administration



100-Year Flood Boundary	ZONE B
500-Year Flood Boundary	
Base Flood Elevation Line With Elevation In Feet**	513
Base Flood Elevation In Feet Where Uniform Within Zone**	(EL 987)
Elevation Reference Mark	RM7 ×
River Mile	• M1.5

**Referenced to the National Geodetic Vertical Datum of 1929

*EXPLANATION OF ZONE DESIGNATIONS

ZONE	EXPLANATION
A	Areas of 100-year flood; base flood elevations and flood hazard factors not determined.
AO	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; average depths of inundation are shown, but no flood hazard factors are determined.
AH	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; base flood elevations are shown, but no flood hazard factors are determined.
A1-A30	Areas of 100-year flood; base flood elevations and flood hazard factors determined.
A99	Areas of 100-year flood to be protected by flood protection system under construction; base flood elevations and flood hazard factors not determined.
B	Areas between limits of the 100-year flood and 500-year flood; or certain areas subject to 100-year flooding with average depths less than one (1) foot or where the contributing drainage area is less than one square mile; or areas protected by levees from the base flood. (Medium shading)
C	Areas of minimal flooding. (No shading)
D	Areas of undetermined, but possible, flood hazards.
V	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors not determined.
V1-V30	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors determined.

NOTES TO USER

Certain areas not in the special flood hazard areas (zones A and V) may be protected by flood control structures.

This map is for flood insurance purposes only; it does not necessarily show all areas subject to flooding in the community or all planimetric features outside special flood hazard areas.

For adjoining map panels, see separately printed Index To Map Panels.

INITIAL IDENTIFICATION:
MARCH 18, 1977

FLOOD HAZARD BOUNDARY MAP REVISIONS:

FLOOD INSURANCE RATE MAP EFFECTIVE:
FEBRUARY 4, 1981

FLOOD INSURANCE RATE MAP REVISIONS:

Refer to the FLOOD INSURANCE RATE MAP EFFECTIVE date shown on this map to determine when actuarial rates apply to structures in the zones where elevations or depths have been established.

To determine if flood insurance is available in this community, contact your insurance agent, or call the National Flood Insurance Program, at (800) 638-6620, or (800) 424-8872.

APPROXIMATE SCALE
800 0 800 FEET

ELEVATION REFERENCE MARKS

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NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

TOWNSHIP OF
MACOMB,
MICHIGAN
MACOMB COUNTY

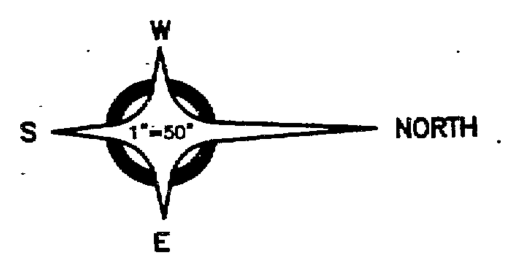
PANEL 20 OF 20

REVISED TO
REFLECT LOMR
DATED JUN 16 1997

COMMUNITY-PANEL NUMBER
260445 0020 B

EFFECTIVE DATE:
FEBRUARY 4, 1981

federal emergency management agency
federal insurance administration

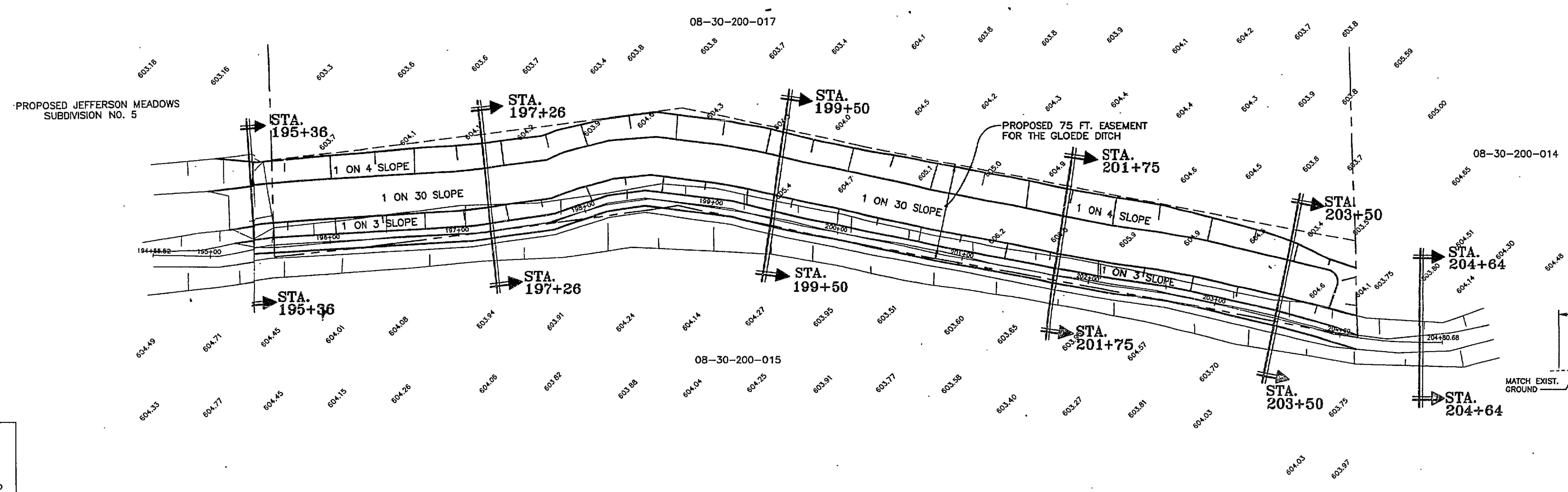


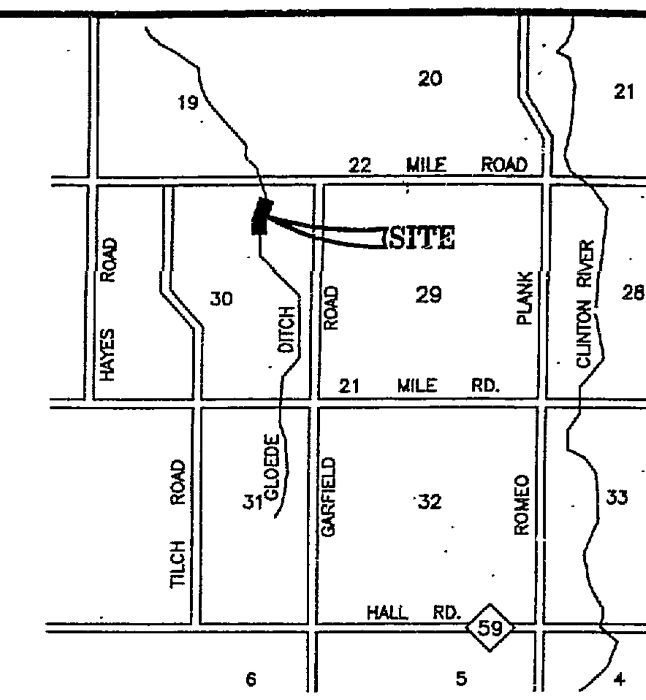
BENCH MARK LIST

BENCH MARK NO. 1
CHISELED SQUARE LOCATED IN THE SOUTHWEST CORNER OF TWENTY-TWO MILE ROAD BRIDGE OVER GLOEDE DRAIN. ELEV. 607.16

BENCH MARK NO. 2
TOP OF HYDRANT ON THE NORTH SIDE OF 22 MILE ROAD AT DENEWETH'S GREENHOUSES EXIT, 500 FEET WEST OF GLOEDE DRAIN. ELEV. 607.66

BENCH MARK NO. 3
"X" ON THE NORTH RIM OF STORM MANHOLE, 500 FEET EAST OF THE EAST END OF PARIOT DRIVE, ON THE NORTH SIDE OF ROAD. ELEV. 605.65





LOCATION MAP

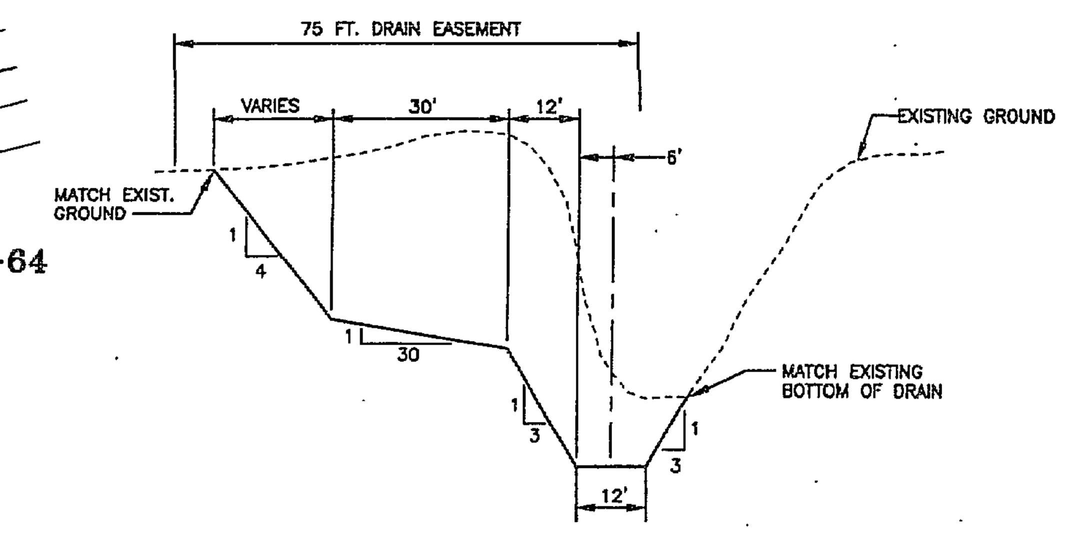
NOT TO SCALE

UTILITY INFORMATION, AS SHOWN, INDICATES APPROXIMATE LOCATIONS AND TYPES OF FACILITIES ONLY, AS DISCLOSED TO THIS FIRM BY THE VARIOUS UTILITY COMPANY'S RECORDS. NO GUARANTEE IS GIVEN OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF.

PRIOR TO CONSTRUCTION, ALL LOCATIONS AND DEPTHS OF EXISTING OVERHEAD AND UNDER-GROUND UTILITIES (IN CONFLICT WITH THE CONSTRUCTION OF PROFOSED IMPROVEMENTS) SHALL BE VERIFIED IN THE FIELD. (ALL COSTS FOR PRECONSTRUCTION VERIFICATION OF UTILITY CONFLICTS SHALL BE INCLUDED IN THE PROP. PAY ITEM CONFLICTING WITH THE UTILITY).

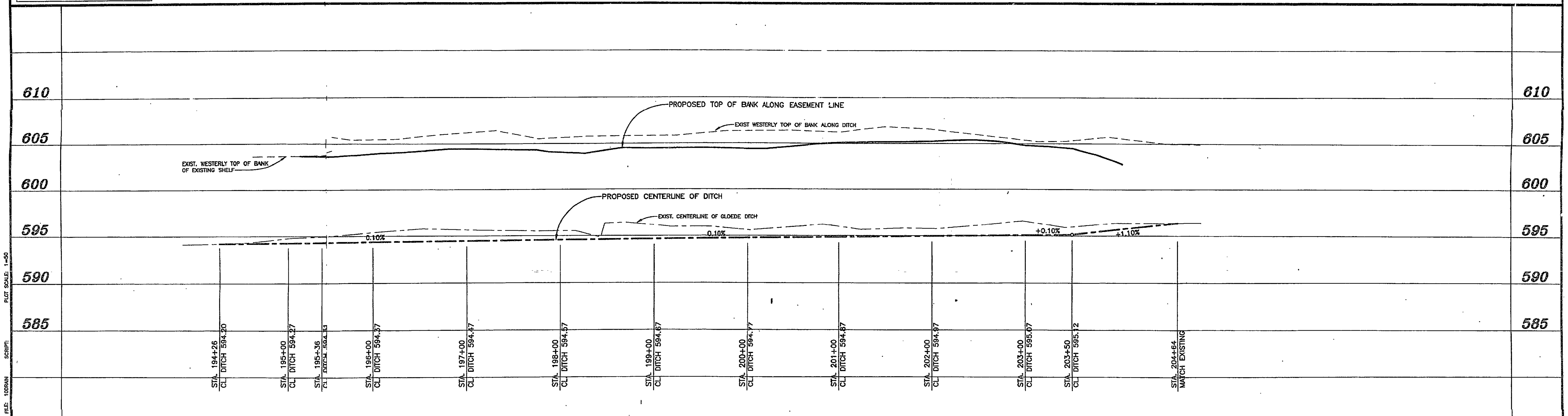
DURING CONSTRUCTION, CONTRACTOR SHALL USE EXTREME CAUTION WHEN OPERATING NEAR OVERHEAD AND/OR BURIED UTILITIES.

CALL MISS DIG



TYPICAL CROSS SECTION

NOT TO SCALE



PLOT SCALE: 1=50 SCRIPT: FILE: 10DRAIN

REVISIONS	DATE	REMARKS	DATE	REMARKS
7-28-97				

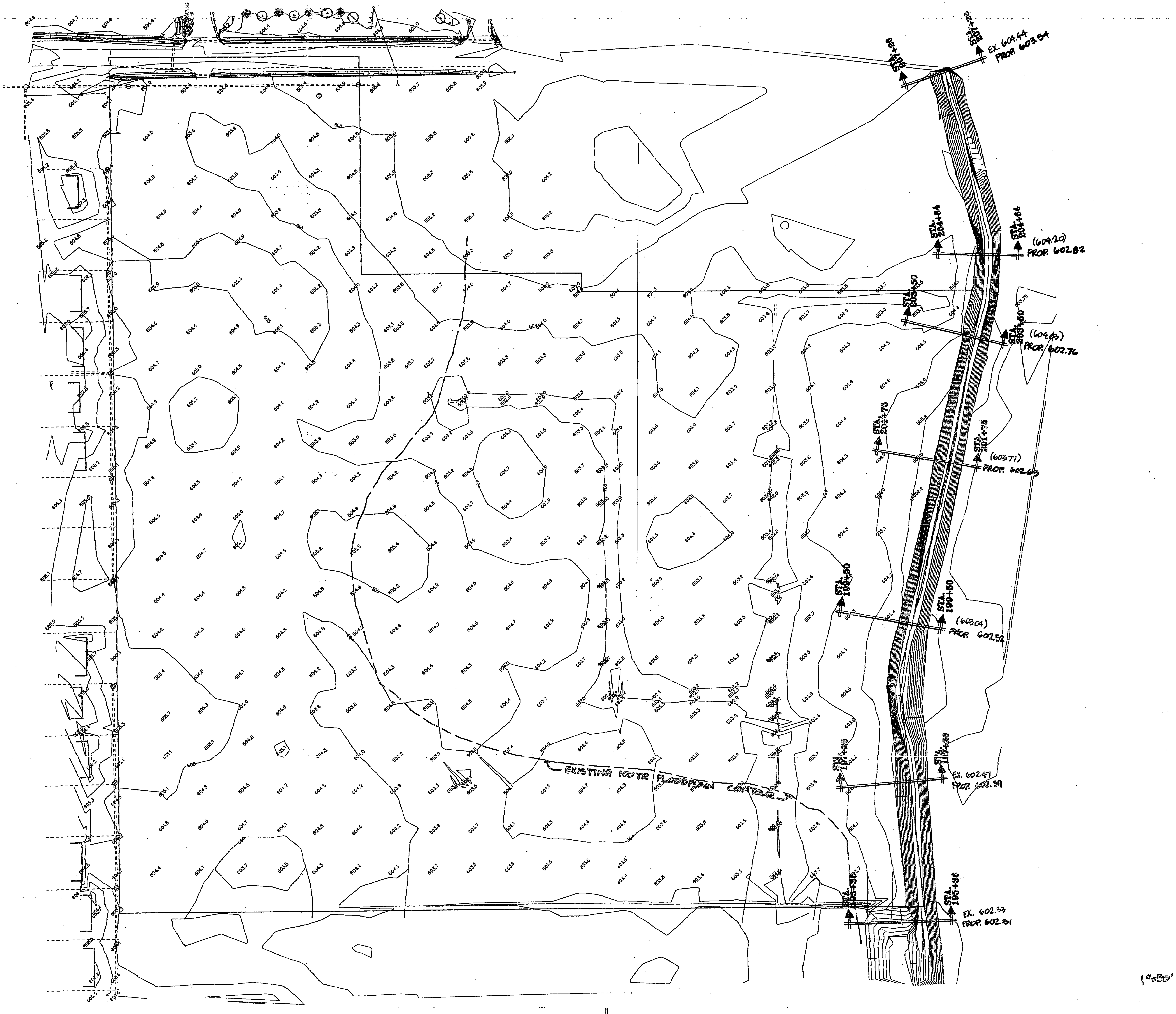
3 WORKING DAYS BEFORE YOU DIG CALL MISS DIG 1-800-482-7171 (TOLL FREE)

MERLINI PROPERTY

ANDERSON, ECKSTEIN AND WESTRICK INC.
51301 SCHOENHERR ROAD · SHELBY TOWNSHIP · MICHIGAN · 48315
PHONE (810) 726-1234
CIVIL ENGINEERS · SURVEYORS · ARCHITECTS

GLOEDE DITCH CLEANOUT

■ PRELIMINARY	CLIENT: RICK MERLINI	PROJECT NO.: 526-002	SHEET NO.: 1
☐ CONSTRUCTION	SCALE: 1" = 5' VERT. 1" = 50' HORIZ.	DATE: JULY 1997	
☐ AS-BUILT		DRAWN BY: J.L.A. / CHECKED BY: J.L.C.	


EX. 604.44
PROP. 603.54
STA. 204+64
(604.20)
PROP. 602.82
STA. 203+50
(604.03)
PROP. 602.76
STA. 201+75
(603.77)
PROP. 602.65
STA. 199+50
(603.04)
PROP. 602.52
STA. 197+28
EX. 602.47
PROP. 602.39
STA. 195+36
EX. 602.33
PROP. 602.31
EXISTING 100YR FLOODPLAIN CONTOUR
1"=50'

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Macomb

3) WATERCOURSE: Banister Drain

4) DOCUMENT TYPE: 10, 50, 100, 500 yr floods

00BREAK00

BANISTER DRAIN
J&A FILE NO. 5850-03
MACOMB TWP. AS
10-50-100-500 YEAR FLOODS

```
*************************************************
 HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
 ERROR CORR - 01,02
 MODIFICATION - 50,51,52,53
*************************************************

C
T1      MACOMB TWP.FIS J&A FILE NO.5850-03
T2      10 YEAR FLOOD
T3      BANISTER DRAIN U/S OF NEW COMBINED DRAIN

J1  ICHECK     INQ      NINV      IDIR     STRT     METRIC    HVINS      Q       WSEL      FQ
        0.        2.        0.        0.  0.000000    0.00      0.0       0.   596.830    0.000

J2  NPROF     IPLOT     PRFVS     XSECV    XSECH      FN      ALLDC      IBW     CHNIM    ITRACE
     1.000     0.000    -1.000     0.000    0.000     0.000    0.000     0.000    0.000    0.000

NC      .030      .030      .030      .300      .500     0.000     0.000     0.000     0.000     0.000
QT     4.000   205.000   295.000   335.000   470.000     0.000     0.000     0.000     0.000     0.000

              DESIGN SECTION AT CONFLUENCE (J&A)               SECT.A

X1     0.000     4.000     0.000    60.000     0.000     0.000     0.000     0.000     0.000     0.000
GR   601.000     0.000   591.000    21.300   591.000    39.000   601.000    60.000     0.000     0.000

              CHECK DAM (J&A)                                  SECT.B

X1     1.000     4.000     0.000    60.000     1.000     1.000     1.000     0.000     0.000     0.000
GR   601.000     0.000   594.000    21.000   594.000    39.000   601.000    60.000     0.000     0.000

X1   117.000     4.000     0.000    60.000   116.000   116.000   116.000     0.000     0.000     0.000
X3     0.000     0.000     0.000    20.000     0.000    41.000     0.000     0.000     0.000     0.000
GR   601.000     0.000   594.500    20.000   594.500    41.000   601.000    60.000     0.000     0.000
NC      .040      .040      .032     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1   118.000    24.000    80.000   101.000     1.000     1.000     1.000     0.000     0.000     0.000
BT    20.000     0.000   602.200     0.000    80.000   602.200   596.300    80.600   602.200   598.300
BT    81.800   602.200   599.500    83.000   602.200   600.600    84.800   602.200   600.900    86.600
BT   602.200   600.600    87.800   602.200   599.500    59.000   602.200   598.300    89.500   602.200
BT   596.300    91.500   602.200   596.300    92.100   502.200   598.300    93.300   602.200   599.500
BT    94.500   502.200   600.600    96.300   602.200   600.900    98.100   602.200   600.600    99.300
BT   602.200   599.500   100.500   502.200   598.300   101.000   602.200   596.300   200.000   602.200
BT     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
GR   602.200     0.000   602.200    80.000   596.300    80.000   595.100    80.600   594.800    81.800
GR   594.600    33.000   594.500    84.800   594.600    86.600   594.800    87.800   595.100    89.000
GR   596.300    89.500   602.200    89.500   602.200    91.500   596.300    91.500   595.100    92.100
GR   594.800    93.300   594.600    94.500   594.500    96.300   594.600    98.100   594.800    99.300
GR   595.100   100.500   596.300   101.000   602.200   101.000   602.200   200.000     0.000     0.000

              BRECKENRIDGE VILLAGE STREET BRIDGE (J&A)         SECT.C

X1   208.000    24.000    80.000   101.000    90.000    90.000    90.000     0.000     0.000     0.000
BT    20.000     0.000   602.200     0.000    80.000   602.200   596.500    80.600   602.200   598.500
BT    81.800   602.200   599.500    83.000   602.200   600.800    84.800   602.200   601.100    86.600
BT   602.200   600.800    87.800   602.200   599.700    89.000   602.200   598.500    89.500   602.200
```

BT	596.500	91.500	602.200	596.500	92.100	602.200	598.500	95.300	602.200	599.700
BT	94.500	602.200	600.800	96.300	602.200	601.100	98.100	602.200	600.800	99.300
BT	602.200	599.700	100.500	602.200	598.500	101.000	602.200	596.500	200.000	602.200
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	602.200	0.000	602.200	80.000	596.500	80.000	595.300	80.600	595.000	81.800
GR	597.800	83.000	594.700	84.800	594.800	86.600	595.000	87.800	595.300	89.000
GR	596.500	89.500	602.200	89.500	602.200	91.500	596.500	91.500	595.300	92.100
GR	595.000	93.300	594.800	94.500	594.700	95.300	594.800	98.100	595.000	99.300
GR	595.300	100.500	596.500	101.000	602.200	101.300	602.200	200.000	0.000	0.000
NC	.030	.030	.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	209.000	4.000	0.000	60.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	20.000	0.000	41.000	0.000	0.000	0.000	0.000
GR	602.000	0.000	594.700	20.000	594.700	41.000	602.000	60.000	0.000	0.000

DESIGN SECTION (J&A) SECT.D

X1	229.000	4.000	0.000	60.000	20.000	20.000	20.000	0.000	0.000	0.000
GR	602.000	0.000	594.800	19.000	594.800	41.000	602.000	60.000	0.000	0.000

CHECK DAM (J&A) SECT.E

X1	230.000	4.000	0.000	60.000	1.000	1.000	1.000	0.000	0.000	0.000
GR	602.000	0.000	596.000	24.000	596.000	36.000	602.000	60.000	0.000	0.000

DESIGN SECTION (J&A) SECT.F

X1	480.000	4.000	0.000	60.000	250.000	250.000	250.000	0.000	0.000	0.000
GR	602.000	0.000	596.600	22.000	596.600	38.000	602.000	60.000	0.000	0.000
NC	.050	.050	.033	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	724.000	4.000	22.000	38.000	244.000	244.000	244.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	600.000	600.000	0.000
GR	602.000	0.000	597.100	22.000	597.100	33.000	602.000	60.000	0.000	0.000
NC	.060	.060	.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	725.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	600.000	600.000	0.000
SB	0.000	2.380	3.020	0.000	9.750	0.000	39.000	0.000	597.100	597.100

HAYES ROAD (MCS) SECT.G

X1	765.000	20.000	393.000	407.000	40.000	40.000	40.000	.866	.100	0.000
X2	0.000	0.000	1.000	601.190	602.200	0.000	0.000	0.000	.866	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	602.200	602.200	0.000
BT	12.000	0.000	602.200	0.000	200.000	602.400	0.000	393.000	603.200	598.700
BT	394.000	603.200	600.300	396.000	603.200	600.900	398.000	603.200	600.300	399.000
BT	603.200	598.700	401.000	603.300	598.600	402.000	603.300	600.200	404.000	603.300
BT	600.800	406.000	603.300	600.200	407.000	603.300	598.600	0.000	0.000	0.000
GR	602.100	0.000	602.300	200.000	603.000	370.000	598.600	393.000	597.600	393.000
GR	597.100	394.000	597.100	395.000	597.100	398.000	597.600	399.000	598.600	399.000
GR	598.500	401.000	597.500	401.000	597.000	402.000	597.000	404.000	597.000	406.000
GR	597.500	407.000	598.500	407.000	603.100	430.000	602.700	600.000	602.600	800.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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*************************************************
 HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
 ERROR CORR -  01,02
 MODIFICATION -  50,51,52,53
*************************************************

T1       MACOMB TWP.FIS J&A FILE NO.5850-03
T2       100 YEAR FLOOD
T3       BANISTER DRAIN U/S OF NEW COMBINED DRAIN

J1  ICHECK     INQ      NINV      IDIR      STRT      METRIC    HVINS      Q        WSEL      FQ
        0.       4.       0.        0.    0.000000     0.00      0.0       0.    597.130     0.000

J2  NPROF     IPLOT     PREVS     XSECV     XSECH      FN       ALLDC      IBW      CHNIM     ITRACE
      3.000    0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
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*PROF 3

CCHV=     .300 CEHV=     .500
*SECNO .000
    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA     LEFT/RIGHT
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN       SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID      ENDST


                  DESIGN SECTION AT CONFLUENCE (J&A)                             SECT.A

      0.00       6.18     597.18       0.00     597.18     597.23        .05       0.00       0.00     601.00
      335.         0.       335.         0.         0.       191.         0.         0.         0.     601.00
      0.00       0.00       1.75       0.00       .030       .030       .030      0.000     591.00       8.02
   .000190         0.         0.         0.          0          0          0       0.00      43.96      51.98


*SECNO 1.000

                  CHECK DAM (J&A)                                                SECT.B

      1.00       3.08     597.08       0.00       0.00     597.33        .25        .00        .10     601.00
      335.         0.       335.         0.         0.        84.         0.         0.         0.     601.00
       .00       0.00       3.99       0.00       .030       .030       .030       .015     594.00      11.76
   .002217         1.         1.         1.          2          0          0       0.00      36.49      48.24


*SECNO 117.000

3470 ENCROACHMENT STATIONS=        20.0       41.0  TYPE=      1   TARGET=       21.000
    117.00       2.81     597.31       0.00       0.00     597.81        .50        .36        .13100000.00
      335.         0.       335.         0.         0.        59.         0.         0.         0. 100000.00
       .01       0.00       5.67       0.00       .030       .030       .030       .029     594.50      20.00
   .004560       116.       116.       116.          2          0          0       0.00      21.00      41.00


*SECNO 118.000

3265 DIVIDED FLOW


3370 NORMAL BRIDGE,NRD= 20 MIN ELTRD=   602.20 MAX ELLC=   600.90

    118.00       2.58     597.08       0.00       0.00     598.06        .98        .01        .24     602.20
      335.         0.       335.         0.         0.        42.         0.         0.         0.     602.20
       .01       0.00       7.95       0.00       .040       .032       .040       .029     594.50      80.00
   .014954         1.         1.         1.          2          0          0       -.86      19.00     101.00


*SECNO 208.000

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA     LEFT/RIGHT
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN       SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID      ENDST
```

.0027 [illegible] which [illegible] peaks some [illegible] much higher

USGS [illegible] curve on Dunn [illegible]
Q on Dunn is 287 when [illegible] is a Q100, see [illegible] book

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3370 NORMAL BRIDGE,NRD= 20 MIN ELTRD=  602.20 MAX ELLC=  601.10

                BRECKENRIDGE VILLAGE STREET BRIDGE (J&A)          SECT.C

    208.00      3.96    598.66      0.00      0.00    599.12       .46       .90       .16    602.20
     335.         0.      335.        0.        0.       62.        0.        0.        0.    602.20
      .01       0.00      5.43      0.00      .040      .032      .040      .030    594.70     80.00
   .007199       90.       90.       90.         4         0         0     -2.95     19.00    101.00


*SECNO 209.000

3470 ENCROACHMENT STATIONS=        20.0      41.0  TYPE=      1  TARGET=        21.000
    209.00      4.28    598.98      0.00      0.00    599.19       .22       .00       .07100000.00
     335.         0.      335.        0.        0.       90.        0.        0.        0. 100000.00
      .01       0.00      3.73      0.00      .030      .030      .030      .030    594.70     20.00
   .001289        1.        1.        1.         2         0         0      0.00     21.00     41.00


*SECNO 229.000

                DESIGN SECTION (J&A)                              SECT.D

    229.00      4.37    599.17      0.00      0.00    599.25       .08       .01       .04    602.00
     335.         0.      335.        0.        0.      146.        0.        0.        0.    602.00
      .01       0.00      2.29      0.00      .030      .030      .030      .030    594.80      7.47
   .000464       20.       20.       20.         2         0         0      0.00     45.06     52.53


*SECNO 230.000

                CHECK DAM (J&A)                                   SECT.E

    230.00      3.05    599.05      0.00      0.00    599.37       .32       .00       .12    602.00
     335.         0.      335.        0.        0.       74.        0.        0.        0.    602.00
      .01       0.00      4.54      0.00      .030      .030      .030      .030    596.00     11.80
   .003357        1.        1.        1.         2         0         0      0.00     36.41     48.20


*SECNO 480.000

                DESIGN SECTION (J&A)                              SECT.F

    480.00      3.22    599.82      0.00      0.00    600.02       .20       .61       .04    602.00
     335.         0.      335.        0.        0.       94.        0.        1.        0.    602.00
      .03       0.00      3.58      0.00      .030      .030      .030      .030    596.60      8.90
   .001849      250.      250.      250.         2         0         0      0.00     42.21     51.10


*SECNO 724.000
     SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS   BANK ELEV
     Q          QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
     TIME       VLOB      VCH       VROB      XNL       XNCH      XNR       WTN      ELMIN      SSTA
     SLOPE      XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR    TOPWID     ENDST


    724.00      3.19    600.29      0.00      0.00    600.57       .28       .51       .04    597.10
     335.        45.      245.       45.       23.       51.       23.        1.        1.    597.10
      .05       1.96      4.80      1.96      .050      .033      .050      .031    597.10      7.67
   .002422      244.      244.      244.         2         0         0      0.00     44.65     52.33


*SECNO 725.000
    725.00      3.16    600.26      0.00      0.00    600.60       .34       .00       .03    597.10
     335.        36.      263.       36.       22.       51.       22.        1.        1.    597.10
```

~.38 ft

ΔEG = .38 ft.

hand comps indicate possibly .3 ft. lower

.05	1.61	5.19	1.61	.060	.030	.060	.031	597.10	7.79
.002363	1.	1.	1.	2	0	0	0.00	44.41	52.21

SPECIAL BRIDGE

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
0.00	2.38	3.02	0.00	9.75	0.00	39.00	0.00	597.10	597.10

35.2

*SECNO 765.000

3265 DIVIDED FLOW

3280 CROSS SECTION 765.00 EXTENDED .02 FEET

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
602.99	601.75	0.00	36.	301.	39.	39.	601.10	602.20

HAYES ROAD (MCS) SECT.G

765.00	5.13	602.23	0.00	0.00	602.47	.24	1.87	0.00	598.70
335.	39.	256.	40.	28.	58.	28.	1.	1.	598.60
.05	1.37	4.42	1.40	.060	.030	.060	.031	597.10	0.00
.001510	40.	40.	40.	2	0	4	0.00	60.86	368.14

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

BANISTER DRAIN U/S OF NE

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	0.000	0.00	0.00	0.00	591.00	205.00	596.83	0.00	596.85	.90	1.16	176.32	216.68
	0.000	0.00	0.00	0.00	591.00	295.00	597.07	0.00	597.11	1.58	1.58	186.63	234.37
	0.000	0.00	0.00	0.00	591.00	335.00	597.18	0.00	597.23	1.90	1.75	191.44	242.74
	0.000	0.00	0.00	0.00	591.00	470.00	597.59	0.00	597.67	2.91	2.24	209.82	275.36
	1.000	1.00	0.00	0.00	594.00	205.00	596.78	0.00	596.90	12.20	2.80	73.22	58.68
	1.000	1.00	0.00	0.00	594.00	295.00	596.99	0.00	597.19	19.34	3.67	80.48	67.07
	1.000	1.00	0.00	0.00	594.00	335.00	597.08	0.00	597.33	22.17	3.99	83.93	71.15
	1.000	1.00	0.00	0.00	594.00	470.00	597.45	0.00	597.81	28.36	4.80	97.86	88.26
	117.000	116.00	0.00	0.00	594.50	205.00	596.92	0.00	597.17	27.16	4.04	50.76	39.34
	117.000	116.00	0.00	0.00	594.50	295.00	597.19	0.00	597.61	40.38	5.22	56.53	46.42
	117.000	116.00	0.00	0.00	594.50	335.00	597.31	0.00	597.81	45.60	5.67	59.04	49.61
	117.000	116.00	0.00	0.00	594.50	470.00	597.71	0.00	598.47	59.74	6.96	67.51	60.81
	118.000	1.00	602.20	600.90	594.50	205.00	596.81	0.00	597.28	79.49	5.50	37.29	22.99
	118.000	1.00	602.20	600.90	594.50	295.00	597.00	0.00	597.82	127.71	7.24	40.74	26.10
	118.000	1.00	602.20	600.90	594.50	335.00	597.08	0.00	598.06	149.54	7.95	42.15	27.39
*	118.000	1.00	602.20	600.90	594.50	470.00	597.50	597.50	598.90	187.32	9.50	49.49	34.34
	208.000	90.00	602.20	601.10	594.70	205.00	597.61	0.00	597.95	62.38	4.71	43.56	25.95
	208.000	90.00	602.20	601.10	594.70	295.00	598.29	0.00	598.73	65.13	5.30	55.66	36.55
	208.000	90.00	602.20	601.10	594.70	335.00	598.66	0.00	599.12	71.99	5.43	61.72	39.48
	208.000	90.00	602.20	601.10	594.70	470.00	599.63	0.00	600.23	85.34	6.22	75.54	50.88
	209.000	1.00	0.00	0.00	594.70	205.00	597.87	0.00	598.01	11.88	3.08	66.53	59.48
	209.000	1.00	0.00	0.00	594.70	295.00	598.60	0.00	598.80	13.15	3.60	81.97	81.34
	209.000	1.00	0.00	0.00	594.70	335.00	598.98	0.00	599.19	12.89	3.73	89.92	93.30
	209.000	1.00	0.00	0.00	594.70	470.00	600.06	0.00	600.33	13.13	4.17	112.72	129.72
	229.000	20.00	0.00	0.00	594.80	205.00	597.98	0.00	598.05	5.63	2.12	96.74	86.40
	229.000	20.00	0.00	0.00	594.80	295.00	598.77	0.00	598.85	5.14	2.29	129.01	130.09
	229.000	20.00	0.00	0.00	594.80	335.00	599.17	0.00	599.25	4.64	2.29	146.47	155.56
	229.000	20.00	0.00	0.00	594.80	470.00	600.32	0.00	600.40	3.74	2.33	201.74	243.19
*	230.000	1.00	0.00	0.00	596.00	205.00	597.70	597.70	598.34	126.18	6.39	32.08	18.25
	230.000	1.00	0.00	0.00	596.00	295.00	598.62	0.00	599.01	48.33	5.01	58.92	42.43
	230.000	1.00	0.00	0.00	596.00	335.00	599.05	0.00	599.37	33.57	4.54	73.85	57.82
	230.000	1.00	0.00	0.00	596.00	470.00	600.25	0.00	600.47	16.45	3.82	123.13	115.87

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
480.000	250.00	0.00	0.00	596.60	205.00	599.21	0.00	599.35	15.70	2.94	69.65	51.73
480.000	250.00	0.00	0.00	596.60	295.00	599.60	0.00	599.79	19.05	3.49	84.45	67.59
480.000	250.00	0.00	0.00	596.60	335.00	599.82	0.00	600.02	18.49	3.58	93.60	77.90
480.000	250.00	0.00	0.00	596.60	470.00	600.57	0.00	600.86	14.04	3.55	132.48	125.44
724.000	244.00	0.00	0.00	597.10	205.00	599.64	0.00	600.04	36.78	5.04	40.65	33.80
724.000	244.00	0.00	0.00	597.10	295.00	600.09	0.00	600.34	24.30	4.60	87.74	59.85
724.000	244.00	0.00	0.00	597.10	335.00	600.29	0.00	600.57	24.22	4.80	96.76	68.07
724.000	244.00	0.00	0.00	597.10	470.00	601.03	0.00	601.33	21.04	5.15	132.36	102.47
725.000	1.00	0.00	0.00	597.10	205.00	599.65	0.00	600.04	30.22	5.03	40.72	37.29
725.000	1.00	0.00	0.00	597.10	295.00	600.06	0.00	600.37	23.45	4.95	86.82	60.92
725.000	1.00	0.00	0.00	597.10	335.00	600.26	0.00	600.60	23.63	5.19	95.57	68.92
725.000	1.00	0.00	0.00	597.10	470.00	600.99	0.00	601.37	21.19	5.64	130.24	102.11
* 765.000	40.00	602.20	601.10	597.10	205.00	599.53	599.53	600.84	279.35	9.16	22.38	12.27
765.000	40.00	602.20	601.10	597.10	295.00	601.56	0.00	602.18	37.54	5.76	51.25	48.15
765.000	40.00	602.20	601.10	597.10	335.00	602.23	0.00	602.47	15.10	4.42	114.58	86.21
765.000	40.00	602.20	601.10	597.10	470.00	602.37	0.00	602.79	25.68	5.89	133.97	92.74

BANISTER DRAIN U/S OF NE

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	0.000	205.00	596.83	0.00	0.00	0.00	42.49	0.00
	0.000	295.00	597.07	.24	0.00	0.00	43.49	0.00
	0.000	335.00	597.18	.11	0.00	0.00	43.96	0.00
	0.000	470.00	597.59	.41	0.00	0.00	45.68	0.00
	1.000	205.00	596.78	0.00	-.05	0.00	34.68	1.00
	1.000	295.00	596.99	.21	-.08	0.00	35.91	1.00
	1.000	335.00	597.08	.10	-.10	0.00	36.49	1.00
	1.000	470.00	597.45	.37	-.14	0.00	38.71	1.00
	117.000	205.00	596.92	0.00	.14	0.00	21.00	116.00
	117.000	295.00	597.19	.27	.21	0.00	21.00	116.00
	117.000	335.00	597.31	.12	.23	0.00	21.00	116.00
	117.000	470.00	597.71	.40	.26	0.00	21.00	116.00
	118.000	205.00	596.81	0.00	-.10	0.00	19.00	1.00
	118.000	295.00	597.00	.19	-.19	0.00	19.00	1.00
	118.000	335.00	597.08	.08	-.23	0.00	19.00	1.00
*	118.000	470.00	597.50	.42	-.22	0.00	19.00	1.00
	208.000	205.00	597.61	0.00	.79	0.00	18.81	90.00
	208.000	295.00	598.29	.68	1.29	0.00	19.00	90.00
	208.000	335.00	598.66	.37	1.58	0.00	19.00	90.00
	208.000	470.00	599.63	.97	2.13	0.00	19.00	90.00
	209.000	205.00	597.87	0.00	.26	0.00	21.00	1.00
	209.000	295.00	598.60	.73	.31	0.00	21.00	1.00
	209.000	335.00	598.98	.38	.32	0.00	21.00	1.00
	209.000	470.00	600.06	1.08	.43	0.00	21.00	1.00
	229.000	205.00	597.98	0.00	.12	0.00	38.80	20.00
	229.000	295.00	598.77	.79	.17	0.00	42.96	20.00
	229.000	335.00	599.17	.40	.19	0.00	45.06	20.00
	229.000	470.00	600.32	1.15	.25	0.00	51.12	20.00
*	230.000	205.00	597.70	0.00	-.28	0.00	25.64	1.00
	230.000	295.00	598.62	.91	-.15	0.00	32.97	1.00
	230.000	335.00	599.05	.43	-.12	0.00	36.41	1.00
	230.000	470.00	600.25	1.20	-.07	0.00	45.98	1.00
	480.000	205.00	599.21	0.00	1.51	0.00	37.30	250.00
	480.000	295.00	599.60	.39	.98	0.00	40.40	250.00
	480.000	335.00	599.82	.22	.77	0.00	42.21	250.00
	480.000	470.00	600.67	.85	.42	0.00	49.14	250.00
	724.000	205.00	599.64	0.00	.43	0.00	16.00	244.00
	724.000	295.00	600.09	.44	.49	0.00	42.80	244.00
	724.000	335.00	600.29	.20	.47	0.00	44.65	244.00
	724.000	470.00	601.03	.74	.36	0.00	51.31	244.00
	725.000	205.00	599.65	0.00	.01	0.00	16.00	1.00
	725.000	295.00	600.06	.41	-.02	0.00	42.60	1.00
	725.000	335.00	600.26	.20	-.03	0.00	44.41	1.00
	725.000	470.00	600.99	.73	-.04	0.00	50.94	1.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	765.000	205.00	599.53	0.00	-.11	0.00	12.12	40.00
	765.000	295.00	601.66	2.13	1.60	0.00	12.12	40.00
	765.000	335.00	602.23	.56	1.96	0.00	50.86	40.00
	765.000	470.00	602.37	.15	1.38	0.00	193.98	40.00

SUMMARY OF ERRORS

CAUTION SECNO= 118.000 PROFILE= 4 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 118.000 PROFILE= 4 MINIMUM SPECIFIC ENERGY

CAUTION SECNO= 230.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 230.000 PROFILE= 1 MINIMUM SPECIFIC ENERGY

CAUTION SECNO= 765.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 765.000 PROFILE= 1 MINIMUM SPECIFIC ENERGY

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Macomb Twp

3) WATERCOURSE: Crittenden Drain

4) DOCUMENT TYPE: 100 year flood
Natural &
encroached

00BREAK00

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 $        $      $$     $$$$$$   $$$$$$$$   $$$$$ $   $$$$$$    $$$$$$
$$       $$     $$$$   $$    $$     $$     $$     $   $$    $$  $$    $$
$$$     $$$    $$  $$  $$           $$     $$    $$$  $$    $$  $$
$$$$$$$$$$$   $$    $$ $$           $$     $$   $ $$  $$$$$$     $$$$$$
$$  $$   $$   $$    $$ $$           $$     $$ $$  $$  $$    $$        $$
$$       $$   $$$$$$$$ $$           $$     $$ $   $$  $$    $$        $$
$$       $$   $$    $$ $$           $$     $$$    $$  $$    $$        $$
$$       $$   $$    $$ $$    $$  $$ $$      $     $$  $$    $$  $$    $$
$$       $$   $$    $$  $$$$$$    $$$      $ $$$$$    $$$$$$    $$$$$$
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MACJOBS JANDA 04/12/79 07.40.06 7600 JO

CRITTENDEN DRAIN
J&A FILE No. 5850-03
MACOMB TWP. FIS
10-50-100-500 YR. FLOODS
"ENCROACHED FLOODWAY"

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 ***********************************************
 HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
 ERROR CORR -  01,02
 MODIFICATION -  50,51,52,53
 ***********************************************


C
T1             MACOMB TWP. FIS J&A FILE NO. 5850-03-1
T2             10 YEAR FLOOD
T3             CRITTENDEN DRAIN

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC     HVINS       Q        WSEL       FQ

         0.        2.       0.        0.  0.000000      0.00       0.0        0.   591.960     0.000

J2  NPROF     IPLOT     PREVS     XSECV     XSECH       FN      ALLDC       IBW      CHNIM     ITRACE

     1.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

NC      .045      .045      .039      .300      .500     0.000     0.000     0.000     0.000     0.000
QT     4.000   150.000   220.000   250.000   345.000     0.000     0.000     0.000     0.000     0.000

X1  1472.000    13.000   400.000   416.000     0.000     0.000     0.000      .950     0.000     0.000
GR   600.200     0.000   600.200   100.000   600.300   200.000   600.300   300.000   600.300   400.000
GR   588.900   400.000   588.300   408.000   588.900   416.000   600.300   416.000   600.300   500.000
GR   600.400   600.000   600.600   700.000   600.500   800.000     0.000     0.000     0.000     0.000
NC      .040      .040      .020     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1  1473.000     0.000     0.000     0.000     1.000     1.000     1.000     0.000     0.000     0.000
X2     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000      .950     0.000
BT    10.000     0.000   600.200     0.000   100.000   600.200     0.000   200.000   600.300     0.000
BT   300.000   600.300     0.000   400.000   600.300   595.700   416.000   600.300   595.700   500.000
BT   600.300     0.000   600.000   600.400     0.000   700.000   600.000     0.000   800.000   600.500
BT     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

               HALL ROAD (M-59)  BRIDGE SECTION 5.1 (J&A)       SECT.A

X1  1528.000     0.000     0.000     0.000    55.000    55.000    55.000     0.000     0.000     0.000
X2     0.000     0.000     0.000     0.000     0.000     0.000     1.000     0.000     0.000     0.000
NC      .042      .042      .036     0.000     0.000     0.000     0.000     0.000     0.000     0.000


X1  1529.000     0.000     0.000     0.000     1.000     1.000     1.000     0.000     0.000     0.000

               VALLEY SECTION 6.1 (J&A)                         SECT.B

X1  1623.000    11.000   100.000   135.000    99.000    99.000    99.000     0.000     0.000     0.000
X3     0.000     0.000     0.000   100.000     0.000     0.000     0.000     0.000     0.000     0.000
GR   598.100     0.000   596.600    52.000   592.200   100.000   588.600   106.000   587.700   110.000
GR   587.600   115.000   588.100   120.000   588.600   125.000   596.000   135.000   596.700   200.000
GR   598.700   300.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

               VALLEY SECTION 8.1 (J&A)                         SECT.C

X1  2028.000    11.000   100.000   135.000   400.000   400.000   400.000     0.000     0.000     0.000
X3     0.000     0.000     0.000   100.000     0.000     0.000     0.000     0.000     0.000     0.000
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GR    598.500     0.000   597.000    52.000   592.600   100.000   589.000   106.000   588.100   110.000
GR    588.000   115.000   588.500   120.000   589.000   125.000   596.400   135.000   597.100   200.000
GR    599.100   300.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

                 VALLEY SECTION 9.1 (MCS)                      SECT.D

X1   2305.000     9.000    91.300   135.300   280.000   280.000   280.000     0.000     0.000     0.000
X3      0.000     0.000     0.000    91.300     0.000   135.300     0.000     0.000     0.000     0.000
GR    599.400     0.000   597.400    16.000   593.200    61.300   592.200    91.300   588.200   107.300
GR    588.200   119.300   592.200   135.300   593.200   165.300   597.400   210.600     0.000     0.000

                 VALLEY SECTION 11.1 (MCS)                     SECT.E

X1   2708.000     9.000    91.300   135.300   400.000   400.000   400.000     0.000     0.000     0.000
X3      0.000     0.000     0.000    91.300     0.000   135.300     0.000     0.000     0.000     0.000
GR    599.800     0.000   597.800    16.000   593.600    61.300   592.600    91.300   588.600   107.300
GR    588.600   119.300   592.600   135.300   593.600   165.300   597.800   210.600     0.000     0.000

                 VALLEY SECTION 12.1 (MCS)                     SECT.F

X1   2808.000     8.000    91.300   156.000   100.000   100.000   100.000     0.000     0.000     0.000
X3      0.000     0.000     0.000    91.300     0.000     0.000     0.000     0.000     0.000     0.000
GR    599.900     0.000   597.900    16.000   593.700    61.300   592.700    91.300   588.700   107.300
GR    588.700   119.300   597.900   156.000   598.400   166.000     0.000     0.000     0.000     0.000

                 VALLEY SECTION 14.1 (MCS)                     SECT.G

X1   3606.000     8.000    91.300   156.000   800.000   800.000   800.000     0.000     0.000     0.000
X3      0.000     0.000     0.000    91.300     0.000     0.000     0.000     0.000     0.000     0.000
GR    600.500     0.000   598.500    16.000   594.300    61.300   593.300    91.300   589.300   107.300
GR    589.300   119.300   598.500   156.000   599.000   166.000     0.000     0.000     0.000     0.000

                 VALLEY SECTION 15.1 (MCS)                     SECT.H

X1   4008.000     8.000    91.300   156.000   400.000   400.000   400.000     0.000     0.000     0.000
X3      0.000     0.000     0.000    91.300     0.000     0.000     0.000     0.000     0.000     0.000
GR    600.800     0.000   598.800    16.000   594.600    61.300   593.600    91.300   589.600   107.300
GR    589.600   119.300   598.800   156.000   599.300   166.000     0.000     0.000     0.000     0.000

X1   4187.000     7.000    92.000   108.000   179.000   179.000   179.000     0.000     0.000     0.000
GR    599.600     0.000   599.300    50.000   599.400    92.000   589.600    92.000   589.600   108.000
GR    599.500   108.000   600.200   150.000     0.000     0.000     0.000     0.000     0.000     0.000
NC       .040      .040      .033     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1   4188.000     0.000     0.000     0.000     1.000     1.000     1.000     0.000     0.000     0.000
BT      5.000     0.000   599.600     0.000    50.000   599.300     0.000    92.000   599.400   596.600
BT    108.000   599.500   596.600   150.000   600.200     0.000     0.000     0.000     0.000     0.000

                 MILLSTONE DRIVE  BRIDGE SECTION 16.1 (MCS)    SECT.I

                 16' X 7' CONCRETE BOX CULVERT

X1   4256.000     0.000     0.000     0.000    68.000    68.000    68.000     0.000     0.000     0.000
X2      0.000     0.000     0.000     0.000     0.000     0.000     1.000     0.000     0.000     0.000
NC       .042      .042      .036     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1   4257.000     0.000     0.000     0.000     1.000     1.000     1.000     0.000     0.000     0.000
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QT	4.000	145.000	210.000	230.000	330.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION 17.1 (MCS) SECT.J

X1	4376.000	8.000	91.300	156.000	119.000	119.000	119.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	91.300	0.000	0.000	0.000	0.000	0.000	0.000
GR	599.100	0.000	598.100	16.000	594.900	61.300	593.900	91.300	589.900	107.300
GR	589.900	119.300	599.100	156.000	599.600	166.000	0.000	0.000	0.000	0.000

VALLEY SECTION 19.1 (MCS) SECT.K

X1	5176.000	8.000	91.300	156.000	800.000	800.000	800.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	91.300	0.000	156.000	0.000	0.000	0.000	0.000
GR	599.700	0.000	598.700	16.000	595.500	61.300	594.500	91.300	590.500	107.300
GR	590.500	119.300	599.700	156.000	600.200	166.000	0.000	0.000	0.000	0.000

VALLEY SECTION 21.1 (MCS) SECT.L

X1	5976.000	8.000	91.300	156.000	800.000	800.000	800.000	0.000	0.000	0.000
GR	600.300	0.000	599.300	16.000	596.100	61.300	595.100	91.300	591.100	107.300
GR	591.100	119.300	600.300	156.000	600.800	166.000	0.000	0.000	0.000	0.000

VALLEY SECTION 23.1 (MCS) SECT.M

X1	6776.000	8.000	91.300	156.000	800.000	800.000	800.000	0.000	0.000	0.000
GR	600.900	0.000	599.900	16.000	596.700	61.300	595.700	91.300	591.700	107.300
GR	591.700	119.300	600.900	156.000	601.400	166.000	0.000	0.000	0.000	0.000

VALLEY SECTION 24.1 (MCS) SECT.N

X1	7061.000	8.000	91.300	156.000	285.000	285.000	285.000	0.000	0.000	0.000
GR	601.100	0.000	600.100	16.000	596.900	61.300	595.900	91.300	591.900	107.300
GR	591.900	119.300	601.100	156.000	601.600	166.000	0.000	0.000	0.000	0.000

X1	7210.000	15.000	500.000	516.000	149.000	149.000	149.000	0.000	0.000	0.000
GR	602.100	0.000	601.700	100.000	601.900	200.000	602.200	300.000	602.000	400.000
GR	601.900	500.000	593.000	500.000	592.200	508.000	593.000	516.000	602.000	516.000
GR	601.900	600.000	601.800	700.000	601.700	800.000	601.600	900.000	601.800	1000.000
NC	.045	.045	.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	7211.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	13.000	0.000	602.100	0.000	100.000	601.700	0.000	200.000	601.900	0.000
BT	300.000	602.200	0.000	400.000	602.000	0.000	500.000	601.900	598.900	508.000
BT	601.900	598.900	516.000	602.000	598.900	600.000	601.900	0.000	700.000	601.800
BT	0.000	800.000	601.700	0.000	900.000	601.600	0.000	1000.000	601.800	0.000

21 MILE ROAD BRIDGE SECTION 1 (J&A) SECT.O

X1	7259.000	0.000	0.000	0.000	48.000	48.000	48.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NC	.042	.042	.036	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	7260.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000

VALLEY SECTION 2 (J&A) SECT.P

X1	7883.000	15.000	500.000	530.000	623.000	623.000	623.000	0.000	0.000	0.000
GR	601.100	0.000	600.800	66.000	601.100	100.000	600.400	500.000	597.000	518.000
GR	596.100	529.000	592.900	537.000	591.700	543.000	592.100	550.000	600.000	530.000
GR	601.000	600.000	600.400	700.000	600.500	800.000	600.500	900.000	602.000	1000.000

VALLEY SECTION 3 (J&A) SECT.Q

X1	8623.000	15.000	500.000	616.000	740.000	740.000	740.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	536.000	0.000	577.000	0.000	0.000	0.000	0.000
GR	602.500	0.000	602.700	500.000	598.800	522.000	597.500	533.000	593.800	548.000
GR	593.100	554.000	593.500	560.000	598.100	582.000	599.500	594.000	600.300	600.000
GR	602.500	616.000	602.800	700.000	601.800	800.000	601.300	900.000	601.200	1000.000

X1	8672.000	15.000	500.000	516.000	49.000	49.000	49.000	0.000	0.000	0.000
GR	602.000	0.000	601.600	100.000	601.200	200.000	601.100	300.000	601.500	400.000
GR	602.100	500.000	593.300	500.000	593.900	503.000	593.300	516.000	602.100	516.000
GR	601.500	600.000	600.800	700.000	601.100	800.000	601.000	900.000	600.700	1000.000
NC	.040	.040	.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	8673.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	13.000	0.000	602.000	0.000	100.000	601.600	0.000	200.000	601.200	0.000
BT	300.000	601.100	0.000	400.000	601.500	0.000	500.000	602.100	600.300	508.000
BT	602.100	600.300	516.000	602.100	600.300	600.000	601.500	0.000	700.000	600.800
BT	0.000	800.000	601.100	0.000	900.000	601.000	0.000	1000.000	600.700	0.000

VALLEY FORGE DRIVE BRIDGE SECTION 4 (J&A) SECT.R

X1	8741.000	0.000	0.000	0.000	68.000	68.000	68.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NC	.048	.048	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	8742.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000

VALLEY SECTION 5 (J&A) SECT.S

X1	9573.000	17.000	187.000	220.000	831.000	831.000	831.000	0.000	0.000	0.000
GR	601.200	0.000	602.200	87.000	601.300	147.000	598.500	169.000	597.500	187.000
GR	597.500	187.000	595.500	195.000	594.300	199.000	594.300	204.000	597.800	220.000
GR	598.200	228.000	600.300	249.000	600.500	287.000	600.300	387.000	600.700	487.000
GR	600.700	587.000	601.100	687.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.060	.060	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	4.000	135.000	200.000	220.000	315.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION 6 (J&A) SECT.T

X1	10778.000	15.000	500.000	524.000	1205.000	1205.000	1205.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	602.000	0.000	601.700	100.000	600.900	200.000	601.100	300.000	600.600	400.000
GR	601.100	500.000	598.200	507.000	597.400	512.000	598.300	517.000	601.100	524.000
GR	601.000	600.000	601.400	700.000	600.800	800.000	600.900	900.000	600.900	1000.000

X1	11078.000	0.000	0.000	0.000	300.000	300.000	300.000	0.000	.100	0.000
X3	0.000	0.000	0.000	222.000	0.000	685.000	0.000	0.000	0.000	0.000

X1	11378.000	0.000	0.000	0.000	300.000	300.000	300.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	206.000	0.000	800.000	0.000	0.000	0.000	0.000

X1	11705.000	18.000	500.000	510.300	327.000	327.000	327.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	247.000	0.000	764.000	0.000	0.000	0.000	0.000
GR	601.900	0.000	601.900	100.000	601.800	200.000	601.600	300.000	601.100	400.000
GR	601.400	460.000	601.600	468.000	601.800	475.000	602.200	500.000	598.000	500.000
GR	597.600	505.000	598.200	510.300	601.900	510.300	600.900	600.000	600.800	700.000
GR	601.400	800.000	601.400	900.000	601.100	1000.000	0.000	0.000	0.000	0.000
NC	.050	.050	.036	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	11706.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	247.000	0.000	764.000	0.000	0.000	0.000	0.000
BT	12.000	247.000	601.700	0.000	300.000	601.600	0.000	400.000	601.100	0.000
BT	460.000	601.400	0.000	468.000	599.900	0.000	475.000	601.800	0.000	500.000
BT	602.200	601.400	505.000	602.000	601.300	510.300	601.900	601.300	600.000	600.900
BT	0.000	700.000	600.800	0.000	764.000	601.200	0.000	0.000	0.000	0.000

FARM CULVERT NO.1 BRIDGE SECT. 7 (J&A) SECT.U

X1	11719.000	0.000	0.000	0.000	13.000	13.000	13.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	247.000	0.000	764.000	0.000	0.000	0.000	0.000
NC	.060	.060	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	11720.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	247.000	0.000	764.000	0.000	0.000	0.000	0.000

VALLEY SECTION 8 (J&A) SECT.V

X1	12193.000	13.000	500.000	529.000	473.000	473.000	473.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	319.000	0.000	693.000	0.000	0.000	0.000	0.000
GR	601.000	0.000	601.000	100.000	601.100	200.000	601.900	500.000	598.800	507.000
GR	597.600	513.000	598.200	521.000	601.300	529.000	600.900	600.000	601.600	700.000
GR	602.700	800.000	602.900	900.000	602.400	1000.000	0.000	0.000	0.000	0.000
NC	.060	.060	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	12904.000	15.000	500.000	512.000	711.000	711.000	711.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	451.000	0.000	561.000	0.000	0.000	0.000	0.000
GR	602.900	0.000	602.900	100.000	603.100	200.000	601.900	300.000	602.900	400.000
GR	602.400	490.000	599.400	500.000	598.800	506.000	599.700	512.000	603.100	522.000
GR	602.300	600.000	602.600	700.000	602.900	800.000	603.500	900.000	604.100	1000.000
NC	.050	.050	.060	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	12905.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	451.000	0.000	561.000	0.000	0.000	0.000	0.000
SB	0.000	1.790	2.900	0.000	9.700	0.000	36.800	0.000	598.800	598.300

FARM CULVERT NO.2 BRIDGE SECT. 9 (J&A) SECT.W

X1	12920.000	0.000	0.000	0.000	15.000	15.000	15.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	602.600	602.610	0.000	0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	451.000	0.000	561.000	0.000	0.000	0.000	0.000
BT	6.000	451.000	602.700	0.000	500.000	602.400	599.400	500.000	602.400	601.900
BT	512.000	603.200	602.600	512.000	603.700	599.700	561.000	603.000	0.000	0.000
NC	.060	.060	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	12921.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	451.000	0.000	561.000	0.000	0.000	0.000	0.000

VALLEY SECTION 10 (J&A) SECT.X

X1	13078.000	11.000	500.000	527.000	157.000	157.000	157.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	500.000	0.000	531.000	0.000	0.000	0.000	0.000
GR	604.100	0.000	603.500	500.000	600.100	508.000	599.700	513.000	600.000	521.000
GR	602.500	527.000	602.200	600.000	604.500	700.000	603.300	800.000	605.200	900.000
GR	604.900	1000.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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$       $    $$     $$$$$$  $$$$$$$$  $$$$$ $  $$$$$$  $$      $$
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$$$   $$$  $$  $$  $$           $$    $$   $$$ $$    $$  $$      $$
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$$     $$ $$    $$ $$    $$  $$ $$     $    $$ $$    $$  $$      $$
$$     $$ $$    $$  $$$$$$    $$$     $ $$$$$   $$$$$$    $$$$$$
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MACJ09U JANDA 04/12/79 03.06.01 7600 JO

CRITTENDEN DRAIN
J&A FILE No. 5850-03
MACOMB TWP. FIS
100 YEAR FLOOD
"NATURAL FLOODWAY"

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 ***************************************************
   HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
   ERROR CORR -    01,02
   MODIFICATION -  50,51,52,53
 ***************************************************

 C
 T1              MACOMB TWP. FIS J&A FILE NO. 5850-03-1
 T2              100 YEAR FLOOD
 T3              CRITTENDEN DRAIN

 J1  ICHECK     INQ     NINV     IDIR      STRT      METRIC     HVINS      Q         WSEL       FQ

         0.       4.       0.       0.  0.000000      0.00       0.0       0.   592.970     0.000

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH       FN      ALLDC      IBW      CHNIM     ITRACE

       1.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

 NC      .045      .045      .039      .300      .500     0.000     0.000     0.000     0.000     0.000
 QT     4.000   150.000   220.000   250.000   345.000     0.000     0.000     0.000     0.000     0.000

 X1  1472.000    13.000   400.000   416.000     0.000     0.000     0.000      .950     0.000     0.000
 GR   600.200     0.000   600.200   100.000   600.300   200.000   600.300   300.000   600.300   400.000
 GR   588.900   400.000   588.300   408.000   588.900   416.000   600.300   416.000   600.300   500.000
 GR   600.400   600.000   600.600   700.000   600.500   800.000     0.000     0.000     0.000     0.000
 NC      .040      .040      .020     0.000     0.000     0.000     0.000     0.000     0.000     0.000

 X1  1473.000     0.000     0.000     0.000     1.000     1.000     1.000     0.000     0.000     0.000
 X2     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000      .950     0.000
 BT    10.000     0.000   600.200     0.000   100.000   600.200     0.000   200.000   600.300     0.000
 BT   300.000   600.300     0.000   400.000   600.300   595.700   416.000   600.300   595.700   500.000
 BT   600.300     0.000   600.000   600.400     0.000   700.000   600.600     0.000   800.000   600.500
 BT     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

                 HALL ROAD (M-59)  BRIDGE SECTION 5.1 (J&A)       SECT.A

 X1  1528.000     0.000     0.000     0.000    55.000    55.000    55.000     0.000     0.000     0.000
 X2     0.000     0.000     0.000     0.000     0.000     0.000     1.000     0.000     0.000     0.000
 NC      .042      .042      .036     0.000     0.000     0.000     0.000     0.000     0.000     0.000

 X1  1529.000     0.000     0.000     0.000     1.000     1.000     1.000     0.000     0.000     0.000

                 VALLEY  SECTION 6.1 (J&A)                        SECT.B

 X1  1628.000    11.000   100.000   135.000    99.000    99.000    99.000     0.000     0.000     0.000
 GR   598.100     0.000   596.600    52.000   592.200   100.000   588.600   106.000   587.700   110.000
 GR   587.600   115.000   588.100   120.000   588.600   125.000   596.000   135.000   596.700   200.000
 GR   598.700   300.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

                 VALLEY  SECTION 8.1 (J&A)                        SECT.C

 X1  2028.000    11.000   100.000   135.000   600.000   600.000   600.000     0.000     0.000     0.000
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GR    598.500     0.000   597.000    52.000   592.600   100.000   589.000   106.000   588.100   110.000
GR    588.000   115.000   588.500   120.000   589.000   125.000   596.400   135.000   597.100   200.000
GR    599.100   300.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

                 VALLEY SECTION 9.1 (MCS)                  SECT.D

X1   2305.000     9.000    91.300   135.300   280.000   280.000   280.000     0.000     0.000     0.000
GR    599.400     0.000   597.400    16.000   593.200    61.300   592.200    91.300   588.200   107.300
GR    588.200   119.300   592.200   135.300   593.200   165.300   597.400   210.600     0.000     0.000

                 VALLEY SECTION 11.1 (MCS)                 SECT.E

X1   2708.000     9.000    91.300   135.300   400.000   400.000   400.000     0.000     0.000     0.000
GR    599.800     0.000   597.800    16.000   593.600    61.300   592.600    91.300   588.600   107.300
GR    588.600   119.300   592.600   135.300   593.600   165.300   597.800   210.600     0.000     0.000

                 VALLEY SECTION 12.1 (MCS)                 SECT.F

X1   2808.000     8.000    91.300   156.000   100.000   100.000   100.000     0.000     0.000     0.000
GR    599.900     0.000   597.900    16.000   593.700    61.300   592.700    91.300   588.700   107.300
GR    588.700   119.300   597.900   156.000   598.400   166.000     0.000     0.000     0.000     0.000

                 VALLEY SECTION 14.1 (MCS)                 SECT.G

X1   3608.000     8.000    91.300   156.000   800.000   800.000   800.000     0.000     0.000     0.000
GR    600.500     0.000   598.500    16.000   594.300    61.300   593.300    91.300   589.300   107.300
GR    589.300   119.300   598.500   156.000   599.000   166.000     0.000     0.000     0.000     0.000

                 VALLEY SECTION 15.1 (MCS)                 SECT.H

X1   4008.000     8.000    91.300   156.000   400.000   400.000   400.000     0.000     0.000     0.000
GR    600.800     0.000   598.800    16.000   594.600    61.300   593.600    91.300   589.600   107.300
GR    589.600   119.300   598.800   156.000   599.300   166.000     0.000     0.000     0.000     0.000

X1   4187.000     7.000    92.000   108.000   179.000   179.000   179.000     0.000     0.000     0.000
GR    599.600     0.000   599.300    50.000   599.400    92.000   589.600    92.000   589.600   108.000
GR    599.500   108.000   600.200   150.000     0.000     0.000     0.000     0.000     0.000     0.000
NC       .040      .040      .033     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1   4188.000     0.000     0.000     0.000     1.000     1.000     1.000     0.000     0.000     0.000
BT      5.000     0.000   599.600     0.000    50.000   599.300     0.000    92.000   599.400   596.600
BT    108.000   599.500   596.600   150.000   600.200     0.000     0.000     0.000     0.000     0.000

                 MILLSTONE DRIVE  BRIDGE SECTION 16.1 (MCS)      SECT.I

                 16' X 7' CONCRETE BOX CULVERT

X1   4256.000     0.000     0.000     0.000    68.000    68.000    68.000     0.000     0.000     0.000
X2      0.000     0.000     0.000     0.000     0.000     0.000     1.000     0.000     0.000     0.000
NC       .042      .042      .036     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1   4257.000     0.000     0.000     0.000     1.000     1.000     1.000     0.000     0.000     0.000
OT      4.000   145.000   210.000   230.000   330.000     0.000     0.000     0.000     0.000     0.000

                 VALLEY SECTION 17.1 (MCS)                 SECT.J
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X1   4376.000     8.000    91.300   156.000   119.000   119.000   119.000     0.000     0.000     0.000
GR    599.100     0.000   598.100    16.000   594.900    61.300   593.900    91.300   589.900   107.300
GR    589.900   119.300   599.100   156.000   599.600   166.000     0.000     0.000     0.000     0.000

                VALLEY SECTION 19.1 (MCS)                    SECT.K

X1   5176.000     8.000    91.300   156.000   800.000   800.000   800.000     0.000     0.000     0.000
GR    599.700     0.000   598.700    16.000   595.500    61.300   594.500    91.300   590.500   107.300
GR    590.500   119.300   599.700   156.000   600.200   166.000     0.000     0.000     0.000     0.000

                VALLEY SECTION 21.1 (MCS)                    SECT.L

X1   5976.000     8.000    91.300   156.000   800.000   800.000   800.000     0.000     0.000     0.000
GR    600.300     0.000   599.300    16.000   596.100    61.300   595.100    91.300   591.100   107.300
GR    591.100   119.300   600.300   156.000   600.800   166.000     0.000     0.000     0.000     0.000

                VALLEY SECTION 23.1 (MCS)                    SECT.M

X1   6776.000     8.000    91.300   156.000   800.000   800.000   800.000     0.000     0.000     0.000
GR    600.900     0.000   599.900    16.000   596.700    61.300   595.700    91.300   591.700   107.300
GR    591.700   119.300   600.900   156.000   601.400   166.000     0.000     0.000     0.000     0.000

                VALLEY SECTION 24.1 (MCS)                    SECT.N

X1   7061.000     8.000    91.300   156.000   285.000   285.000   285.000     0.000     0.000     0.000
GR    601.100     0.000   600.100    16.000   596.900    61.300   595.900    91.300   591.900   107.300
GR    591.900   119.300   601.100   156.000   601.600   166.000     0.000     0.000     0.000     0.000

X1   7210.000    15.000   500.000   516.000   149.000   149.000   149.000     0.000     0.000     0.000
GR    602.100     0.000   601.700   100.000   601.900   200.000   602.200   300.000   602.000   400.000
GR    601.900   500.000   593.000   500.000   592.200   508.000   593.000   516.000   602.000   516.000
GR    601.900   600.000   601.800   700.000   601.700   800.000   601.600   900.000   601.800  1000.000
NC       .045      .045      .020     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1   7211.000     0.000     0.000     0.000     1.000     1.000     1.000     0.000     0.000     0.000
BT     13.000     0.000   602.100     0.000   100.000   601.700     0.000   200.000   601.900     0.000
BT    300.000   602.200     0.000   400.000   602.000     0.000   500.000   601.900   598.900   508.000
BT    601.900   598.900   516.000   602.000   598.900   600.000   601.900     0.000   700.000   601.800
BT      0.000   800.000   601.700     0.000   900.000   601.600     0.000  1000.000   601.800     0.000

                21 MILE ROAD  BRIDGE SECTION 1 (J&A)         SECT.O

X1   7259.000     0.000     0.000     0.000    48.000    48.000    48.000     0.000     0.000     0.000
X2      0.000     0.000     0.000     0.000     0.000     0.000     1.000     0.000     0.000     0.000
NC       .042      .042      .036     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1   7260.000     0.000     0.000     0.000     1.000     1.000     1.000     0.000     0.000     0.000

                VALLEY SECTION 2 (J&A)                       SECT.P

X1   7883.000    15.000   500.000   580.000   623.000   623.000   623.000     0.000     0.000     0.000
GR    601.100     0.000   600.800    66.000   601.100   100.000   600.400   500.000   597.000   518.000
GR    596.100   529.000   592.900   537.000   591.700   543.000   592.100   550.000   600.000   560.000
GR    601.000   600.000   600.400   700.000   600.500   800.000   600.500   900.000   602.000  1000.000

                VALLEY SECTION 3 (J&A)                       SECT.Q
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X1	8623.000	15.000	500.000	616.000	740.000	740.000	740.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	536.000	0.000	577.000	0.000	0.000	0.000	0.000
GR	602.500	0.000	602.700	500.000	598.800	522.000	597.500	533.000	593.800	548.000
GR	593.100	554.000	593.500	560.000	598.100	582.000	599.500	594.000	600.300	600.000
GR	602.500	616.000	602.800	700.000	601.800	800.000	601.300	900.000	601.200	1000.000
X1	8672.000	15.000	500.000	516.000	49.000	49.000	49.000	0.000	0.000	0.000
GR	602.000	0.000	601.600	100.000	601.200	200.000	601.100	300.000	601.500	400.000
GR	602.100	500.000	593.800	500.000	593.900	508.000	593.300	516.000	602.100	516.000
GR	601.500	600.000	600.800	700.000	601.100	800.000	601.000	900.000	600.700	1000.000
NC	.040	.040	.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	8673.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	13.000	0.000	602.000	0.000	100.000	601.600	0.000	200.000	601.200	0.000
BT	300.000	601.100	0.000	400.000	601.500	0.000	500.000	602.100	600.300	508.000
BT	602.100	600.300	516.000	602.100	600.300	600.000	601.500	0.000	700.000	600.800
BT	0.000	800.000	601.100	0.000	900.000	601.000	0.000	1000.000	600.700	0.000

VALLEY FORGE DRIVE BRIDGE SECTION 4 (J&A) SECT.R

X1	8741.000	0.000	0.000	0.000	68.000	68.000	68.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NC	.048	.048	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	8742.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000

VALLEY SECTION 5 (J&A) SECT.S

X1	9573.000	17.000	187.000	220.000	831.000	831.000	831.000	0.000	0.000	0.000
GR	601.200	0.000	602.200	87.000	601.300	147.000	598.500	169.000	597.500	187.000
GR	597.500	187.000	595.500	195.000	594.300	199.000	594.300	204.000	597.800	220.000
GR	598.200	228.000	600.300	249.000	600.500	287.000	600.300	387.000	600.700	487.000
GR	600.700	587.000	601.100	687.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.060	.060	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	4.000	135.000	200.000	220.000	315.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION 6 (J&A) SECT.T

X1	10778.000	15.000	500.000	524.000	1205.000	1205.000	1205.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	602.000	0.000	601.700	100.000	600.900	200.000	601.100	300.000	600.600	400.000
GR	601.100	500.000	598.200	507.000	597.400	512.000	598.300	517.000	601.100	524.000
GR	601.000	600.000	601.400	700.000	600.800	800.000	600.900	900.000	600.900	1000.000
X1	11078.000	0.000	0.000	0.000	300.000	300.000	300.000	0.000	.100	0.000
X3	0.000	0.000	0.000	0.000	0.000	785.000	0.000	0.000	0.000	0.000
X1	11378.000	0.000	0.000	0.000	300.000	300.000	300.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	900.000	0.000	0.000	0.000	0.000
X1	11705.000	18.000	500.000	510.300	327.000	327.000	327.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	147.000	0.000	864.000	0.000	0.000	0.000	0.000
GR	601.900	0.000	601.900	100.000	601.800	200.000	601.600	300.000	601.100	400.000
GR	601.400	460.000	601.600	468.000	601.800	475.000	602.200	500.000	598.000	500.000
GR	597.600	505.000	598.200	510.300	601.900	510.300	600.900	600.000	600.800	700.000
GR	601.400	800.000	601.400	900.000	601.100	1000.000	0.000	0.000	0.000	0.000

NC	.050	.050	.036	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	11706.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	147.000	0.000	864.000	0.000	0.000	0.000	0.000
BT	14.000	147.000	601.900	0.000	200.000	601.800	0.000	300.000	601.600	0.000
BT	400.000	601.100	0.000	460.000	601.400	0.000	468.000	599.900	0.000	475.000
BT	601.800	0.000	500.000	602.200	601.400	505.000	602.000	601.300	510.300	601.900
BT	601.300	600.000	600.900	0.000	700.000	600.800	0.000	800.000	601.400	0.000
BT	864.000	601.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

FARM CULVERT NO.1 BRIDGE SECT. 7 (J&A) SECT.U

X1	11719.000	0.000	0.000	0.000	13.000	13.000	13.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	147.000	0.000	864.000	0.000	0.000	0.000	0.000
NC	.060	.060	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	11720.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	147.000	0.000	864.000	0.000	0.000	0.000	0.000

VALLEY SECTION 8 (J&A) SECT.V

X1	12193.000	13.000	500.000	529.000	473.000	473.000	473.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	269.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	601.000	0.000	601.000	100.000	601.100	200.000	601.900	500.000	598.800	507.000
GR	597.600	513.000	598.200	521.000	601.300	529.000	600.900	600.000	601.600	700.000
GR	602.700	800.000	602.900	900.000	602.400	1000.000	0.000	0.000	0.000	0.000
NC	.060	.060	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	12904.000	15.000	500.000	512.000	711.000	711.000	711.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	451.000	0.000	561.000	0.000	0.000	0.000	0.000
GR	602.900	0.000	602.900	100.000	603.100	200.000	601.900	300.000	602.900	400.000
GR	602.400	490.000	599.400	500.000	598.800	506.000	599.700	512.000	603.100	522.000
GR	602.300	600.000	602.600	700.000	602.900	800.000	603.500	900.000	604.100	1000.000
NC	.050	.050	.060	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	12905.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	451.000	0.000	561.000	0.000	0.000	0.000	0.000
SB	0.000	1.790	2.900	0.000	9.700	0.000	36.800	0.000	598.800	598.800

FARM CULVERT NO.2 BRIDGE SECT. 9 (J&A) SECT.W

X1	12920.000	0.000	0.000	0.000	15.000	15.000	15.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	602.600	602.610	0.000	0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	451.000	0.000	561.000	0.000	0.000	0.000	0.000
BT	6.000	451.000	602.700	0.000	500.000	602.400	599.400	500.000	602.400	601.900
BT	512.000	603.200	602.600	512.000	603.700	599.700	561.000	603.000	0.000	0.000
NC	.060	.060	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	12921.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	451.000	0.000	561.000	0.000	0.000	0.000	0.000

VALLEY SECTION 10 (J&A) SECT.X

X1	13078.000	11.000	500.000	527.000	157.000	157.000	157.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	500.000	0.000	531.000	0.000	0.000	0.000	0.000
GR	604.100	0.000	603.500	500.000	600.100	508.000	599.700	513.000	600.000	521.000

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GR     602.500    527.000    602.200    600.000    604.500    700.000    603.300    800.000    605.200    900.000
GR     604.900   1000.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
EJ       0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000

*PROF 1

CCHV=      .300 CEHV=      .500
*SECNO 1472.000
     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA    LEFT/RIGHT
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN       SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID      ENDST

   1472.00       4.67     592.97       0.00     592.97     593.19        .22       0.00       0.00     600.30
      250.         0.       250.         0.         0.        66.         0.         0.         0.     600.30
      0.00       0.00       3.76       0.00       .045       .039       .045      0.000     588.30     380.00
   .002426         0.         0.         0.          0          0          0       0.00      15.20     395.20

*SECNO 1473.000

3370 NORMAL BRIDGE,NRD= 10 MIN ELTRD=   600.20 MAX ELLC=   595.70

   1473.00       4.67     592.97       0.00       0.00     593.19        .22        .00        .00     600.30
      250.         0.       250.         0.         0.        66.         0.         0.         0.     600.30
       .00       0.00       3.76       0.00       .040       .020       .040       .010     588.30     380.00
   .000637         1.         1.         1.          0          0          0       0.00      15.20     395.20

*SECNO 1528.000

3370 NORMAL BRIDGE,NRD= 10 MIN ELTRD=   600.20 MAX ELLC=   595.70

                  HALL ROAD (M-59)  BRIDGE SECTION 5.1 (J&A)        SECT.A

   1528.00       4.71     593.01       0.00       0.00     593.23        .22        .03        .00     600.30
      250.         0.       250.         0.         0.        67.         0.         0.         0.     600.30
       .00       0.00       3.73       0.00       .040       .020       .040       .019     588.30     380.00
   .000621        55.        55.        55.          2          0          0       0.00      15.20     395.20

*SECNO 1529.000
   1529.00       4.71     593.01       0.00       0.00     593.23        .22        .00        .00     600.30
      250.         0.       250.         0.         0.        67.         0.         0.         0.     600.30
       .00       0.00       3.73       0.00       .042       .036       .042       .019     588.30     380.00
   .002012         1.         1.         1.          0          0          0       0.00      15.20     395.20

*SECNO 1628.000
     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA    LEFT/RIGHT
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN       SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID      ENDST

                  VALLEY SECTION 6.1 (J&A)                              SECT.B

   1628.00       5.69     593.29       0.00       0.00     593.34        .05        .07        .05     592.20
      250.         3.       247.         0.         6.       133.         0.         0.         0.     596.00
       .02        .43       1.86       0.00       .042       .036       .042       .030     587.60      88.11
   .000331        99.        99.        99.          2          0          0       0.00      43.23     131.34
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*SECNO 2028.000

              VALLEY SECTION 8.1 (J&A)                        SECT.C

  2028.00      5.43    593.43    0.00     0.00   593.49     .06     .15      .00   592.60
   250.          1.      249.      0.       4.     125.      0.      2.       0.   596.40
    .08         .40      1.99    0.00     .042     .036    .042    .034   588.00    90.94
 .000405       400.      400.    400.        2        0       0    0.00    40.04   130.99

*SECNO 2305.000

              VALLEY SECTION 9.1 (MCS)                        SECT.D

  2305.00      5.35    593.55    0.00     0.00   593.58     .03     .07      .01   592.20
   250.         11.      229.     11.      26.     171.     26.      3.       1.   592.20
    .14         .41      1.34     .41     .042     .036    .042    .035   588.20    57.61
 .000177       280.      280.    280.        1        0       0    0.00   111.38   168.99

*SECNO 2708.000

              VALLEY SECTION 11.1 (MCS)                       SECT.E

  2708.00      5.03    593.63    0.00     0.00   593.66     .03     .08      .00   592.60
   250.          6.      238.      6.      16.     157.     16.      5.       2.   592.60
    .21         .37      1.51     .37     .042     .036    .042    .035   588.60    60.98
 .000254       400.      400.    400.        2        0       0    0.00   104.64   165.62

*SECNO 2808.000

              VALLEY SECTION 12.1 (MCS)                       SECT.F

  2808.00      4.96    593.66    0.00     0.00   593.69     .04     .03      .00   592.70
   250.          5.      245.      0.      14.     156.      0.      5.       2.   597.90
    .23         .38      1.57    0.00     .042     .036    .042    .035   588.70    62.77
 .000311       100.      100.    100.        0        0       0    0.00    76.28   139.05

*SECNO 3608.000
  SECNO      DEPTH     CWSEL    CRIWS    WSELK     EG       HV      HL     OLOSS   BANK ELEV
   Q         QLOB      QCH      QROB     ALOB      ACH      AROB    VOL    TWA   LEFT/RIGHT
  TIME       VLOB      VCH      VROB     XNL       XNCH     XNR     WTN    ELMIN      SSTA
  SLOPE      XLOBL     XLCH     XLOBR    ITRIAL    IDC      ICONT   CORAR  TOPWID     ENDST

              VALLEY SECTION 14.1 (MCS)                       SECT.G

  3608.00      4.64    593.94    0.00     0.00   593.99     .05     .29      .00   593.30
   250.          2.      248.      0.       6.     141.      0.      8.       3.   593.50
    .36         .34      1.76    0.00     .042     .036    .042    .035   589.30    72.09
 .000427       800.      800.    800.        2        0       0    0.00    65.72   137.81

*SECNO 4008.000

              VALLEY SECTION 15.1 (MCS)                       SECT.H

  4008.00      4.52    594.12    0.00     0.00   594.17     .05     .18      .00   593.60
   250.          1.      249.      0.       4.     135.      0.      9.       4.   593.80
    .42         .32      1.84    0.00     .042     .036    .042    .036   589.60    75.70
 .000485       400.      400.    400.        2        0       0    0.00    61.63   137.33
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*SECNO 4187.000
  4187.00      4.60    594.20      0.00      0.00    594.38       .18       .15       .06    599.40
   250.          0.      250.         0.        0.       74.        0.       10.        4.     599.50
    .43        0.00      3.40      0.00      .042      .036      .042      .036    589.60     92.00
 .001620       179.      179.      179.         0         0         0      0.00     16.00    108.00

*SECNO 4188.000

3370 NORMAL BRIDGE,NRD=  5 MIN ELTRD=  599.30 MAX ELLC=  596.60

  4188.00      4.60    594.20      0.00      0.00    594.38       .18       .00       .00    599.40
   250.          0.      250.         0.        0.       74.        0.       10.        4.     599.50
    .43        0.00      3.39      0.00      .040      .033      .040      .036    589.60     92.00
 .001360         1.        1.        1.         0         0         0      0.00     16.00    108.00

*SECNO 4256.000

3370 NORMAL BRIDGE,NRD=  5 MIN ELTRD=  599.30 MAX ELLC=  596.60

                 MILLSTONE DRIVE  BRIDGE SECTION 16.1 (MCS)       SECT.I

                 16' X 7' CONCRETE BOX CULVERT

  4256.00      4.70    594.30      0.00      0.00    594.47       .17       .09       .00    599.40
   250.          0.      250.         0.        0.       75.        0.       10.        4.     599.50
    .44        0.00      3.32      0.00      .040      .033      .040      .035    589.60     92.00
 .001278        68.       68.       68.         0         0         0      0.00     16.00    108.00

*SECNO 4257.000
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST

  4257.00      4.70    594.30      0.00      0.00    594.48       .17       .00       .00    599.40
   250.          0.      250.         0.        0.       75.        0.       10.        4.     599.50
    .44        0.00      3.32      0.00      .042      .036      .042      .035    589.60     92.00
 .001522         1.        1.        1.         0         0         0      0.00     16.00    108.00

*SECNO 4376.000

                 VALLEY SECTION 17.1 (MCS)                        SECT.J

  4376.00      4.65    594.55      0.00      0.00    594.59       .04       .08       .04    593.90
   230.          2.      228.         0.        6.      142.        0.       10.        4.     599.10
    .46         .32      1.61      0.00      .042      .036      .042      .035    589.90     71.67
 .000356       119.      119.      119.         2         0         0      0.00     66.20    137.87

*SECNO 5176.000

                 VALLEY SECTION 19.1 (MCS)                        SECT.K

  5176.00      4.38    594.88      0.00      0.00    594.93       .05       .33       .00    594.50
   230.          1.      229.         0.        2.      129.        0.       13.        5.     599.70
    .58         .25      1.78      0.00      .042      .036      .042      .036    590.50     80.07
 .000480       800.      800.      800.         2         0         0      0.00     56.68    136.75
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*SECNO 5976.000

              VALLEY SECTION 21.1 (MCS)                           SECT.L

 5976.00      4.20    595.30     0.00      0.00    595.35       .06       .42       .00    595.10
   230.        0.       230.       0.        1.      121.        0.       15.        6.    600.30
    .70        .18      1.90     0.00      .042      .036      .042      .036    591.10     85.35
 .000584      800.      800.      800.        2         0         0      0.00     50.69    136.05

*SECNO 6776.000

              VALLEY SECTION 23.1 (MCS)                           SECT.M

 6776.00      4.09    595.79     0.00      0.00    595.85       .06       .50       .00    595.70
   230.        0.       230.       0.        0.      116.        0.       17.        7.    600.90
    .81        .12      1.98     0.00      .042      .036      .042      .036    591.70     88.54
 .000659      800.      800.      800.        2         0         0      0.00     47.08    135.62

*SECNO 7061.000
   SECNO     DEPTH     CWSEL     CRIWS     WSELK      EG        HV        HL       OLOSS   BANK ELEV
     Q       QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN      ELMIN     SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR    TOPWID    ENDST

              VALLEY SECTION 24.1 (MCS)                           SECT.N

 7061.00      4.08    595.98     0.00      0.00    596.04       .06       .19       .00    595.90
   230.        0.       230.       0.        0.      115.        0.       18.        8.    601.10
    .85        .01      2.00     0.00      .042      .036      .042      .036    591.90     89.03
 .000672      285.      285.      285.        1         0         0      0.00     46.52    135.56

*SECNO 7210.000
 7210.00      3.86    596.06     0.00      0.00    596.33       .27       .18       .10    601.90
   230.        0.       230.       0.        0.       56.        0.       18.        8.    602.00
    .86       0.00      4.14     0.00      .042      .036      .042      .036    592.20    500.00
 .002966      149.      149.      149.        1         0         0      0.00     16.00    516.00

*SECNO 7211.000

3370 NORMAL BRIDGE,NRD= 13 MIN ELTRD=  601.60 MAX ELLC=  598.90

 7211.00      3.86    596.06     0.00      0.00    596.33       .27       .00       .00    601.90
   230.        0.       230.       0.        0.       55.        0.       18.        8.    602.00
    .86       0.00      4.15     0.00      .045      .020      .045      .036    592.20    500.00
 .000921        1.        1.        1.        0         0         0      0.00     16.00    516.00

*SECNO 7259.000

3370 NORMAL BRIDGE,NRD= 13 MIN ELTRD=  601.60 MAX ELLC=  598.90

              21 MILE ROAD  BRIDGE SECTION 1 (J&A)                SECT.O

 7259.00      3.92    596.12     0.00      0.00    596.38       .26       .04       .00    601.90
   230.        0.       230.       0.        0.       56.        0.       18.        8.    602.00
    .87       0.00      4.09     0.00      .045      .020      .045      .036    592.20    500.00
 .000881       48.       48.       48.        2         0         0      0.00     16.00    516.00
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*SECNO 7260.000
    7260.00      3.92    596.12      0.00      0.00    596.38       .26       .00       .00    601.90
     230.          0.      230.        0.        0.       56.        0.       18.        8.    602.00
       .87       0.00      4.09      0.00      .042      .036      .042      .036    592.20    500.00
   .002853         1.        1.        1.         0         0         0      0.00     16.00    516.00

*SECNO 7883.000
      SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS  BANK ELEV
          Q      QLOB       QCH      QROB      ALOB       ACH      AROB       VOL       TWA  LEFT/RIGHT
       TIME      VLOB       VCH      VROB       XNL      XNCH       XNR       WTN     ELMIN       SSTA
      SLOPE     XLOBL      XLCH     XLOBR    ITRIAL       IDC     ICONT     CORAR    TOPWID      ENDST

                      VALLEY SECTION 2 (J&A)                              SECT.P

    7883.00      5.30    597.00      0.00      0.00    597.05       .05       .61       .06    600.40
     230.          0.      230.        0.        0.      134.        0.       20.        8.    600.00
       .97       0.00      1.71      0.00      .042      .036      .042      .036    591.70    518.01
   .000485       623.      623.      623.         2         0         0      0.00     50.59    568.60

*SECNO 8623.000

3470 ENCROACHMENT STATIONS=      536.0      577.0   TYPE=     1  TARGET=       41.000

                      VALLEY SECTION 3 (J&A)                              SECT.O

    8623.00      4.32    597.42      0.00      0.00    597.49       .07       .43       .01100000.00
     230.          0.      230.        0.        0.      111.        0.       22.        9. 100000.00
      1.07       0.00      2.08      0.00      .042      .036      .042      .036    593.10    536.00
   .000712       740.      740.      740.         3         0         0      0.00     41.00    577.00

*SECNO 8672.000
    8672.00      4.10    597.40      0.00      0.00    597.64       .24       .06       .09    602.10
     230.          0.      230.        0.        0.       59.        0.       22.        9.    602.10
      1.07       0.00      3.91      0.00      .042      .036      .042      .036    593.30    500.00
   .002681        49.       49.       49.         2         0         0      0.00     16.00    516.00

*SECNO 8673.000

3370 NORMAL BRIDGE,NRD= 13 MIN ELTRD=   600.70 MAX ELLC=   600.30

    8673.00      4.10    597.40      0.00      0.00    597.64       .24       .00       .00    602.10
     230.          0.      230.        0.        0.       59.        0.       22.        9.    602.10
      1.07       0.00      3.91      0.00      .040      .020      .040      .036    593.30    500.00
   .000826         1.        1.        1.         0         0         0      0.00     16.00    516.00

*SECNO 8741.000

3370 NORMAL BRIDGE,NRD= 13 MIN ELTRD=   600.70 MAX ELLC=   600.30

                      VALLEY FORGE DRIVE  BRIDGE SECTION 4 (J&A)       SECT.R

    8741.00      4.17    597.47      0.00      0.00    597.69       .23       .05       .00    602.10
     230.          0.      230.        0.        0.       60.        0.       22.        9.    602.10
      1.08       0.00      3.84      0.00      .040      .020      .040      .035    593.30    500.00
   .000785        68.       68.       68.         2         0         0      0.00     16.00    516.00

*SECNO 8742.000
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  SECNO     DEPTH     CWSEL     CRIWS     WSELK      EG        HV        HL       OLOSS   BANK ELEV
  Q         QLOB      QCH       QROB      ALOB       ACH       AROB      VOL      TWA     LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL        XNCH      XNR       WTN      ELMIN      SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL     IDC       ICONT     CORAR    TOPWID     ENDST

 8742.00     4.17    597.47      0.00      0.00    597.70       .23       .00       .00    602.10
  230.        0.      230.        0.        0.       60.        0.       22.        9.     602.10
    1.08     0.00      3.84      0.00      .048      .040      .048      .035    593.30    500.00
 .003137      1.        1.        1.         0         0         0      0.00     16.00    516.00

*SECNO 9573.000

                VALLEY SECTION 5 (J&A)                          SECT.S

 9573.00     4.51    598.81      0.00      0.00    598.88       .07      1.13       .05    597.50
  230.       11.      214.        6.       15.      101.        8.       24.       10.     597.60
    1.19      .73      2.12       .66      .048      .040      .048      .036    594.30    166.56
 .000759     831.      831.      831.         2         0         0      0.00     67.55    234.11

*SECNO 10778.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      601.10 ELREA=      601.10

                VALLEY SECTION 6 (J&A)                          SECT.T

10778.00     3.33    600.73      0.00      0.00    601.11       .39      2.07       .16    601.10
  220.        0.      220.        0.        0.       44.        0.       26.       11.     601.10
    1.26     0.00      4.99      0.00      .060      .040      .060      .036    597.40    500.90
 .007719    1205.     1205.     1265.         3         0         0      0.00     22.16    523.06

*SECNO 11078.000
3280 CROSS SECTION  11078.00 EXTENDED       .62 FEET

3470 ENCROACHMENT STATIONS=         .0      785.0  TYPE=       1  TARGET=      784.999
11078.00     4.12    601.62      0.00      0.00    601.64       .02       .42       .11    601.20
  220.       87.      102.       31.      211.       63.      100.       27.       13.     601.20
    1.34      .41      1.62       .31      .060      .040      .060      .037    597.50    122.20
 .000561     300.      300.      300.         3         0         0      0.00    662.80    785.00

*SECNO 11378.000
3280 CROSS SECTION  11378.00 EXTENDED       .75 FEET

3470 ENCROACHMENT STATIONS=         .0      900.0  TYPE=       1  TARGET=      899.999
11378.00     4.25    601.75      0.00      0.00    601.75       .01       .11       .00    601.20
  220.       81.       74.       65.      260.       66.      225.       31.       19.     601.20
    1.49      .31      1.12       .29      .060      .040      .060      .037    597.50    106.31
 .000255     300.      300.      300.         3         0         0      0.00    793.69    900.00

*SECNO 11705.000

3265 DIVIDED FLOW

3280 CROSS SECTION  11705.00 EXTENDED       .77 FEET
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SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       LEFT/RIGHT
TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


3470 ENCROACHMENT STATIONS=     147.0     864.0  TYPE=      1  TARGET=      717.000
 11705.00      4.26    601.86      0.00      0.00    601.87       .01       .12       .00    602.20
     220.       38.       62.      120.      112.       41.      251.       34.       24.    601.90
     1.61       .34      1.49       .48      .060      .040      .060      .037    597.60    147.00
  .000524      327.      327.      327.         1         0         0      0.00    693.43    864.00

*SECNO 11706.000

3265 DIVIDED FLOW

3280 CROSS SECTION  11706.00 EXTENDED       .76 FEET


3370 NORMAL BRIDGE,NRD= 14 MIN ELTRD=  599.90 MAX ELLC=  601.40

3470 ENCROACHMENT STATIONS=     147.0     864.0  TYPE=      1  TARGET=      717.000
 11706.00      4.27    601.87      0.00      0.00    601.87       .01       .00       .00    602.20
     220.       43.       39.      138.      109.       36.      248.       34.       24.    601.90
     1.61       .40      1.08       .56      .050      .036      .050      .037    597.60    147.00
  .000499        1.        1.        1.         0         0         0     -5.70    692.15    864.00

*SECNO 11719.000

3265 DIVIDED FLOW

3280 CROSS SECTION  11719.00 EXTENDED       .77 FEET


3370 NORMAL BRIDGE,NRD= 14 MIN ELTRD=  599.90 MAX ELLC=  601.40

3470 ENCROACHMENT STATIONS=     147.0     864.0  TYPE=      1  TARGET=      717.000

                     FARM CULVERT NO.1  BRIDGE SECT. 7 (J&A)          SECT.U

 11719.00      4.27    601.87      0.00      0.00    601.88       .01       .01       .00    602.20
     220.       44.       38.      138.      113.       36.      252.       34.       24.    601.90
     1.62       .39      1.05       .55      .050      .036      .050      .037    597.60    147.00
  .000472       13.       13.       13.         0         0         0     -6.20    694.21    864.00


*SECNO 11720.000

3265 DIVIDED FLOW

3280 CROSS SECTION  11720.00 EXTENDED       .77 FEET


3470 ENCROACHMENT STATIONS=     147.0     864.0  TYPE=      1  TARGET=      717.000
 11720.00      4.27    601.87      0.00      0.00    601.88       .01       .00       .00    602.20
     220.       39.       61.      120.      114.       41.      253.       34.       24.    601.90
     1.62       .34      1.47       .48      .060      .040      .060      .037    597.60    147.00
  .000514        1.        1.        1.         0         0         0      0.00    694.30    864.00
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*SECNO 12193.000

3470 ENCROACHMENT STATIONS=      269.0      1000.0   TYPE=       1   TARGET=      -269.000

                VALLEY SECTION 8 (J&A)                           SECT.V

   12193.00       4.47    602.07      0.00      0.00    602.09       .02       .20       .00    601.90
       220.        31.      123.       66.      110.       87.      160.       38.       31.    601.30
       1.76        .28      1.41       .41      .060      .040      .060      .037    597.60    269.00
   .000353        473.      473.      473.         2         0         0      0.00    473.51    742.51

*SECNO 12904.000
     SECNO       DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS  BANK ELEV
         Q        QLOB       QCH      QROB      ALOB       ACH      AROB       VOL       TWA  LEFT/RIGHT
      TIME        VLOB       VCH      VROB       XNL      XNCH       XNR       WTN     ELMIN      SSTA
     SLOPE       XLOBL      XLCH     XLOBR    ITRIAL       IDC     ICONT     CORAR    TOPWID     ENDST

3470 ENCROACHMENT STATIONS=      451.0       561.0   TYPE=       1   TARGET=       110.000
   12904.00       3.70    602.50      0.00      0.00    602.74       .24       .55       .11    599.40
       220.        28.      174.       18.       17.       40.       12.       42.       35.    599.70
       1.81       1.65      4.35      1.58      .060      .040      .060      .037    598.80    471.56
   .002790        711.      711.      711.         2         0         0      0.00     48.69    520.24

*SECNO 12905.000

3470 ENCROACHMENT STATIONS=      451.0       561.0   TYPE=       1   TARGET=       110.000
   12905.00       3.82    602.62      0.00      0.00    602.77       .15       .00       .03    599.40
       220.        46.      145.       29.       22.       41.       13.       42.       35.    599.70
       1.81       2.14      3.50      2.30      .050      .060      .050      .037    598.80    451.00
   .003874          1.        1.        1.         2         0         0      0.00     69.59    520.59

SPECIAL BRIDGE

SB   XK         XKOR       COFQ      RDLEN       BWC       BWP      BAREA       SS      ELCHU     ELCHD
       0.00      1.79       2.90      0.00      9.70      0.00     36.80      0.00    598.80    598.80
*SECNO 12920.000

3265 DIVIDED FLOW

PRESSURE AND WEIR FLOW

  EGPRS      EGLWC        H3       QWEIR       QPR       BAREA   TRAPEZOID     ELLC      ELTRD
                                                                    AREA
    603.62     602.77      0.00       67.      154.       37.       37.     602.60    602.61

3470 ENCROACHMENT STATIONS=      451.0       561.0   TYPE=       1   TARGET=       110.000

                FARM CULVERT NO.2  BRIDGE SECT. 9 (J&A)          SECT.W

   12920.00       4.23    603.03      0.00      0.00    603.11       .08       .34      0.00    599.40
       220.        63.      125.       32.       42.       46.       22.       42.       35.    599.70
       1.81       1.51      2.71      1.45      .050      .060      .050      .037    598.80    451.00
   .002000         15.       15.       15.         2         0         2      0.00    103.14    561.00
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*SECNO 12921.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=      451.0      561.0  TYPE=       1  TARGET=       110.000
   12921.00        4.21    603.01      0.00      0.00    603.14       .13       .00       .03    599.40
     220.           43.      156.       21.       41.       46.       21.       42.       35.    599.70
       1.81        1.05      3.39      1.03      .060      .040      .060      .037    598.80    451.00
     .001407         1.        1.        1.         2         0         0      0.00    100.67    561.00

*SECNO 13078.000

3470 ENCROACHMENT STATIONS=      500.0      531.0  TYPE=       1  TARGET=        31.000

                VALLEY SECTION 10 (J&A)                               SECT.X

   13078.00        3.57    603.27      0.00      0.00    603.42       .16       .27       .01    603.50
     220.            0.      217.        3.        0.       63.        3.       42.       35.    602.50
       1.82        0.00      3.18       .87      .060      .040      .060      .037    599.70    500.53
     .002197       157.      157.      157.         0         0         0      0.00     30.47    531.00
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*****************************************************
 HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
 ERROR CORR -  01,02
 MODIFICATION -  50,51,52,53
*****************************************************


 T1              MACOMB TWP. FIS J&A FILE NO. 5850-03-1
 T2              100 YEAR FLOOD
 T3              CRITTENDEN DRAIN

 J1  ICHECK     INQ      NINV      IDIR      STRT     METRIC     HVINS       Q        WSEL       FQ
          0.        4.        0.        0.  0.000000      0.00       0.0        0.   592.970     0.000

 J2  NPROF      IPLOT     PRFVS     XSECV     XSECH       FN      ALLDC      IBW      CHNIM     ITRACE
        3.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
```

*PROF 3

CCHV= .300 CEHV= .500

*SECNO 1472.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
1472.00	4.67	592.97	0.00	592.97	593.19	.22	0.00	0.00	600.30
250.	0.	250.	0.	0.	66.	0.	0.	0.	600.30
0.00	0.00	3.76	0.00	.045	.039	.045	0.000	588.30	380.00
.002426	0.	0.	0.	0	0	0	0.00	15.20	395.20

Starting WSEL from Gloede Ditch see Hydraulic Book

*SECNO 1473.000

3370 NORMAL BRIDGE,NRD= 10 MIN ELTRD= 600.20 MAX ELLC= 595.70

1473.00	4.67	592.97	0.00	0.00	593.19	.22	.00	.00	600.30
250.	0.	250.	0.	0.	66.	0.	0.	0.	600.30
.00	0.00	3.76	0.00	.040	.020	.040	.010	588.30	380.00
.000637	1.	1.	1.	0	0	0	0.00	15.20	395.20

*SECNO 1528.000

3370 NORMAL BRIDGE,NRD= 10 MIN ELTRD= 600.20 MAX ELLC= 595.70

HALL ROAD (M-59) BRIDGE SECTION 5.1 (J&A) SECT.A

1528.00	4.71	593.01	0.00	0.00	593.23	.22	.03	.00	600.30
250.	0.	250.	0.	0.	67.	0.	0.	0.	600.30
.00	0.00	3.73	0.00	.040	.020	.040	.019	588.30	380.00
.000621	55.	55.	55.	2	0	0	0.00	15.20	395.20

*SECNO 1529.000

1529.00	4.71	593.01	0.00	0.00	593.23	.22	.00	.00	600.30
250.	0.	250.	0.	0.	67.	0.	0.	0.	600.30
.00	0.00	3.73	0.00	.042	.036	.042	.019	588.30	380.00
.002012	1.	1.	1.	0	0	0	0.00	15.20	395.20

*SECNO 1628.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3470 ENCROACHMENT STATIONS= 100.0 300.0 TYPE= 1 TARGET= -100.000

VALLEY SECTION 6.1 (J&A) SECT.B

1628.00	5.69	593.29	0.00	0.00	593.35	.05	.07	.05	592.20
250.	0.	250.	0.	0.	133.	0.	0.	0.	596.00
.02	0.00	1.88	0.00	.042	.036	.042	.030	587.60	100.00
.000354	99.	99.	99.	2	0	0	0.00	31.34	131.34

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*SECNO 2028.000

3470 ENCROACHMENT STATIONS=      100.0      300.0  TYPE=      1  TARGET=      -100.000

              VALLEY SECTION 8.1 (J&A)                          SECT.C

     2028.00     5.44   593.44     0.00     0.00   593.50      .06      .15      .00   592.60
      250.        0.     250.        0.       0.     125.       0.       1.       0.    596.40
        .07     0.00     2.00     0.00     .042     .036     .042     .034   588.00   100.00
    .000422     400.     400.     400.        2        0        0     0.00    31.00   131.00

*SECNO 2305.000

3470 ENCROACHMENT STATIONS=       91.3      135.3  TYPE=      1  TARGET=        44.000

              VALLEY SECTION 9.1 (MCS)                          SECT.D

     2305.00     5.36   593.56     0.00     0.00   593.60      .03      .08      .01   592.20
      250.        0.     250.        0.       0.     172.       0.       2.       1. 100000.00
        .13     0.00     1.46     0.00     .042     .036     .042     .035   588.20    91.30
    .000226     280.     280.     280.        1        0        0     0.00    44.00   135.30

*SECNO 2708.000

3470 ENCROACHMENT STATIONS=       91.3      135.3  TYPE=      1  TARGET=        44.000

              VALLEY SECTION 11.1 (MCS)                         SECT.E

     2708.00     5.06   593.66     0.00     0.00   593.70      .04      .10      .00   592.60
      250.        0.     250.        0.       0.     159.       0.       4.       1. 100000.00
        .20     0.00     1.57     0.00     .042     .036     .042     .035   588.60    91.30
    .000289     400.     400.     400.        2        0        0     0.00    44.00   135.30

*SECNO 2808.000

3470 ENCROACHMENT STATIONS=       91.3      166.0  TYPE=      1  TARGET=       -91.300

              VALLEY SECTION 12.1 (MCS)                         SECT.F

     2808.00     4.99   593.69     0.00     0.00   593.73      .04      .03      .00   592.70
      250.        0.     250.        0.       0.     157.       0.       4.       1.    597.90
        .22     0.00     1.59     0.00     .042     .036     .042     .035   588.70    91.30
    .000322     100.     100.     100.        0        0        0     0.00    47.90   139.20

*SECNO 3608.000
      SECNO    DEPTH    CWSEL    CRIWS    WSELK       EG       HV       HL    OLOSS  BANK ELEV
          Q     QLOB      QCH     QROB     ALOB      ACH     AROB      VOL      TWA  LEFT/RIGHT
       TIME     VLOB      VCH     VROB      XNL     XNCH      XNR      WTN    ELMIN     SSTA
      SLOPE    XLOBL     XLCH    XLOBR   ITRIAL      IDC    ICONT    CORAR   TOPWID    ENDST


3470 ENCROACHMENT STATIONS=       91.3      166.0  TYPE=      1  TARGET=       -91.300

              VALLEY SECTION 14.1 (MCS)                         SECT.G

     3608.00     4.68   593.98     0.00     0.00   594.03      .05      .29      .00   593.30
      250.        0.     250.        0.       0.     143.       0.       7.       2.    598.50
        .34     0.00     1.75     0.00     .042     .036     .042     .035   589.30    91.30
    .000426     800.     800.     800.        2        0        0     0.00    46.68   137.98
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*SECNO 4008.000

3470 ENCROACHMENT STATIONS=        91.3      166.0  TYPE=      1  TARGET=       -91.300

                    VALLEY SECTION 15.1 (MCS)                       SECT.H

  4008.00      4.56    594.16      0.00      0.00    594.21      .05       .18       .00    593.60
    250.         0.      250.        0.        0.      137.       0.        8.        2.    593.80
     .40       0.00      1.82      0.00      .042      .036     .042      .036    589.60     91.30
 .000479       400.      400.      400.         2         0        0      0.00     45.20    137.50

*SECNO 4187.000
  4187.00      4.64    594.24      0.00      0.00    594.42      .18       .14       .06    599.40
    250.         0.      250.        0.        0.       74.       0.        9.        3.    599.50
     .42       0.00      3.37      0.00      .042      .036     .042      .036    589.60     92.00
 .001580       179.      179.      179.         0         0        0      0.00     16.00    108.00

*SECNO 4188.000

3370 NORMAL BRIDGE,NRD=  5 MIN ELTRD=  599.30 MAX ELLC=  596.60

  4188.00      4.64    594.24      0.00      0.00    594.42      .18       .00       .00    599.40
    250.         0.      250.        0.        0.       74.       0.        9.        3.    599.50
     .42       0.00      3.36      0.00      .040      .033     .040      .036    589.60     92.00
 .001327         1.        1.        1.         0         0        0      0.00     16.00    108.00

*SECNO 4256.000

3370 NORMAL BRIDGE,NRD=  5 MIN ELTRD=  599.30 MAX ELLC=  596.60

                    MILLSTONE DRIVE  BRIDGE SECTION 16.1 (MCS)       SECT.I

                    16' X 7' CONCRETE BOX CULVERT

  4256.00      4.74    594.34      0.00      0.00    594.51      .17       .09       .00    599.40
    250.         0.      250.        0.        0.       76.       0.        9.        3.    599.50     .17 x .4 - .07
     .42       0.00      3.29      0.00      .040      .033     .040      .035    589.60     92.00           .13
 .001249        68.       68.       68.         0         0        0      0.00     16.00    108.00           0

*SECNO 4257.000
   SECNO      DEPTH     CWSEL     CRIWS     WSELK        EG       HV        HL     OLOSS  BANK ELEV
       Q       QLOB       QCH      QROB      ALOB       ACH     AROB       VOL       TWA  LEFT/RIGHT
    TIME       VLOB       VCH      VROB       XNL      XNCH      XNR       WTN     ELMIN      SSTA    hf = 1
   SLOPE      XLOBL      XLCH     XLOBR    ITRIAL       IDC    ICONT     CORAR    TOPWID     ENDST    he = .07
                                                                                                      .17   ΔEL = .09   close

  4257.00      4.74    594.34      0.00      0.00    594.51      .17       .00       .00    599.40
    250.         0.      250.        0.        0.       75.       0.        9.        3.    599.50
     .42       0.00      3.29      0.00      .042      .036     .042      .035    589.60     92.00
 .001487         1.        1.        1.         0         0        0      0.00     16.00    108.00

*SECNO 4376.000

3470 ENCROACHMENT STATIONS=        91.3      166.0  TYPE=      1  TARGET=       -91.300

                    VALLEY SECTION 17.1 (MCS)                       SECT.J

  4376.00      4.69    594.59      0.00      0.00    594.63      .04       .08       .04    593.90
    230.         0.      230.        0.        0.      143.       0.        9.        3.    599.10
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      .45      0.00      1.61      0.00      .042      .036      .042      .035    589.90     91.30
  .000359      119.      119.      119.         2         0         0      0.00     46.70    138.00

 *SECNO 5176.000

 3470 ENCROACHMENT STATIONS=      91.3     156.0  TYPE=     1  TARGET=      64.700

                 VALLEY SECTION 19.1 (MCS)                       SECT.K

  5176.00      4.41    594.91      0.00      0.00    594.96       .05       .33       .00    594.50
     230.        0.      230.        0.        0.      130.        0.       12.        3. 100000.00
      .57      0.00      1.77      0.00      .042      .036      .042      .036    590.50     91.30
  .000473      800.      800.      800.         2         0         0      0.00     45.58    136.88

 *SECNO 5976.000

                 VALLEY SECTION 21.1 (MCS)                       SECT.L

  5976.00      4.22    595.32      0.00      0.00    595.38       .06       .41       .00    595.10
     230.        0.      230.        0.        1.      122.        0.       14.        4.    600.30
      .69       .19      1.89      0.00      .042      .036      .042      .036    591.10     84.63
  .000568      800.      800.      800.         2         0         0      0.00     51.52    136.14

 *SECNO 6776.000

                 VALLEY SECTION 23.1 (MCS)                       SECT.M

  6776.00      4.11    595.81      0.00      0.00    595.87       .06       .49       .00    595.70
     230.        0.      230.        0.        0.      117.        0.       16.        5.    600.90
      .80       .13      1.97      0.00      .042      .036      .042      .036    591.70     88.14
  .000649      800.      800.      800.         2         0         0      0.00     47.54    135.68

 *SECNO 7061.000
    SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS  BANK ELEV
        Q      QLOB       QCH      QROB      ALOB       ACH      AROB       VOL       TWA LEFT/RIGHT
     TIME      VLOB       VCH      VROB       XNL      XNCH       XNR       WTN     ELMIN      SSTA
    SLOPE     XLOBL      XLCH     XLOBR    ITRIAL       IDC     ICONT     CORAR    TOPWID     ENDST

                 VALLEY SECTION 24.1 (MCS)                       SECT.N

  7061.00      4.09    595.99      0.00      0.00    596.05       .06       .19       .00    595.90
     230.        0.      230.        0.        0.      116.        0.       17.        6.    601.10
      .84       .11      1.99      0.00      .042      .036      .042      .036    591.90     88.73
  .000664      285.      285.      285.         1         0         0      0.00     46.87    135.60

 *SECNO 7210.000
  7210.00      3.87    596.07      0.00      0.00    596.34       .26       .18       .10    601.90
     230.        0.      230.        0.        0.       56.        0.       17.        6.    602.00
      .85      0.00      4.13      0.00      .042      .036      .042      .036    592.20    500.00
  .002943      149.      149.      149.         1         0         0      0.00     16.00    516.00

 *SECNO 7211.000

 3370 NORMAL BRIDGE,NRD= 13 MIN ELTRD=   601.60 MAX ELLC=   598.90

  7211.00      3.87    596.07      0.00      0.00    596.34       .27       .00       .00    601.90
     230.        0.      230.        0.        0.       56.        0.       17.        6.    602.00
      .85      0.00      4.14      0.00      .045      .020      .045      .036    592.20    500.00
```

```
 .000914      1.       1.       1.        0         0         0       0.00     16.00    516.00

*SECNO 7259.000

3370 NORMAL BRIDGE,NRD= 13 MIN ELTRD=   601.60 MAX ELLC=   598.90

                   21 MILE ROAD  BRIDGE SECTION 1 (J&A)              SECT.O

  7259.00     3.93   596.13     0.00      0.00    596.38      .26       .04       .00    601.90
   230.        0.      230.       0.        0.       56.       0.       17.        6.    602.00
      .85     0.00     4.08     0.00      .045      .020     .045      .036    592.20    500.00
  .000875     48.      48.      48.        2         0         0       0.00     16.00    516.00

*SECNO 7260.000
  7260.00     3.93   596.13     0.00      0.00    596.39      .26       .00       .00    601.90
   230.        0.      230.       0.        0.       56.       0.       17.        6.    602.00
      .85     0.00     4.08     0.00      .042      .036     .042      .036    592.20    500.00
  .002832      1.       1.       1.        0         0         0       0.00     16.00    516.00

*SECNO 7883.000
    SECNO    DEPTH    CWSEL    CRIWS     WSELK      EG       HV        HL       OLOSS   BANK ELEV
    Q        QLOB     QCH      QROB      ALOB      ACH      AROB      VOL       TWA   LEFT/RIGHT
    TIME     VLOB     VCH      VROB      XNL       XNCH     XNR       WTN       ELMIN     SSTA
    SLOPE    XLOBL    XLCH     XLOBR     ITRIAL    IDC      ICONT     CORAR     TOPWID    ENDST

                   VALLEY SECTION 2 (J&A)                               SECT.P

  7883.00     5.31   597.01     0.00      0.00    597.05      .05       .60       .06    600.40
   230.        0.      230.       0.        0.      135.       0.       19.        6.    600.00
      .96     0.00     1.71     0.00      .042      .036     .042      .036    591.70    517.98
  .000484    623.     623.     623.        2         0         0       0.00     50.64    568.62

*SECNO 8623.000

3470 ENCROACHMENT STATIONS=       536.0      577.0  TYPE=      1  TARGET=      41.000

                   VALLEY SECTION 3 (J&A)                               SECT.Q

  8623.00     4.33   597.43     0.00      0.00    597.49      .07       .43       .01100000.00
   230.        0.      230.       0.        0.      111.       0.       21.        7. 100000.00
     1.06     0.00     2.07     0.00      .042      .036     .042      .036    593.10    536.00
  .000709    740.     740.     740.        3         0         0       0.00     41.00    577.00

*SECNO 8672.000
  8672.00     4.10   597.40     0.00      0.00    597.64      .24       .06       .09    602.10
   230.        0.      230.       0.        0.       59.       0.       21.        7.    602.10
     1.05     0.00     3.91     0.00      .042      .036     .042      .036    593.30    500.00
  .002673     49.      49.      49.        2         0         0       0.00     16.00    516.00

*SECNO 8673.000

3370 NORMAL BRIDGE,NRD= 13 MIN ELTRD=   600.70 MAX ELLC=   600.30

  8673.00     4.10   597.40     0.00      0.00    597.64      .24       .00       .00    602.10
   230.        0.      230.       0.        0.       59.       0.       21.        7.    602.10
     1.06     0.00     3.91     0.00      .040      .020     .040      .036    593.30    500.00
  .000824      1.       1.       1.        0         0         0       0.00     16.00    516.00
```

16x7' Box culvert

hf = .04
.26x.5 = .13'
.17'

[illegible] .06 = .11ft ≈ .17'

```
*SECNO 8741.000

3370 NORMAL BRIDGE,NRD= 13 MIN ELTRD=   600.70 MAX ELLC=   600.30

                    VALLEY FORGE DRIVE  BRIDGE SECTION 4 (J&A)        SECT.R

   8741.00      4.17    597.47     0.00      0.00    597.70      .23       .05       .00    602.10
      230.        0.      230.       0.        0.       60.       0.       21.        7.     602.10
      1.06      0.00      3.84     0.00      .040      .020     .040      .035    593.30    500.00
   .000783       68.       68.      68.         2         0        0      0.00     16.00    516.00

*SECNO 8742.000
    SECNO     DEPTH     CWSEL     CRIWS     WSELK       EG        HV        HL     OLOSS   BANK ELEV
        Q      QLOB       QCH      QROB      ALOB      ACH      AROB       VOL       TWA  LEFT/RIGHT
     TIME      VLOB       VCH      VROB       XNL      XNCH      XNR       WTN     ELMIN      SSTA
    SLOPE     XLOBL      XLCH     XLOBR    ITRIAL      IDC     ICONT     CORAR    TOPWID     ENDST

   8742.00      4.17    597.47     0.00      0.00    597.70      .23       .00       .00    602.10
      230.        0.      230.       0.        0.       60.       0.       21.        7.     602.10
      1.06      0.00      3.84     0.00      .048      .040     .048      .035    593.30    500.00
   .003129        1.        1.       1.         0         0        0      0.00     16.00    516.00

*SECNO 9573.000

                    VALLEY SECTION 5 (J&A)                                SECT.S

   9573.00      4.51    598.81     0.00      0.00    598.88      .07      1.13       .05    597.50
      230.       11.      214.       6.       15.      101.       8.       23.        8.     597.80
      1.18       .73      2.12      .66      .048      .040     .048      .036    594.30    166.55
   .000758      831.      831.     831.         2         0        0      0.00     67.57    234.12

*SECNO 10778.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      601.10 ELREA=      601.10

                    VALLEY SECTION 6 (J&A)                                SECT.T

  10778.00      3.32    600.72     0.00      0.00    601.11      .39      2.07       .16    601.10
      220.        0.      220.       0.        0.       44.       0.       25.        9.     601.10
      1.25      0.00      5.00     0.00      .060      .040     .060      .036    597.40    500.91
   .007728     1205.     1205.    1205.         3         0        0      0.00     22.15    523.06

*SECNO 11078.000
3280 CROSS SECTION   11078.00 EXTENDED        .65 FEET

3470 ENCROACHMENT STATIONS=       222.0       685.0  TYPE=       1  TARGET=      463.000
  11078.00      4.15    601.65     0.00      0.00    601.68      .02       .45       .11    601.20
      220.       85.      109.      25.      182.       64.      71.       26.       11.     601.20
      1.32       .47      1.72      .36      .060      .040     .060      .037    597.50    222.00
   .000625      300.      300.     300.         3         0        0      0.00    463.00    685.00

*SECNO 11378.000
3280 CROSS SECTION   11378.00 EXTENDED        .80 FEET
```

$h_f = .05$ .06
$h_e = .23 \times ? = .05$ .05
.18 .11

```
3470 ENCROACHMENT STATIONS=      206.0      800.0  TYPE=     1  TARGET=      594.000
  11378.00      4.30    601.80     0.00      0.00   601.81      .01      .13      .00    601.20
      220.       88.       84.       48.      235.      67.     159.      29.      14.    601.20
      1.44       .37      1.25       .30      .060     .040     .060     .037   597.50   206.00
   .000307      300.      300.      300.         3        0        0     0.00   594.00   800.00

*SECNO 11705.000

3265 DIVIDED FLOW

3280 CROSS SECTION  11705.00 EXTENDED       .82 FEET

     SECNO     DEPTH     CWSEL     CRIWS     WSELK       EG       HV       HL     OLOSS   BANK ELEV
     Q         QLOB      QCH       QROB      ALOB       ACH     AROB      VOL      TWA   LEFT/RIGHT
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR      WTN     ELMIN      SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC      ICONT    CORAR    TOPWID     ENDST


3470 ENCROACHMENT STATIONS=      247.0      764.0  TYPE=     1  TARGET=      517.000
  11705.00      4.32    601.92     0.00      0.00   601.94      .01      .13      .00    602.20
      220.       45.       63.      113.      118.      42.     214.      32.      18.    601.90
      1.56       .38      1.49       .53      .060     .040     .060     .037   597.60   247.00
   .000520      327.      327.      327.         2        0        0     0.00   499.74   764.00

*SECNO 11706.000

3265 DIVIDED FLOW

3280 CROSS SECTION  11706.00 EXTENDED       .82 FEET



3370 NORMAL BRIDGE,NRD= 12 MIN ELTRD=  599.90 MAX ELLC=  601.40


3470 ENCROACHMENT STATIONS=      247.0      764.0  TYPE=     1  TARGET=      517.000
  11706.00      4.33    601.93     0.00      0.00   601.94      .01      .00      .00    602.20
      220.       53.       35.      133.      118.      36.     214.      32.      19.    601.90
      1.56       .45       .97       .62      .050     .036     .050     .037   597.60   247.00
   .000502        1.        1.        1.         0        0        0    -5.63   499.76   764.00

*SECNO 11719.000                                                              perched structure

3265 DIVIDED FLOW

3280 CROSS SECTION  11719.00 EXTENDED       .84 FEET                           Sub. road)

                                                                    Appears that portion of road in cut
3370 NORMAL BRIDGE,NRD= 12 MIN ELTRD=  599.90 MAX ELLC=  601.40      should not no effect

3470 ENCROACHMENT STATIONS=      247.0      764.0  TYPE=     1  TARGET=      517.000

                  FARM CULVERT NO.1  BRIDGE SECT. 7 (J&A)          SECT.U

  11719.00      4.34    601.94     0.00      0.00   601.95      .01      .01      .00    602.20
      220.       54.       34.      132.      121.      36.     217.      32.      19.    601.90
      1.57       .44       .94       .61      .050     .036     .050     .037   597.60   247.00
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 .000476       13.       13.       13.        0         0         0      -6.74    500.66    764.00

*SECNO 11720.000

3265 DIVIDED FLOW

3280 CROSS SECTION  11720.00 EXTENDED       .84 FEET


3470 ENCROACHMENT STATIONS=       247.0      764.0  TYPE=        1  TARGET=       517.000
 11720.00      4.34    601.94      0.00      0.00    601.95       .01       .00       .00    602.20
     220.       46.       61.      113.      121.       42.      218.       32.       19.    601.90
     1.57       .38      1.46       .52      .060      .040      .060      .037    597.60    247.00
  .000494        1.        1.        1.         0         0         0      0.00    500.70    764.00


*SECNO 12193.000

3470 ENCROACHMENT STATIONS=       319.0      693.0  TYPE=        1  TARGET=       374.000

                 VALLEY SECTION 8 (J&A)                                   SECT.V

 12193.00      4.53    602.13      0.00      0.00    602.15       .02       .19       .00    601.90
     220.       24.      126.       70.       85.       89.      157.       36.       23.    601.30
     1.70       .28      1.42       .45      .060      .040      .060      .037    597.60    319.00
  .000345      473.      473.      473.         2         0         0      0.00    374.00    693.00


*SECNO 12904.000
    SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS   BANK ELEV
        Q      QLOB       QCH      QROB      ALOB       ACH      AROB       VOL       TWA  LEFT/RIGHT
     TIME      VLOB       VCH      VROB       XNL      XNCH       XNR       WTN     ELMIN      SSTA
    SLOPE     XLOBL      XLCH     XLOBR    ITRIAL       IDC     ICONT     CORAR    TOPWID     ENDST



3470 ENCROACHMENT STATIONS=       451.0      561.0  TYPE=        1  TARGET=       110.000
 12904.00      3.75    602.55      0.00      0.00    602.78       .23       .53       .10    599.40
     220.       29.      172.       19.       19.       41.       12.       39.       27.    599.70
     1.75      1.55      4.25      1.55      .060      .040      .060      .037    598.80    462.14
  .002612      711.      711.      711.         2         0         0      0.00     58.26    520.40


*SECNO 12905.000

3470 ENCROACHMENT STATIONS=       451.0      561.0  TYPE=        1  TARGET=       110.000
 12905.00      3.87    602.67      0.00      0.00    602.81       .14       .00       .03    599.40
     220.       48.      143.       29.       24.       42.       13.       39.       27.    599.70
     1.75      2.00      3.40      2.23      .050      .060      .050      .037    598.80    451.00
  .003586        1.        1.        1.         2         0         0      0.00     69.74    520.74
                                                                                                  518.3


SPECIAL BRIDGE

SB   XK          XKOR       COFQ      RDLEN       BWC        BWP       BAREA       SS      ELCHU      ELCHD
    0.00         1.79       2.90       0.00       9.70       0.00      36.80      0.00    598.80     598.80

*SECNO 12920.000

3265 DIVIDED FLOW

PRESSURE AND WEIR FLOW
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EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
603.67	602.81	0.00	71.	150.	37.	37.	602.60	602.61

3470 ENCROACHMENT STATIONS= 451.0 561.0 TYPE= 1 TARGET= 110.000

FARM CULVERT NO.2 BRIDGE SECT. 9 (J&A) SECT.W

12920.00	4.26	603.06	0.00	0.00	603.13	.08	.32	0.00	599.40
220.	64.	124.	32.	43.	47.	23.	39.	27.	599.70
1.76	1.49	2.66	1.40	.050	.060	.050	.037	598.80	451.00
.001912	15.	15.	15.	2	0	3	0.00	105.78	561.00

561.3

From Rd. profile appears all weir flow over channel & ROB, none in LOB, may be more appropriate to to eliminate LOB flow

*SECNO 12921.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 451.0 561.0 TYPE= 1 TARGET= 110.000

12921.00	4.23	603.03	0.00	0.00	603.16	.13	.00	.03	599.40
220.	43.	155.	22.	42.	46.	22.	39.	27.	599.70
1.76	1.04	3.34	1.00	.060	.040	.060	.037	598.80	451.00
.001353	1.	1.	1.	2	0	0	0.00	103.39	561.00

*SECNO 13078.000

3470 ENCROACHMENT STATIONS= 500.0 531.0 TYPE= 1 TARGET= 31.000

VALLEY SECTION 10 (J&A) SECT.X

13078.00	3.59	603.29	0.00	0.00	603.44	.15	.26	.01	603.50
220.	0.	217.	3.	0.	69.	3.	40.	27.	602.50
1.77	0.00	3.16	.88	.060	.040	.060	.037	599.70	500.49
.002155	157.	157.	157.	0	0	0	0.00	30.51	531.00

****
HEC2 RELEASE DATED NOV 76 UPDATED AUG1977
ERROR CORR - 01,02
MODIFICATION - 50,51,52,53
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

CRITTENDEN DRAIN

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
1472.000	0.00	0.00	0.00	588.30	150.00	591.96	0.00	592.09	18.59	2.94	51.07	34.79
1472.000	0.00	0.00	0.00	588.30	220.00	592.79	0.00	592.98	21.17	3.45	63.69	47.82
1472.000	0.00	0.00	0.00	588.30	250.00	592.97	0.00	593.19	24.26	3.76	66.42	50.76
1472.000	0.00	0.00	0.00	588.30	345.00	593.80	0.00	594.10	28.35	4.36	79.04	64.80
1473.000	1.00	600.20	595.70	588.30	150.00	591.96	0.00	592.09	4.88	2.94	51.10	67.89
1473.000	1.00	600.20	595.70	588.30	220.00	592.79	0.00	592.98	5.56	3.45	63.72	93.31
1473.000	1.00	600.20	595.70	588.30	250.00	592.97	0.00	593.19	6.37	3.76	66.46	99.06
1473.000	1.00	600.20	595.70	588.30	345.00	593.80	0.00	594.10	7.44	4.36	79.08	126.45
1528.000	55.00	600.20	595.70	588.30	150.00	591.99	0.00	592.12	4.76	2.91	51.54	68.74
1528.000	55.00	600.20	595.70	588.30	220.00	592.83	0.00	593.01	5.44	3.43	64.22	94.36
1528.000	55.00	600.20	595.70	588.30	250.00	593.01	0.00	593.23	6.21	3.73	67.05	100.30
1528.000	55.00	600.20	595.70	588.30	345.00	593.85	0.00	594.14	7.26	4.32	79.78	128.01
1529.000	1.00	0.00	0.00	588.30	150.00	591.99	0.00	592.12	15.42	2.91	51.54	38.19
1529.000	1.00	0.00	0.00	588.30	220.00	592.83	0.00	593.01	17.61	3.43	64.23	52.43
1529.000	1.00	0.00	0.00	588.30	250.00	593.01	0.00	593.23	20.12	3.73	67.06	55.73
1529.000	1.00	0.00	0.00	588.30	345.00	593.85	0.00	594.14	23.53	4.32	79.79	71.13
1628.000	99.00	0.00	0.00	587.60	150.00	592.17	0.00	592.21	3.03	1.52	98.71	86.16
1628.000	99.00	0.00	0.00	587.60	220.00	593.06	0.00	593.11	3.21	1.75	125.81	122.76
1628.000	99.00	0.00	0.00	587.60	250.00	593.29	0.00	593.35	3.54	1.88	132.89	132.94
1628.000	99.00	0.00	0.00	587.60	345.00	594.21	0.00	594.28	3.78	2.12	162.35	177.41
2028.000	400.00	0.00	0.00	588.00	150.00	592.31	0.00	592.35	3.84	1.65	90.85	76.58
2028.000	400.00	0.00	0.00	588.00	220.00	593.20	0.00	593.26	3.90	1.87	117.70	111.38
2028.000	400.00	0.00	0.00	588.00	250.00	593.44	0.00	593.50	4.22	2.00	125.06	121.70
2028.000	400.00	0.00	0.00	588.00	345.00	594.37	0.00	594.45	4.37	2.23	154.42	165.12
2305.000	280.00	0.00	0.00	588.20	150.00	592.41	0.00	592.44	2.44	1.24	121.17	96.10
2305.000	280.00	0.00	0.00	588.20	220.00	593.31	0.00	593.34	2.15	1.37	160.72	149.96
2305.000	280.00	0.00	0.00	588.20	250.00	593.56	0.00	593.60	2.26	1.46	171.70	166.25
2305.000	280.00	0.00	0.00	588.20	345.00	594.50	0.00	594.54	2.21	1.62	212.96	231.99
2708.000	400.00	0.00	0.00	588.60	150.00	592.53	0.00	592.55	3.35	1.38	109.05	81.91
2708.000	400.00	0.00	0.00	588.60	220.00	593.41	0.00	593.44	2.81	1.49	147.59	131.20
2708.000	400.00	0.00	0.00	588.60	250.00	593.66	0.00	593.70	2.89	1.57	158.76	147.10
2708.000	400.00	0.00	0.00	588.60	345.00	594.60	0.00	594.64	2.69	1.73	199.91	210.48

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
2808.000	100.00	0.00	0.00	588.70	150.00	592.56	0.00	592.59	3.66	1.42	105.60	78.44
2808.000	100.00	0.00	0.00	588.70	220.00	593.44	0.00	593.47	3.14	1.51	145.24	124.06
2808.000	100.00	0.00	0.00	588.70	250.00	593.69	0.00	593.73	3.22	1.59	157.31	139.25
2808.000	100.00	0.00	0.00	588.70	345.00	594.63	0.00	594.67	2.92	1.69	203.80	201.76
3608.000	800.00	0.00	0.00	589.30	150.00	592.89	0.00	592.93	4.92	1.58	94.68	67.64
3608.000	800.00	0.00	0.00	589.30	220.00	593.72	0.00	593.77	4.25	1.68	130.94	106.70
3608.000	800.00	0.00	0.00	589.30	250.00	593.98	0.00	594.03	4.26	1.75	142.90	121.17
3608.000	800.00	0.00	0.00	589.30	345.00	594.89	0.00	594.94	3.75	1.85	186.75	178.14
4008.000	400.00	0.00	0.00	589.60	150.00	593.10	0.00	593.14	5.50	1.65	90.90	63.99
4008.000	400.00	0.00	0.00	589.60	220.00	593.90	0.00	593.95	4.82	1.75	125.45	100.22
4008.000	400.00	0.00	0.00	589.60	250.00	594.16	0.00	594.21	4.79	1.82	137.25	114.27
4008.000	400.00	0.00	0.00	589.60	345.00	595.04	0.00	595.10	4.20	1.92	179.57	168.43
4187.000	179.00	0.00	0.00	589.60	150.00	593.21	0.00	593.31	11.84	2.60	57.59	43.59
4187.000	179.00	0.00	0.00	589.60	220.00	593.99	0.00	594.14	14.40	3.14	70.16	57.98
4187.000	179.00	0.00	0.00	589.60	250.00	594.24	0.00	594.42	15.80	3.37	74.29	62.90
4187.000	179.00	0.00	0.00	589.60	345.00	595.09	0.00	595.33	18.74	3.93	87.87	79.69
4188.000	1.00	599.30	596.60	589.60	150.00	593.21	0.00	593.31	9.89	2.60	57.72	47.71
4188.000	1.00	599.30	596.60	589.60	220.00	593.99	0.00	594.14	12.05	3.13	70.25	63.37
4188.000	1.00	599.30	596.60	589.60	250.00	594.24	0.00	594.42	13.27	3.36	74.30	68.63
4188.000	1.00	599.30	596.60	589.60	345.00	595.09	0.00	595.33	15.74	3.93	87.89	86.96
4256.000	68.00	599.30	596.60	589.60	150.00	593.28	0.00	593.38	9.31	2.55	58.92	49.15
4256.000	68.00	599.30	596.60	589.60	220.00	594.08	0.00	594.23	11.37	3.07	71.70	65.25
4256.000	68.00	599.30	596.60	589.60	250.00	594.34	0.00	594.51	12.49	3.29	75.88	70.73
4256.000	68.00	599.30	596.60	589.60	345.00	595.21	0.00	595.44	14.84	3.84	89.78	89.57
4257.000	1.00	0.00	0.00	589.60	150.00	593.28	0.00	593.38	11.10	2.55	58.88	45.02
4257.000	1.00	0.00	0.00	589.60	220.00	594.08	0.00	594.23	13.54	3.07	71.68	59.79
4257.000	1.00	0.00	0.00	589.60	250.00	594.34	0.00	594.51	14.87	3.29	75.88	64.82
4257.000	1.00	0.00	0.00	589.60	345.00	595.21	0.00	595.44	17.65	3.84	89.79	82.13
4376.000	119.00	0.00	0.00	589.90	145.00	593.45	0.00	593.48	4.66	1.56	92.79	65.80
4376.000	119.00	0.00	0.00	589.90	210.00	594.30	0.00	594.34	3.98	1.62	129.74	105.27
4376.000	119.00	0.00	0.00	589.90	230.00	594.59	0.00	594.63	3.59	1.61	143.12	121.44
4376.000	119.00	0.00	0.00	589.90	330.00	595.53	0.00	595.57	3.33	1.75	188.71	180.82
5176.000	800.00	0.00	0.00	590.50	145.00	593.87	0.00	593.92	5.99	1.69	85.88	59.22
5176.000	800.00	0.00	0.00	590.50	210.00	594.66	0.00	594.70	5.17	1.77	118.64	92.35
5176.000	800.00	0.00	0.00	590.50	230.00	594.91	0.00	594.96	4.73	1.77	130.16	105.77
5176.000	800.00	0.00	0.00	590.50	330.00	595.82	0.00	595.88	4.25	1.90	173.24	159.98
5976.000	800.00	0.00	0.00	591.10	145.00	594.38	0.00	594.43	6.73	1.76	82.30	55.89
5976.000	800.00	0.00	0.00	591.10	210.00	595.10	0.00	595.16	6.11	1.88	111.98	84.95
5976.000	800.00	0.00	0.00	591.10	230.00	595.32	0.00	595.38	5.68	1.89	122.53	96.47
5976.000	800.00	0.00	0.00	591.10	330.00	596.18	0.00	596.24	4.74	1.98	179.17	151.50
6776.000	800.00	0.00	0.00	591.70	145.00	594.93	0.00	594.98	7.14	1.80	80.54	54.26
6776.000	800.00	0.00	0.00	591.70	210.00	595.61	0.00	595.67	6.73	1.94	108.09	80.96
6776.000	800.00	0.00	0.00	591.70	230.00	595.81	0.00	595.87	6.49	1.97	116.73	90.26
6776.000	800.00	0.00	0.00	591.70	330.00	596.59	0.00	596.66	5.74	2.12	164.66	137.69

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
7061.000	285.00	0.00	0.00	591.90	145.00	595.14	0.00	595.19	7.16	1.80	80.45	54.18
7061.000	285.00	0.00	0.00	591.90	210.00	595.81	0.00	595.86	6.82	1.95	107.57	80.44
7061.000	285.00	0.00	0.00	591.90	230.00	595.99	0.00	596.05	6.64	1.99	115.81	89.25
7061.000	285.00	0.00	0.00	591.90	330.00	596.76	0.00	596.83	5.99	2.15	161.58	134.79
7210.000	149.00	0.00	0.00	592.20	145.00	595.25	0.00	595.44	26.21	3.42	42.38	28.32
7210.000	149.00	0.00	0.00	592.20	210.00	595.90	0.00	596.14	28.66	3.98	52.81	39.23
7210.000	149.00	0.00	0.00	592.20	230.00	596.07	0.00	596.34	29.43	4.13	55.70	42.40
7210.000	149.00	0.00	0.00	592.20	330.00	596.78	0.00	597.16	35.59	4.93	66.96	55.32
7211.000	1.00	601.60	598.90	592.20	145.00	595.26	0.00	595.44	8.02	3.41	42.51	51.20
7211.000	1.00	601.60	598.90	592.20	210.00	595.90	0.00	596.14	8.87	3.98	52.75	70.49
7211.000	1.00	601.60	598.90	592.20	230.00	596.07	0.00	596.34	9.14	4.14	55.59	76.09
7211.000	1.00	601.60	598.90	592.20	330.00	596.79	0.00	597.16	10.97	4.93	66.99	99.64
7259.000	48.00	601.60	598.90	592.20	145.00	595.30	0.00	595.48	7.61	3.35	43.25	52.55
7259.000	48.00	601.60	598.90	592.20	210.00	595.95	0.00	596.19	8.49	3.92	53.57	72.09
7259.000	48.00	601.60	598.90	592.20	230.00	596.13	0.00	596.38	8.75	4.08	56.42	77.77
7259.000	48.00	601.60	598.90	592.20	330.00	596.85	0.00	597.22	10.48	4.85	68.06	101.93
7260.000	1.00	0.00	0.00	592.20	145.00	595.30	0.00	595.43	24.65	3.35	43.26	29.20
7260.000	1.00	0.00	0.00	592.20	210.00	595.95	0.00	596.19	27.47	3.92	53.58	40.06
7260.000	1.00	0.00	0.00	592.20	230.00	596.13	0.00	596.39	28.32	4.08	56.46	43.22
7260.000	1.00	0.00	0.00	592.20	330.00	596.86	0.00	597.22	33.94	4.85	68.08	56.65
7883.000	623.00	0.00	0.00	591.70	145.00	596.01	0.00	596.05	4.27	1.57	92.24	70.16
7883.000	623.00	0.00	0.00	591.70	210.00	596.80	0.00	596.84	4.78	1.69	124.47	96.01
7883.000	623.00	0.00	0.00	591.70	230.00	597.01	0.00	597.05	4.84	1.71	134.61	104.58
7883.000	623.00	0.00	0.00	591.70	330.00	597.86	0.00	597.91	4.46	1.82	181.15	156.19
8623.000	740.00	0.00	0.00	593.10	145.00	596.46	0.00	596.52	9.93	2.01	72.16	46.02
8623.000	740.00	0.00	0.00	593.10	210.00	597.22	0.00	597.29	7.56	2.05	102.64	76.37
8623.000	740.00	0.00	0.00	593.10	230.00	597.43	0.00	597.49	7.09	2.07	110.92	86.37
8623.000	740.00	0.00	0.00	593.10	330.00	598.24	0.00	598.32	6.39	2.29	144.25	130.53
8672.000	49.00	0.00	0.00	593.30	145.00	596.48	0.00	596.65	24.72	3.28	44.22	29.16
8672.000	49.00	0.00	0.00	593.30	210.00	597.21	0.00	597.43	26.08	3.77	55.75	41.12
8672.000	49.00	0.00	0.00	593.30	230.00	597.40	0.00	597.64	26.73	3.91	58.83	44.49
8672.000	49.00	0.00	0.00	593.30	330.00	598.17	0.00	598.51	31.72	4.64	71.17	58.59
8673.000	1.00	600.70	600.30	593.30	145.00	596.48	0.00	596.65	7.67	3.29	44.14	52.34
8673.000	1.00	600.70	600.30	593.30	210.00	597.21	0.00	597.43	8.04	3.76	55.78	74.07
8673.000	1.00	600.70	600.30	593.30	230.00	597.40	0.00	597.64	8.24	3.91	58.86	80.13
8673.000	1.00	600.70	600.30	593.30	330.00	598.17	0.00	598.51	9.78	4.64	71.20	105.52
8741.000	68.00	600.70	600.30	593.30	145.00	596.54	0.00	596.70	7.20	3.22	45.08	54.02
8741.000	68.00	600.70	600.30	593.30	210.00	597.27	0.00	597.49	7.62	3.70	56.79	76.05
8741.000	68.00	600.70	600.30	593.30	230.00	597.47	0.00	597.70	7.83	3.84	59.90	82.21
8741.000	68.00	600.70	600.30	593.30	330.00	598.25	0.00	598.58	9.29	4.55	72.48	108.25
8742.000	1.00	0.00	0.00	593.30	145.00	596.54	0.00	596.70	28.80	3.22	45.09	27.02
8742.000	1.00	0.00	0.00	593.30	210.00	597.28	0.00	597.49	30.48	3.70	56.80	38.04
8742.000	1.00	0.00	0.00	593.30	230.00	597.47	0.00	597.70	31.29	3.84	59.91	41.12
8742.000	1.00	0.00	0.00	593.30	330.00	598.26	0.00	598.58	37.15	4.55	72.49	54.14

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
9573.000	831.00	0.00	0.00	594.30	145.00	597.98	0.00	598.04	9.90	1.96	76.00	46.08
9573.000	831.00	0.00	0.00	594.30	210.00	598.63	0.00	598.70	8.05	2.10	112.49	74.02
9573.000	831.00	0.00	0.00	594.30	230.00	598.81	0.00	598.88	7.58	2.12	124.25	83.53
9573.000	831.00	0.00	0.00	594.30	330.00	599.60	0.00	599.67	5.98	2.19	183.36	134.91
10778.000	1205.00	0.00	0.00	597.40	135.00	600.23	0.00	600.48	59.79	3.99	33.85	17.46
10778.000	1205.00	0.00	0.00	597.40	200.00	600.63	0.00	600.98	73.18	4.77	41.89	23.38
10778.000	1205.00	0.00	0.00	597.40	220.00	600.72	0.00	601.11	77.28	5.00	44.03	25.03
10778.000	1205.00	0.00	0.00	597.40	315.00	601.11	600.54	601.34	54.20	4.47	175.30	42.79
11078.000	300.00	0.00	0.00	597.50	135.00	601.20	0.00	601.27	13.21	2.20	112.51	37.14
11078.000	300.00	0.00	0.00	597.50	200.00	601.55	0.00	601.58	7.32	1.81	270.67	73.91
11078.000	300.00	0.00	0.00	597.50	220.00	601.65	0.00	601.68	6.25	1.72	315.95	88.01
11078.000	300.00	0.00	0.00	597.50	315.00	601.84	0.00	601.86	7.13	1.92	399.83	117.95
11378.000	300.00	0.00	0.00	597.50	135.00	601.46	0.00	601.48	4.04	1.32	267.41	67.19
11378.000	300.00	0.00	0.00	597.50	200.00	601.72	0.00	601.73	3.30	1.27	416.44	110.10
11378.000	300.00	0.00	0.00	597.50	220.00	601.80	0.00	601.81	3.07	1.25	461.50	125.59
11378.000	300.00	0.00	0.00	597.50	315.00	602.00	0.00	602.01	3.37	1.37	580.73	171.61
11705.000	327.00	0.00	0.00	597.60	135.00	601.62	0.00	601.64	5.72	1.52	229.32	56.46
11705.000	327.00	0.00	0.00	597.60	200.00	601.85	0.00	601.87	5.42	1.51	339.24	85.90
11705.000	327.00	0.00	0.00	597.60	220.00	601.92	0.00	601.94	5.20	1.49	373.55	96.48
11705.000	327.00	0.00	0.00	597.60	315.00	602.14	0.00	602.15	5.47	1.57	481.47	134.66
11706.000	1.00	599.90	601.40	597.60	135.00	601.63	0.00	601.64	5.89	1.19	226.14	55.64
11706.000	1.00	599.90	601.40	597.60	200.00	601.86	0.00	601.87	5.15	1.10	333.50	88.13
11706.000	1.00	599.90	601.40	597.60	220.00	601.93	0.00	601.94	5.02	.97	367.14	98.16
11706.000	1.00	599.90	601.40	597.60	315.00	602.14	0.00	602.15	5.01	.90	474.16	140.75
11719.000	13.00	599.90	601.40	597.60	135.00	601.64	0.00	601.65	5.49	1.15	233.29	57.64
11719.000	13.00	599.90	601.40	597.60	200.00	601.87	0.00	601.88	4.88	1.07	340.56	90.54
11719.000	13.00	599.90	601.40	597.60	220.00	601.94	0.00	601.95	4.76	.94	374.19	100.82
11719.000	13.00	599.90	601.40	597.60	315.00	602.15	0.00	602.16	4.80	.88	481.05	143.83
11720.000	1.00	0.00	0.00	597.60	135.00	601.64	0.00	601.65	5.32	1.47	237.65	58.55
11720.000	1.00	0.00	0.00	597.60	200.00	601.87	0.00	601.88	5.14	1.47	347.02	88.21
11720.000	1.00	0.00	0.00	597.60	220.00	601.94	0.00	601.95	4.94	1.46	381.22	98.99
11720.000	1.00	0.00	0.00	597.60	315.00	602.15	0.00	602.16	5.25	1.54	488.81	137.47
12193.000	473.00	0.00	0.00	597.60	135.00	601.82	0.00	601.83	2.93	1.22	215.54	78.92
12193.000	473.00	0.00	0.00	597.60	200.00	602.06	0.00	602.08	3.41	1.38	305.51	108.29
12193.000	473.00	0.00	0.00	597.60	220.00	602.13	0.00	602.15	3.48	1.42	330.53	117.87
12193.000	473.00	0.00	0.00	597.60	315.00	602.36	0.00	602.38	4.10	1.62	418.41	155.52
12904.000	711.00	0.00	0.00	598.80	135.00	602.17	0.00	602.29	15.83	3.06	57.76	33.93
12904.000	711.00	0.00	0.00	598.80	200.00	602.48	0.00	602.68	23.75	3.99	67.34	41.04
12904.000	711.00	0.00	0.00	598.80	220.00	602.55	0.00	602.78	26.12	4.25	71.25	43.05
12904.000	711.00	0.00	0.00	598.80	315.00	602.86	0.00	603.19	35.44	5.25	93.57	52.92
12905.000	1.00	0.00	0.00	598.80	135.00	602.22	0.00	602.31	25.38	2.61	59.06	26.80
12905.000	1.00	0.00	0.00	598.80	200.00	602.57	0.00	602.71	34.46	3.27	72.26	34.07
12905.000	1.00	0.00	0.00	598.80	220.00	602.67	0.00	602.81	35.86	3.40	79.09	36.74
12905.000	1.00	0.00	0.00	598.80	315.00	603.10	0.00	603.24	36.72	3.71	116.59	51.98

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
12920.000	15.00	602.61	602.60	598.80	135.00	602.22	0.00	602.43	77.98	3.83	37.37	15.29
12920.000	15.00	602.61	602.60	598.80	200.00	602.94	0.00	603.02	19.16	2.61	100.99	45.69
12920.000	15.00	602.61	602.60	598.80	220.00	603.06	0.00	603.13	19.12	2.66	112.45	50.31
12920.000	15.00	602.61	602.60	598.80	315.00	603.45	0.00	603.53	19.56	2.87	155.74	71.22
12921.000	1.00	0.00	0.00	598.80	135.00	602.36	0.00	602.46	12.53	2.83	63.21	38.13
12921.000	1.00	0.00	0.00	598.80	200.00	602.92	0.00	603.04	13.12	3.23	98.98	55.22
12921.000	1.00	0.00	0.00	598.80	220.00	603.03	0.00	603.16	13.53	3.34	109.96	59.80
12921.000	1.00	0.00	0.00	598.80	315.00	603.42	0.00	603.57	15.64	3.83	152.15	79.65
13078.000	157.00	0.00	0.00	599.70	135.00	602.60	0.00	602.71	20.54	2.64	51.45	29.79
13078.000	157.00	0.00	0.00	599.70	200.00	603.17	0.00	603.31	20.50	3.01	68.39	44.17
13078.000	157.00	0.00	0.00	599.70	220.00	603.29	0.00	603.44	21.55	3.16	71.89	47.39
13078.000	157.00	0.00	0.00	599.70	315.00	603.70	0.00	603.93	27.79	3.88	84.41	59.76

CRITTENDEN DRAIN

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
1472.000	150.00	591.96	0.00	0.00	0.00	15.20	0.00
1472.000	220.00	592.79	.83	0.00	0.00	15.20	0.00
1472.000	250.00	592.97	.18	0.00	0.00	15.20	0.00
1472.000	345.00	593.80	.83	0.00	0.00	15.20	0.00
1473.000	150.00	591.96	0.00	.00	0.00	15.20	1.00
1473.000	220.00	592.79	.83	.00	0.00	15.20	1.00
1473.000	250.00	592.97	.18	.00	0.00	15.20	1.00
1473.000	345.00	593.80	.83	.00	0.00	15.20	1.00
1528.000	150.00	591.99	0.00	.03	0.00	15.20	55.00
1528.000	220.00	592.83	.83	.03	0.00	15.20	55.00
1528.000	250.00	593.01	.19	.04	0.00	15.20	55.00
1528.000	345.00	593.85	.84	.05	0.00	15.20	55.00
1529.000	150.00	591.99	0.00	.00	0.00	15.20	1.00
1529.000	220.00	592.83	.83	.00	0.00	15.20	1.00
1529.000	250.00	593.01	.19	.00	0.00	15.20	1.00
1529.000	345.00	593.85	.84	.00	0.00	15.20	1.00
1628.000	150.00	592.17	0.00	.18	0.00	29.78	99.00
1628.000	220.00	593.06	.89	.24	0.00	31.03	99.00
1628.000	250.00	593.29	.23	.28	0.00	31.34	99.00
1628.000	345.00	594.21	.92	.36	0.00	32.58	99.00
2028.000	150.00	592.31	0.00	.13	0.00	28.98	400.00
2028.000	220.00	593.20	.90	.14	0.00	30.68	400.00
2028.000	250.00	593.44	.24	.15	0.00	31.00	400.00
2028.000	345.00	594.37	.93	.16	0.00	32.25	400.00
2305.000	150.00	592.41	0.00	.11	0.00	44.00	280.00
2305.000	220.00	593.31	.90	.11	0.00	44.00	280.00
2305.000	250.00	593.56	.25	.12	0.00	44.00	280.00
2305.000	345.00	594.50	.94	.13	0.00	44.00	280.00
2708.000	150.00	592.53	0.00	.11	0.00	43.46	400.00
2708.000	220.00	593.41	.88	.10	0.00	44.00	400.00
2708.000	250.00	593.66	.25	.10	0.00	44.00	400.00
2708.000	345.00	594.60	.94	.09	0.00	44.00	400.00
2808.000	150.00	592.56	0.00	.03	0.00	42.79	100.00
2808.000	220.00	593.44	.88	.03	0.00	46.88	100.00
2808.000	250.00	593.69	.25	.03	0.00	47.90	100.00
2808.000	345.00	594.63	.94	.03	0.00	51.63	100.00
3608.000	150.00	592.89	0.00	.33	0.00	40.70	800.00
3608.000	220.00	593.72	.83	.29	0.00	45.65	800.00
3608.000	250.00	593.98	.26	.29	0.00	46.68	800.00
3608.000	345.00	594.89	.90	.26	0.00	50.29	800.00
4008.000	150.00	593.10	0.00	.21	0.00	39.96	400.00
4008.000	220.00	593.90	.80	.18	0.00	45.17	400.00
4008.000	250.00	594.16	.26	.18	0.00	46.20	400.00
4008.000	345.00	595.04	.88	.16	0.00	49.72	400.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
4187.000	150.00	593.21	0.00	.11	0.00	16.00	179.00
4187.000	220.00	593.99	.78	.09	0.00	16.00	179.00
4187.000	250.00	594.24	.25	.08	0.00	16.00	179.00
4187.000	345.00	595.09	.85	.05	0.00	16.00	179.00
4188.000	150.00	593.21	0.00	.00	0.00	16.00	1.00
4188.000	220.00	593.99	.78	.00	0.00	16.00	1.00
4188.000	250.00	594.24	.25	.00	0.00	16.00	1.00
4188.000	345.00	595.09	.85	.00	0.00	16.00	1.00
4256.000	150.00	593.28	0.00	.07	0.00	16.00	68.00
4256.000	220.00	594.08	.80	.09	0.00	16.00	68.00
4256.000	250.00	594.34	.26	.10	0.00	16.00	68.00
4256.000	345.00	595.21	.87	.12	0.00	16.00	68.00
4257.000	150.00	593.28	0.00	.00	0.00	16.00	1.00
4257.000	220.00	594.08	.80	.00	0.00	16.00	1.00
4257.000	250.00	594.34	.26	.00	0.00	16.00	1.00
4257.000	345.00	595.21	.87	.00	0.00	16.00	1.00
4376.000	145.00	593.45	0.00	.17	0.00	40.33	119.00
4376.000	210.00	594.30	.85	.22	0.00	45.55	119.00
4376.000	230.00	594.59	.29	.25	0.00	46.70	119.00
4376.000	330.00	595.53	.94	.31	0.00	50.45	119.00
5176.000	145.00	593.87	0.00	.43	0.00	38.94	800.00
5176.000	210.00	594.66	.78	.36	0.00	44.56	800.00
5176.000	230.00	594.91	.26	.32	0.00	45.58	800.00
5176.000	330.00	595.82	.91	.30	0.00	49.21	800.00
5976.000	145.00	594.38	0.00	.51	0.00	38.20	800.00
5976.000	210.00	595.10	.72	.45	0.00	44.01	800.00
5976.000	230.00	595.32	.22	.41	0.00	51.52	800.00
5976.000	330.00	596.18	.86	.36	0.00	79.40	800.00
6776.000	145.00	594.93	0.00	.55	0.00	37.83	800.00
6776.000	210.00	595.61	.68	.51	0.00	43.26	800.00
6776.000	230.00	595.81	.19	.48	0.00	47.54	800.00
6776.000	330.00	596.59	.79	.41	0.00	74.28	800.00
7061.000	145.00	595.14	0.00	.20	0.00	37.81	285.00
7061.000	210.00	595.81	.67	.19	0.00	43.16	285.00
7061.000	230.00	595.99	.19	.19	0.00	46.87	285.00
7061.000	330.00	596.76	.77	.17	0.00	72.86	285.00
7210.000	145.00	595.25	0.00	.12	0.00	16.00	149.00
7210.000	210.00	595.90	.64	.09	0.00	16.00	149.00
7210.000	230.00	596.07	.18	.08	0.00	16.00	149.00
7210.000	330.00	596.78	.71	.03	0.00	16.00	149.00
7211.000	145.00	595.26	0.00	.00	0.00	16.00	1.00
7211.000	210.00	595.90	.64	.00	0.00	16.00	1.00
7211.000	230.00	596.07	.18	.00	0.00	16.00	1.00
7211.000	330.00	596.79	.71	.00	0.00	16.00	1.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
7259.000	145.00	595.30	0.00	.05	0.00	16.00	48.00
7259.000	210.00	595.95	.64	.05	0.00	16.00	48.00
7259.000	230.00	596.13	.18	.05	0.00	16.00	48.00
7259.000	330.00	596.85	.73	.07	0.00	16.00	48.00
7260.000	145.00	595.30	0.00	.00	0.00	16.00	1.00
7260.000	210.00	595.95	.64	.00	0.00	16.00	1.00
7260.000	230.00	596.13	.18	.00	0.00	16.00	1.00
7260.000	330.00	596.86	.73	.00	0.00	16.00	1.00
7883.000	145.00	596.01	0.00	.71	0.00	35.64	623.00
7883.000	210.00	596.80	.78	.85	0.00	47.35	623.00
7883.000	230.00	597.01	.21	.88	0.00	50.64	623.00
7883.000	330.00	597.86	.85	1.01	0.00	58.40	623.00
8623.000	145.00	596.46	0.00	.45	0.00	36.90	740.00
8623.000	210.00	597.22	.76	.43	0.00	41.00	740.00
8623.000	230.00	597.43	.20	.42	0.00	41.00	740.00
8623.000	330.00	598.24	.81	.38	0.00	41.00	740.00
8672.000	145.00	596.48	0.00	.02	0.00	16.00	49.00
8672.000	210.00	597.21	.73	-.02	0.00	16.00	49.00
8672.000	230.00	597.40	.19	-.02	0.00	16.00	49.00
8672.000	330.00	598.17	.77	-.07	0.00	16.00	49.00
8673.000	145.00	596.48	0.00	.00	0.00	16.00	1.00
8673.000	210.00	597.21	.73	.00	0.00	16.00	1.00
8673.000	230.00	597.40	.19	.00	0.00	16.00	1.00
8673.000	330.00	598.17	.77	.00	0.00	16.00	1.00
8741.000	145.00	596.54	0.00	.06	0.00	16.00	68.00
8741.000	210.00	597.27	.73	.06	0.00	16.00	68.00
8741.000	230.00	597.47	.19	.07	0.00	16.00	68.00
8741.000	330.00	598.25	.79	.08	0.00	16.00	68.00
8742.000	145.00	596.54	0.00	.00	0.00	16.00	1.00
8742.000	210.00	597.28	.73	.00	0.00	16.00	1.00
8742.000	230.00	597.47	.19	.00	0.00	16.00	1.00
8742.000	330.00	598.26	.79	.00	0.00	16.00	1.00
9573.000	145.00	597.98	0.00	1.44	0.00	45.38	831.00
9573.000	210.00	598.63	.65	1.36	0.00	64.38	831.00
9573.000	230.00	598.81	.18	1.34	0.00	67.57	831.00
9573.000	330.00	599.60	.79	1.35	0.00	81.71	831.00
10778.000	135.00	600.23	0.00	2.25	0.00	19.77	1205.00
10778.000	200.00	600.63	.40	1.99	0.00	21.67	1205.00
10778.000	220.00	600.72	.10	1.91	0.00	22.15	1205.00
10778.000	315.00	601.11	.38	1.50	0.00	701.97	1205.00
11078.000	135.00	601.20	0.00	.97	0.00	396.64	300.00
11078.000	200.00	601.55	.35	.93	0.00	463.00	300.00
11078.000	220.00	601.65	.10	.93	0.00	463.00	300.00
11078.000	315.00	601.84	.19	.73	0.00	463.00	300.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
11378.000	135.00	601.46	0.00	.26	0.00	582.58	300.00
11378.000	200.00	601.72	.26	.17	0.00	594.00	300.00
11378.000	220.00	601.80	.08	.15	0.00	594.00	300.00
11378.000	315.00	602.00	.20	.16	0.00	594.00	300.00
11705.000	135.00	601.62	0.00	.16	0.00	417.28	327.00
11705.000	200.00	601.85	.23	.14	0.00	491.35	327.00
11705.000	220.00	601.92	.07	.13	0.00	499.74	327.00
11705.000	315.00	602.14	.21	.14	0.00	513.06	327.00
11706.000	135.00	601.63	0.00	.01	0.00	417.84	1.00
11706.000	200.00	601.86	.23	.01	0.00	491.42	1.00
11706.000	220.00	601.93	.07	.01	0.00	499.76	1.00
11706.000	315.00	602.14	.21	.01	0.00	513.09	1.00
11719.000	135.00	601.64	0.00	.01	0.00	428.67	13.00
11719.000	200.00	601.87	.23	.01	0.00	493.65	13.00
11719.000	220.00	601.94	.07	.01	0.00	500.66	13.00
11719.000	315.00	602.15	.21	.01	0.00	513.93	13.00
11720.000	135.00	601.64	0.00	-.00	0.00	429.57	1.00
11720.000	200.00	601.87	.23	-.00	0.00	493.76	1.00
11720.000	220.00	601.94	.07	-.00	0.00	500.70	1.00
11720.000	315.00	602.15	.21	-.00	0.00	513.95	1.00
12193.000	135.00	601.82	0.00	.18	0.00	342.49	473.00
12193.000	200.00	602.06	.24	.19	0.00	374.00	473.00
12193.000	220.00	602.13	.07	.19	0.00	374.00	473.00
12193.000	315.00	602.36	.23	.21	0.00	374.00	473.00
12904.000	135.00	602.17	0.00	.35	0.00	28.51	711.00
12904.000	200.00	602.48	.31	.42	0.00	44.32	711.00
12904.000	220.00	602.55	.08	.43	0.00	58.26	711.00
12904.000	315.00	602.86	.31	.50	0.00	86.01	711.00
12905.000	135.00	602.22	0.00	.05	0.00	28.79	1.00
12905.000	200.00	602.57	.35	.09	0.00	61.37	1.00
12905.000	220.00	602.67	.10	.12	0.00	69.74	1.00
12905.000	315.00	603.10	.43	.24	0.00	109.64	1.00
12920.000	135.00	602.22	0.00	.00	0.00	28.79	15.00
12920.000	200.00	602.94	.72	.37	0.00	94.28	15.00
12920.000	220.00	603.06	.11	.39	0.00	105.78	15.00
12920.000	315.00	603.45	.39	.35	0.00	110.00	15.00
12921.000	135.00	602.36	0.00	.14	0.00	29.69	1.00
12921.000	200.00	602.92	.56	-.02	0.00	92.11	1.00
12921.000	220.00	603.03	.11	-.02	0.00	103.39	1.00
12921.000	315.00	603.42	.39	-.03	0.00	110.00	1.00
13078.000	135.00	602.60	0.00	.25	0.00	28.89	157.00
13078.000	200.00	603.17	.56	.25	0.00	30.24	157.00
13078.000	220.00	603.29	.12	.25	0.00	30.51	157.00
13078.000	315.00	603.70	.41	.28	0.00	31.00	157.00

SUMMARY OF ERRORS

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Macomb Twp

3) WATERCOURSE: Crittenden Drain

4) DOCUMENT TYPE: 100 year flood
Natural &
encroached

00BREAK00

MACJOBS JANDA 04/12/79 07.40.06 7600 JO

CRITTENDEN DRAIN
J&A FILE No. 5850-03
MACOMB TWP. FIS
10-50-100-500 YR. FLOODS
"ENCROACHED FLOODWAY"

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*************************************************
 HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
 ERROR CORR -  01,02
 MODIFICATION -  50,51,52,53
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C
T1            MACOMB TWP. FIS J&A FILE NO. 5850-03-1
T2            10 YEAR FLOOD
T3            CRITTENDEN DRAIN

J1  ICHECK    INQ      NINV     IDIR      STRT     METRIC    HVINS     Q       WSEL      FQ

      0.       2.       0.       0.   0.000000    0.00      0.0      0.    591.950    0.000

J2  NPROF     IPLOT    PREVS    XSECV     XSECH     FN       ALLDC     IBW     CHNIM     ITRACE

    1.000     0.000   -1.000    0.000     0.000    0.000     0.000    0.000    0.000     0.000

NC       .045      .045      .039      .300      .500     0.000     0.000     0.000     0.000     0.000
QT      4.000   150.000   220.000   250.000   345.000     0.000     0.000     0.000     0.000     0.000

X1   1472.000    13.000   400.000   416.000     0.000     0.000     0.000      .950     0.000     0.000
GR    600.200     0.000   600.200   100.000   600.300   200.000   600.300   300.000   600.300   400.000
GR    588.900   400.000   588.300   408.000   588.900   416.000   600.300   415.000   600.300   500.000
GR    600.400   600.000   600.600   700.000   600.500   800.000     0.000     0.000     0.000     0.000
NC       .040      .040      .020     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1   1473.000     0.000     0.000     0.000     1.000     1.000     1.000     0.000     0.000     0.000
X2      0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000      .950     0.000
BT     10.000     0.000   600.200     0.000   100.000   600.200     0.000   200.000   600.300     0.000
BT    300.000   600.300     0.000   400.000   600.300   595.700   416.000   600.300   595.700   500.000
BT    600.300     0.000   600.000   600.400     0.000   700.000   600.000     0.000   800.000   600.500
BT      0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

              HALL ROAD (M-59)  BRIDGE SECTION 5.1 (J&A)      SECT.A

X1   1528.000     0.000     0.000     0.000    55.000    55.000    55.000     0.000     0.000     0.000
X2      0.000     0.000     0.000     0.000     0.000     0.000     1.000     0.000     0.000     0.000
NC       .042      .042      .036     0.000     0.000     0.000     0.000     0.000     0.000     0.000


X1   1529.000     0.000     0.000     0.000     1.000     1.000     1.000     0.000     0.000     0.000

              VALLEY SECTION 6.1 (J&A)                        SECT.B

X1   1625.000    11.000   100.000   135.000    99.000    99.000    99.000     0.000     0.000     0.000
X3      0.000     0.000     0.000   100.000     0.000     0.000     0.000     0.000     0.000     0.000
GR    598.100     0.000   596.600    52.000   592.200   100.000   588.600   106.000   587.700   110.000
GR    587.600   115.000   588.100   120.000   588.600   125.000   596.000   135.000   596.700   200.000
GR    598.700   300.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

              VALLEY SECTION 8.1 (J&A)                        SECT.C

X1   2028.000    11.000   100.000   135.000   400.000   400.000   400.000     0.000     0.000     0.000
X3      0.000     0.000     0.000   100.000     0.000     0.000     0.000     0.000     0.000     0.000
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GR   598.500     0.000   597.000    52.000   592.600   100.000   589.000   106.000   588.100   110.000
GR   588.000   115.000   588.500   120.000   589.000   125.000   596.400   135.000   597.100   200.000
GR   599.100   300.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

               VALLEY SECTION 9.1 (MCS)                        SECT.D

X1  2305.000     9.000    91.300   135.300   280.000   280.000   280.000     0.000     0.000     0.000
X3     0.000     0.000     0.000    91.300     0.000   135.300     0.000     0.000     0.000     0.000
GR   599.400     0.000   597.400    16.000   593.200    61.300   592.200    91.300   588.200   107.300
GR   588.200   119.300   592.200   135.300   593.200   165.300   597.400   210.600     0.000     0.000

               VALLEY SECTION 11.1 (MCS)                       SECT.E

X1  2708.000     9.000    91.300   135.300   400.000   400.000   400.000     0.000     0.000     0.000
X3     0.000     0.000     0.000    91.300     0.000   135.300     0.000     0.000     0.000     0.000
GR   599.800     0.000   597.800    16.000   593.600    61.300   592.600    91.300   588.600   107.300
GR   588.600   119.300   592.600   135.300   593.600   165.300   597.800   210.600     0.000     0.000

               VALLEY SECTION 12.1 (MCS)                       SECT.F

X1  2808.000     8.000    91.300   156.000   100.000   100.000   100.000     0.000     0.000     0.000
X3     0.000     0.000     0.000    91.300     0.000     0.000     0.000     0.000     0.000     0.000
GR   599.900     0.000   597.900    16.000   593.700    61.300   592.700    91.300   588.700   107.300
GR   588.700   119.300   597.900   156.000   598.400   166.000     0.000     0.000     0.000     0.000

               VALLEY SECTION 14.1 (MCS)                       SECT.G

X1  3606.000     8.000    91.300   156.000   800.000   800.000   800.000     0.000     0.000     0.000
X3     0.000     0.000     0.000    91.300     0.000     0.000     0.000     0.000     0.000     0.000
GR   600.500     0.000   598.500    16.000   594.300    61.300   593.300    91.300   589.300   107.300
GR   589.300   119.300   598.500   156.000   599.000   166.000     0.000     0.000     0.000     0.000

               VALLEY SECTION 15.1 (MCS)                       SECT.H

X1  4008.000     8.000    91.300   156.000   400.000   400.000   400.000     0.000     0.000     0.000
X3     0.000     0.000     0.000    91.300     0.000     0.000     0.000     0.000     0.000     0.000
GR   600.800     0.000   598.800    16.000   594.600    61.300   593.600    91.300   589.600   107.300
GR   589.600   119.300   598.800   156.000   599.300   166.000     0.000     0.000     0.000     0.000

X1  4187.000     7.000    92.000   108.000   179.000   179.000   179.000     0.000     0.000     0.000
GR   599.600     0.000   599.300    50.000   599.400    92.000   589.600    92.000   589.600   108.000
GR   599.500   108.000   600.200   150.000     0.000     0.000     0.000     0.000     0.000     0.000
NC      .040      .040      .033     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1  4188.000     0.000     0.000     0.000     1.000     1.000     1.000     0.000     0.000     0.000
BT     5.000     0.000   599.600     0.000    50.000   599.300     0.000    92.000   599.400   596.600
BT   108.000   599.500   596.600   150.000   600.200     0.000     0.000     0.000     0.000     0.000

               MILLSTONE DRIVE  BRIDGE SECTION 16.1 (MCS)      SECT.I

               16' X 7' CONCRETE BOX CULVERT

X1  4256.000     0.000     0.000     0.000    68.000    68.000    68.000     0.000     0.000     0.000
X2     0.000     0.000     0.000     0.000     0.000     0.000     1.000     0.000     0.000     0.000
NC      .042      .042      .036     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1  4257.000     0.000     0.000     0.000     1.000     1.000     1.000     0.000     0.000     0.000
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QT      4.000    145.000    210.000    230.000    330.000      0.000      0.000      0.000      0.000      0.000

                VALLEY SECTION 17.1 (MCS)                   SECT.J

X1   4376.000      8.000     91.300    156.000    119.000    119.000    119.000      0.000      0.000      0.000
X3      0.000      0.000      0.000     91.300      0.000      0.000      0.000      0.000      0.000      0.000
GR    599.100      0.000    598.100     16.000    594.900     61.300    593.900     91.300    589.900    107.300
GR    589.900    119.300    599.100    156.000    599.600    166.000      0.000      0.000      0.000      0.000

                VALLEY SECTION 19.1 (MCS)                   SECT.K

X1   5176.000      8.000     91.300    156.000    800.000    800.000    800.000      0.000      0.000      0.000
X3      0.000      0.000      0.000     91.300      0.000    156.000      0.000      0.000      0.000      0.000
GR    599.700      0.000    598.700     16.000    595.500     61.300    594.500     91.300    590.500    107.300
GR    590.500    119.300    599.700    156.000    600.200    166.000      0.000      0.000      0.000      0.000

                VALLEY SECTION 21.1 (MCS)                   SECT.L

X1   5976.000      8.000     91.300    156.000    800.000    800.000    800.000      0.000      0.000      0.000
GR    600.300      0.000    599.300     16.000    596.100     61.300    595.100     91.300    591.100    107.300
GR    591.100    119.300    600.300    156.000    600.800    166.000      0.000      0.000      0.000      0.000

                VALLEY SECTION 23.1 (MCS)                   SECT.M

X1   6776.000      8.000     91.300    156.000    800.000    800.000    800.000      0.000      0.000      0.000
GR    600.900      0.000    599.900     16.000    596.700     61.300    595.700     91.300    591.700    107.300
GR    591.700    119.300    600.900    156.000    601.400    166.000      0.000      0.000      0.000      0.000

                VALLEY SECTION 24.1 (MCS)                   SECT.N

X1   7061.000      8.000     91.300    156.000    285.000    285.000    285.000      0.000      0.000      0.000
GR    601.100      0.000    600.100     16.000    596.900     61.300    595.900     91.300    591.900    107.300
GR    591.900    119.300    601.100    156.000    601.600    166.000      0.000      0.000      0.000      0.000

X1   7210.000     15.000    500.000    516.000    149.000    149.000    149.000      0.000      0.000      0.000
GR    602.100      0.000    601.700    100.000    601.900    200.000    602.200    300.000    602.000    400.000
GR    601.900    500.000    593.000    500.000    592.200    508.000    593.000    516.000    602.000    516.000
GR    601.900    600.000    601.800    700.000    601.700    800.000    601.600    900.000    601.800   1000.000
NC       .045       .045       .020      0.000      0.000      0.000      0.000      0.000      0.000      0.000

X1   7211.000      0.000      0.000      0.000      1.000      1.000      1.000      0.000      0.000      0.000
BT     13.000      0.000    602.100      0.000    100.000    601.700      0.000    200.000    601.900      0.000
BT    300.000    602.200      0.000    400.000    602.000      0.000    500.000    601.900    598.900    508.000
BT    601.900    598.900    516.000    602.000    598.900    600.000    601.900      0.000    700.000    601.800
BT      0.000    800.000    601.700      0.000    900.000    601.600      0.000   1000.000    601.800      0.000

                21 MILE ROAD  BRIDGE SECTION 1 (J&A)        SECT.O

X1   7259.000      0.000      0.000      0.000     48.000     48.000     48.000      0.000      0.000      0.000
X2      0.000      0.000      0.000      0.000      0.000      0.000      1.000      0.000      0.000      0.000
NC       .042       .042       .036      0.000      0.000      0.000      0.000      0.000      0.000      0.000

X1   7260.000      0.000      0.000      0.000      1.000      1.000      1.000      0.000      0.000      0.000

                VALLEY SECTION 2 (J&A)                      SECT.P
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X1	7883.000	15.000	500.000	530.000	623.000	623.000	623.000	0.000	0.000	0.000
GR	601.100	0.000	600.800	66.000	601.100	100.000	600.400	500.000	597.000	518.000
GR	596.100	529.000	592.900	537.000	591.700	543.000	592.100	550.000	600.000	530.000
GR	601.000	600.000	600.400	700.000	600.500	800.000	600.500	900.000	602.000	1000.000

VALLEY SECTION 3 (J&A) SECT.Q

X1	8623.000	15.000	500.000	616.000	740.000	740.000	740.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	536.000	0.000	577.000	0.000	0.000	0.000	0.000
GR	602.500	0.000	602.700	500.000	598.800	522.000	597.500	533.000	593.800	548.000
GR	593.100	554.000	593.500	560.000	598.100	582.000	599.500	594.000	600.300	600.000
GR	602.500	616.000	602.800	700.000	601.800	800.000	601.300	900.000	601.200	1000.000
X1	8672.000	15.000	500.000	516.000	49.000	49.000	49.000	0.000	0.000	0.000
GR	602.000	0.000	601.600	100.000	601.200	200.000	601.100	300.000	601.500	400.000
GR	602.100	500.000	593.800	500.000	593.900	508.000	593.300	516.000	602.100	516.000
GR	601.500	600.000	600.800	700.000	601.100	800.000	601.000	900.000	600.700	1000.000
NC	.040	.040	.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	8673.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	13.000	0.000	602.000	0.000	100.000	601.600	0.000	200.000	601.200	0.000
BT	300.000	601.100	0.000	400.000	601.500	0.000	500.000	602.100	600.300	508.000
BT	602.100	600.300	516.000	602.100	600.300	600.000	601.500	0.000	700.000	600.800
BT	0.000	800.000	601.100	0.000	900.000	601.000	0.000	1000.000	600.700	0.000

VALLEY FORGE DRIVE BRIDGE SECTION 4 (J&A) SECT.R

X1	8741.000	0.000	0.000	0.000	68.000	68.000	68.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NC	.048	.048	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	8742.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000

VALLEY SECTION 5 (J&A) SECT.S

X1	9573.000	17.000	187.000	220.000	831.000	831.000	831.000	0.000	0.000	0.000
GR	601.200	0.000	602.200	87.000	601.300	147.000	598.500	169.000	597.500	187.000
GR	597.500	187.000	595.500	195.000	594.300	199.000	594.300	204.000	597.800	220.000
GR	598.200	228.000	600.300	249.000	600.500	287.000	600.300	387.000	600.700	487.000
GR	600.700	587.000	601.100	687.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.060	.060	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	4.000	135.000	200.000	220.000	315.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION 6 (J&A) SECT.T

X1	10778.000	15.000	500.000	524.000	1205.000	1205.000	1205.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	602.000	0.000	601.700	100.000	600.900	200.000	601.100	300.000	600.600	400.000
GR	601.100	500.000	598.200	507.000	597.400	512.000	598.300	517.000	601.100	524.000
GR	601.000	600.000	601.400	700.000	600.800	800.000	600.900	900.000	600.900	1000.000
X1	11078.000	0.000	0.000	0.000	300.000	300.000	300.000	0.000	.100	0.000
X3	0.000	0.000	0.000	222.000	0.000	685.000	0.000	0.000	0.000	0.000
X1	11378.000	0.000	0.000	0.000	300.000	300.000	300.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	206.000	0.000	800.000	0.000	0.000	0.000	0.000

X1	11705.000	18.000	500.000	510.300	327.000	327.000	327.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	247.000	0.000	764.000	0.000	0.000	0.000	0.000
GR	601.900	0.000	601.900	100.000	601.800	200.000	601.600	300.000	601.100	400.000
GR	601.400	460.000	601.600	468.000	601.800	475.000	602.200	500.000	598.000	500.000
GR	597.600	505.000	598.200	510.300	601.900	510.300	600.900	600.000	600.800	700.000
GR	601.400	800.000	601.400	900.000	601.100	1000.000	0.000	0.000	0.000	0.000
NC	.050	.050	.036	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	11706.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	247.000	0.000	764.000	0.000	0.000	0.000	0.000
BT	12.000	247.000	601.700	0.000	300.000	601.600	0.000	400.000	601.100	0.000
BT	460.000	601.400	0.000	468.000	599.900	0.000	475.000	601.800	0.000	500.000
BT	602.200	601.400	505.000	602.000	601.300	510.300	601.900	601.300	600.000	600.900
BT	0.000	700.000	600.800	0.000	764.000	601.200	0.000	0.000	0.000	0.000

FARM CULVERT NO.1 BRIDGE SECT. 7 (J&A) SECT.U

X1	11719.000	0.000	0.000	0.000	13.000	13.000	13.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	247.000	0.000	764.000	0.000	0.000	0.000	0.000
NC	.060	.060	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	11720.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	247.000	0.000	764.000	0.000	0.000	0.000	0.000

VALLEY SECTION 8 (J&A) SECT.V

X1	12193.000	13.000	500.000	529.000	473.000	473.000	473.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	319.000	0.000	693.000	0.000	0.000	0.000	0.000
GR	601.000	0.000	601.000	100.000	601.100	200.000	601.900	500.000	598.800	507.000
GR	597.600	513.000	598.200	521.000	601.300	529.000	600.900	600.000	601.600	700.000
GR	602.700	800.000	602.900	900.000	602.400	1000.000	0.000	0.000	0.000	0.000
NC	.060	.060	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	12904.000	15.000	500.000	512.000	711.000	711.000	711.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	451.000	0.000	561.000	0.000	0.000	0.000	0.000
GR	602.900	0.000	602.900	100.000	603.100	200.000	601.900	300.000	602.900	400.000
GR	602.400	490.000	599.400	500.000	598.300	506.000	599.700	512.000	603.100	522.000
GR	602.300	600.000	602.600	700.000	602.900	800.000	603.500	900.000	604.100	1000.000
NC	.050	.050	.060	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	12905.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	451.000	0.000	561.000	0.000	0.000	0.000	0.000
SB	0.000	1.790	2.900	0.000	9.700	0.000	36.300	0.000	598.800	598.300

FARM CULVERT NO.2 BRIDGE SECT. 9 (J&A) SECT.W

X1	12920.000	0.000	0.000	0.000	15.000	15.000	15.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	602.600	602.610	0.000	0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	451.000	0.000	561.000	0.000	0.000	0.000	0.000
BT	6.000	451.000	602.700	0.000	500.000	602.400	599.400	500.000	602.400	601.900
BT	512.000	603.200	602.600	512.000	603.700	599.700	561.000	603.000	0.000	0.000
NC	.060	.060	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	12921.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	451.000	0.000	561.000	0.000	0.000	0.000	0.000

VALLEY SECTION 10 (J&A) SECT.X

X1	13078.000	11.000	500.000	527.000	157.000	157.000	157.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	500.000	0.000	531.000	0.000	0.000	0.000	0.000
GR	604.100	0.000	603.500	500.000	600.100	508.000	599.700	513.000	600.000	521.000
GR	602.500	527.000	602.200	600.000	604.500	700.000	603.300	800.000	605.200	900.000
GR	604.900	1000.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

CRITTENDEN DRAIN
J&A FILE No. 5850-03
MACOMB TWP. FIS
100 YEAR FLOOD
"NATURAL FLOODWAY"

MACJ09U JANDA 04/12/79 08.06.01 7600 JO

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 ****************************************************
   HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
   ERROR CORR -   01,02
   MODIFICATION -  50,51,52,53
 ****************************************************

 C
 T1              MACOMB TWP. FIS J&A FILE NO. 5850-03-1
 T2              100 YEAR FLOOD
 T3              CRITTENDEN DRAIN

 J1   ICHECK      INQ        NINV       IDIR       STRT      METRIC     HVINS       Q          WSEL        FQ

           0.          4.          0.         0.  0.000000      0.00       0.0        0.    592.970     0.000

 J2   NPROF       IPLOT      PRFVS      XSECV      XSECH        FN       ALLDC      IBW       CHNIM      ITRACE

         1.000       0.000     -1.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000

 NC       .045        .045        .039        .300        .500       0.000       0.000       0.000       0.000       0.000
 QT      4.000     150.000     220.000     250.000     345.000       0.000       0.000       0.000       0.000       0.000

 X1   1472.000      13.000     400.000     416.000       0.000       0.000       0.000        .950       0.000       0.000
 GR    600.200       0.000     600.200     100.000     600.300     200.000     600.300     300.000     600.300     400.000
 GR    588.900     400.000     588.300     408.000     588.900     416.000     600.300     416.000     600.300     500.000
 GR    600.400     600.000     600.600     700.000     600.500     800.000       0.000       0.000       0.000       0.000
 NC       .040        .040        .020       0.000       0.000       0.000       0.000       0.000       0.000       0.000

 X1   1473.000       0.000       0.000       0.000       1.000       1.000       1.000       0.000       0.000       0.000
 X2      0.000       0.000       0.000       0.000       0.000       0.000       0.000       0.000        .950       0.000
 BT     10.000       0.000     600.200       0.000     100.000     600.200       0.000     200.000     600.300       0.000
 BT    300.000     600.300       0.000     400.000     600.300     595.700     416.000     600.300     595.700     500.000
 BT    600.300       0.000     600.000     600.400       0.000     700.000     600.600       0.000     800.000     600.500
 BT      0.000       0.000       0.000       0.000       0.000       0.000       0.000       0.000       0.000       0.000

                 HALL ROAD (M-59)  BRIDGE SECTION 5.1 (J&A)       SECT.A

 X1   1528.000       0.000       0.000       0.000      55.000      55.000      55.000       0.000       0.000       0.000
 X2      0.000       0.000       0.000       0.000       0.000       0.000       1.000       0.000       0.000       0.000
 NC       .042        .042        .036       0.000       0.000       0.000       0.000       0.000       0.000       0.000

 X1   1529.000       0.000       0.000       0.000       1.000       1.000       1.000       0.000       0.000       0.000

                 VALLEY SECTION 6.1 (J&A)                         SECT.B

 X1   1628.000      11.000     100.000     135.000      99.000      99.000      99.000       0.000       0.000       0.000
 GR    598.100       0.000     596.600      52.000     592.200     100.000     588.600     106.000     587.700     110.000
 GR    587.600     115.000     588.100     120.000     588.600     125.000     596.000     135.000     596.700     200.000
 GR    598.700     300.000       0.000       0.000       0.000       0.000       0.000       0.000       0.000       0.000

                 VALLEY SECTION 8.1 (J&A)                         SECT.C

 X1   2028.000      11.000     100.000     135.000   [illegible]   600.000   [illegible]     0.000       0.000       0.000
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GR	598.500	0.000	597.000	52.000	592.600	100.000	589.000	106.000	588.100	110.000
GR	588.000	115.000	588.500	120.000	589.000	125.000	596.400	135.000	597.100	200.000
GR	599.100	300.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION 9.1 (MCS) SECT.D

X1	2305.000	9.000	91.300	135.300	280.000	280.000	280.000	0.000	0.000	0.000
GR	599.400	0.000	597.400	16.000	593.200	61.300	592.200	91.300	588.200	107.300
GR	588.200	119.300	592.200	135.300	593.200	165.300	597.400	210.600	0.000	0.000

VALLEY SECTION 11.1 (MCS) SECT.E

X1	2708.000	9.000	91.300	135.300	400.000	400.000	400.000	0.000	0.000	0.000
GR	599.800	0.000	597.800	16.000	593.600	61.300	592.600	91.300	588.600	107.300
GR	588.600	119.300	592.600	135.300	593.600	165.300	597.800	210.600	0.000	0.000

VALLEY SECTION 12.1 (MCS) SECT.F

X1	2808.000	8.000	91.300	156.000	100.000	100.000	100.000	0.000	0.000	0.000
GR	599.900	0.000	597.900	16.000	593.700	61.300	592.700	91.300	588.700	107.300
GR	588.700	119.300	597.900	156.000	598.400	166.000	0.000	0.000	0.000	0.000

VALLEY SECTION 14.1 (MCS) SECT.G

X1	3608.000	8.000	91.300	156.000	800.000	800.000	800.000	0.000	0.000	0.000
GR	600.500	0.000	598.500	16.000	594.300	61.300	593.300	91.300	589.300	107.300
GR	589.300	119.300	598.500	156.000	599.000	166.000	0.000	0.000	0.000	0.000

VALLEY SECTION 15.1 (MCS) SECT.H

X1	4008.000	8.000	91.300	156.000	400.000	400.000	400.000	0.000	0.000	0.000
GR	600.800	0.000	598.800	16.000	594.600	61.300	593.600	91.300	589.600	107.300
GR	589.600	119.300	598.800	156.000	599.300	166.000	0.000	0.000	0.000	0.000

X1	4187.000	7.000	92.000	108.000	179.000	179.000	179.000	0.000	0.000	0.000
GR	599.600	0.000	599.300	50.000	599.400	92.000	589.600	92.000	589.600	108.000
GR	599.500	108.000	600.200	150.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.040	.040	.033	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	4188.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	5.000	0.000	599.600	0.000	50.000	599.300	0.000	92.000	599.400	596.600
BT	108.000	599.500	596.600	150.000	600.200	0.000	0.000	0.000	0.000	0.000

MILLSTONE DRIVE BRIDGE SECTION 16.1 (MCS) SECT.I

16' X 7' CONCRETE BOX CULVERT

X1	4256.000	0.000	0.000	0.000	68.000	68.000	68.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NC	.042	.042	.036	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	4257.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
QT	4.000	145.000	210.000	230.000	330.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION 17.1 (MCS) SECT.J

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X1   4376.000     8.000    91.300   156.000   119.000   119.000   119.000     0.000     0.000     0.000
GR    599.100     0.000   598.100    16.000   594.900    61.300   593.900    91.300   589.900   107.300
GR    589.900   119.300   599.100   156.000   599.600   166.000     0.000     0.000     0.000     0.000

                VALLEY SECTION 19.1 (MCS)                    SECT.K

X1   5176.000     8.000    91.300   156.000   800.000   800.000   800.000     0.000     0.000     0.000
GR    599.700     0.000   598.700    16.000   595.500    61.300   594.500    91.300   590.500   107.300
GR    590.500   119.300   599.700   156.000   600.200   166.000     0.000     0.000     0.000     0.000

                VALLEY SECTION 21.1 (MCS)                    SECT.L

X1   5976.000     8.000    91.300   156.000   800.000   800.000   800.000     0.000     0.000     0.000
GR    600.300     0.000   599.300    16.000   596.100    61.300   595.100    91.300   591.100   107.300
GR    591.100   119.300   600.300   156.000   600.800   166.000     0.000     0.000     0.000     0.000

                VALLEY SECTION 23.1 (MCS)                    SECT.M

X1   6776.000     8.000    91.300   156.000   800.000   800.000   800.000     0.000     0.000     0.000
GR    600.900     0.000   599.900    16.000   596.700    61.300   595.700    91.300   591.700   107.300
GR    591.700   119.300   600.900   156.000   601.400   166.000     0.000     0.000     0.000     0.000

                VALLEY SECTION 24.1 (MCS)                    SECT.N

X1   7061.000     8.000    91.300   156.000   285.000   285.000   285.000     0.000     0.000     0.000
GR    601.100     0.000   600.100    16.000   596.900    61.300   595.900    91.300   591.900   107.300
GR    591.900   119.300   601.100   156.000   601.600   166.000     0.000     0.000     0.000     0.000

X1   7210.000    15.000   500.000   516.000   149.000   149.000   149.000     0.000     0.000     0.000
GR    602.100     0.000   601.700   100.000   601.900   200.000   602.200   300.000   602.000   400.000
GR    601.900   500.000   593.000   500.000   592.200   508.000   593.000   516.000   602.000   516.000
GR    601.900   600.000   601.800   700.000   601.700   800.000   601.600   900.000   601.800  1000.000
NC       .045      .045      .020     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1   7211.000     0.000     0.000     0.000     1.000     1.000     1.000     0.000     0.000     0.000
BT     13.000     0.000   602.100     0.000   100.000   601.700     0.000   200.000   601.900     0.000
BT    300.000   602.200     0.000   400.000   602.000     0.000   500.000   601.900   598.900   508.000
BT    601.900   598.900   516.000   602.000   598.900   600.000   601.900     0.000   700.000   601.800
BT      0.000   800.000   601.700     0.000   900.000   601.600     0.000  1000.000   601.800     0.000

                21 MILE ROAD  BRIDGE SECTION 1 (J&A)         SECT.O

X1   7259.000     0.000     0.000     0.000    48.000    48.000    48.000     0.000     0.000     0.000
X2      0.000     0.000     0.000     0.000     0.000     0.000     1.000     0.000     0.000     0.000
NC       .042      .042      .036     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1   7260.000     0.000     0.000     0.000     1.000     1.000     1.000     0.000     0.000     0.000

                VALLEY SECTION 2 (J&A)                       SECT.P

X1   7883.000    15.000   500.000   580.000   623.000   623.000   623.000     0.000     0.000     0.000
GR    601.100     0.000   600.800    66.000   601.100   100.000   600.400   500.000   597.000   518.000
GR    596.100   529.000   592.900   537.000   591.700   543.000   592.100   550.000   600.000   580.000
GR    601.000   600.000   600.400   700.000   600.500   800.000   600.500   900.000   602.000  1000.000

                ALLEY SECTIO  3 (J&A)                        SECT.Q
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X1	8623.000	15.000	500.000	616.000	740.000	740.000	740.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	536.000	0.000	577.000	0.000	0.000	0.000	0.000
GR	602.500	0.000	602.700	500.000	598.800	522.000	597.500	533.000	593.800	548.000
GR	593.100	554.000	593.500	560.000	598.100	582.000	599.500	594.000	600.300	600.000
GR	602.500	616.000	602.800	700.000	601.800	800.000	601.300	900.000	601.200	1000.000
X1	8672.000	15.000	500.000	516.000	49.000	49.000	49.000	0.000	0.000	0.000
GR	602.000	0.000	601.600	100.000	601.200	200.000	601.100	300.000	601.500	400.000
GR	602.100	500.000	593.800	500.000	593.900	508.000	593.300	516.000	602.100	516.000
GR	601.500	600.000	600.800	700.000	601.100	800.000	601.000	900.000	600.700	1000.000
NC	.040	.040	.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	8673.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	13.000	0.000	602.000	0.000	100.000	601.600	0.000	200.000	601.200	0.000
BT	300.000	601.100	0.000	400.000	601.500	0.000	500.000	602.100	600.300	508.000
BT	602.100	600.300	516.000	602.100	600.300	600.000	601.500	0.000	700.000	600.800
BT	0.000	800.000	601.100	0.000	900.000	601.000	0.000	1000.000	600.700	0.000

VALLEY FORGE DRIVE BRIDGE SECTION 4 (J&A) SECT.R

X1	8741.000	0.000	0.000	0.000	68.000	68.000	68.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NC	.048	.048	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	8742.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000

VALLEY SECTION 5 (J&A) SECT.S

X1	9573.000	17.000	187.000	220.000	831.000	831.000	831.000	0.000	0.000	0.000
GR	601.200	0.000	602.200	87.000	601.300	147.000	598.500	169.000	597.500	187.000
GR	597.500	187.000	595.500	195.000	594.300	199.000	594.300	204.000	597.800	220.000
GR	598.200	228.000	600.300	249.000	600.500	287.000	600.300	387.000	600.700	487.000
GR	600.700	587.000	601.100	687.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.060	.060	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	4.000	135.000	200.000	220.000	315.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION 6 (J&A) SECT.T

X1	10778.000	15.000	500.000	524.000	1205.000	1205.000	1205.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	602.000	0.000	601.700	100.000	600.900	200.000	601.100	300.000	600.600	400.000
GR	601.100	500.000	598.200	507.000	597.400	512.000	598.300	517.000	601.100	524.000
GR	601.000	600.000	601.400	700.000	600.800	800.000	600.900	900.000	600.900	1000.000
X1	11078.000	0.000	0.000	0.000	300.000	300.000	300.000	0.000	.100	0.000
X3	0.000	0.000	0.000	0.000	0.000	785.000	0.000	0.000	0.000	0.000
X1	11379.000	0.000	0.000	0.000	300.000	300.000	300.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	900.000	0.000	0.000	0.000	0.000
X1	11705.000	18.000	500.000	510.300	327.000	327.000	327.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	147.000	0.000	864.000	0.000	0.000	0.000	0.000
GR	601.900	0.000	601.900	100.000	601.800	200.000	601.600	300.000	601.100	400.000
GR	601.400	460.000	601.600	468.000	601.800	475.000	602.200	500.000	598.000	500.000
GR	597.600	505.000	598.200	510.300	601.900	510.300	600.900	600.000	600.800	700.000
GR	601.400	800.000	601.400	900.000	601.100	1000.000	0.000	0.000	0.000	0.000

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NC        .050      .050      .036     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1   11706.000     0.000     0.000     0.000     1.000     1.000     1.000     0.000     0.000     0.000
X3       0.000     0.000     0.000   147.000     0.000   864.000     0.000     0.000     0.000     0.000
BT      14.000   147.000   601.900     0.000   200.000   601.800     0.000   300.000   601.600     0.000
BT     400.000   601.100     0.000   460.000   601.400     0.000   468.000   599.900     0.000   475.000
BT     601.800     0.000   500.000   602.200   601.400   505.000   602.000   601.300   510.300   601.900
BT     601.300   600.000   600.900     0.000   700.000   600.800     0.000   800.000   601.400     0.000
BT     864.000   601.400     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

                    FARM CULVERT NO.1  BRIDGE SECT. 7 (J&A)        SECT.U
X1   11719.000     0.000     0.000     0.000    13.000    13.000    13.000     0.000     0.000     0.000
X2       0.000     0.000     0.000     0.000     0.000     0.000     1.000     0.000     0.000     0.000
X3       0.000     0.000     0.000   147.000     0.000   864.000     0.000     0.000     0.000     0.000
NC        .060      .060      .040     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1   11720.000     0.000     0.000     0.000     1.000     1.000     1.000     0.000     0.000     0.000
X3       0.000     0.000     0.000   147.000     0.000   864.000     0.000     0.000     0.000     0.000

                    VALLEY SECTION 8 (J&A)                          SECT.V
X1   12193.000    13.000   500.000   529.000   473.000   473.000   473.000     0.000     0.000     0.000
X3       0.000     0.000     0.000   269.000     0.000     0.000     0.000     0.000     0.000     0.000
GR     601.000     0.000   601.000   100.000   601.100   200.000   601.900   500.000   598.800   507.000
GR     597.600   513.000   598.200   521.000   601.300   529.000   600.900   600.000   601.600   700.000
GR     602.700   800.000   602.900   900.000   602.400  1000.000     0.000     0.000     0.000     0.000
NC        .060      .060      .040     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1   12904.000    15.000   500.000   512.000   711.000   711.000   711.000     0.000     0.000     0.000
X3       0.000     0.000     0.000   451.000     0.000   561.000     0.000     0.000     0.000     0.000
GR     602.900     0.000   602.900   100.000   603.100   200.000   601.900   300.000   602.900   400.000
GR     602.400   490.000   599.400   500.000   598.800   506.000   599.700   512.000   603.100   522.000
GR     602.300   600.000   602.600   700.000   602.900   800.000   603.500   900.000   604.100  1000.000
NC        .050      .050      .060     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1   12905.000     0.000     0.000     0.000     1.000     1.000     1.000     0.000     0.000     0.000
X3       0.000     0.000     0.000   451.000     0.000   561.000     0.000     0.000     0.000     0.000
SB       0.000     1.790     2.900     0.000     9.700     0.000    36.800     0.000   598.800   598.800

                    FARM CULVERT NO.2  BRIDGE SECT. 9 (J&A)        SECT.W
X1   12920.000     0.000     0.000     0.000    15.000    15.000    15.000     0.000     0.000     0.000
X2       0.000     0.000     1.000   602.600   602.610     0.000     0.000     0.000     0.000     0.000
X3       0.000     0.000     0.000   451.000     0.000   561.000     0.000     0.000     0.000     0.000
BT       6.000   451.000   602.700     0.000   500.000   602.400   599.400   500.000   602.400   601.900
BT     512.000   603.200   602.600   512.000   603.700   599.700   561.000   603.000     0.000     0.000
NC        .060      .060      .040     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1   12921.000     0.000     0.000     0.000     1.000     1.000     1.000     0.000     0.000     0.000
X3       0.000     0.000     0.000   451.000     0.000   561.000     0.000     0.000     0.000     0.000

                    VALLEY SECTION 10 (J&A)                         SECT.X
X1   13078.000    11.000   500.000   527.000   157.000   157.000   157.000     0.000     0.000     0.000
X3       0.000     0.000     0.000   500.000     0.000   531.000     0.000     0.000     0.000     0.000
GR     604.100     0.000   603.500  [illegible]  600.100  [illegible]  599.700  513.000  [illegible]  521.000
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GR    602.500   527.000   602.200   600.000   604.500   700.000   603.300   800.000   605.200   900.000
GR    604.900  1000.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
EJ      0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

*PROF 1

CCHV=    .300 CEHV=    .500
*SECNO 1472.000
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST

  1472.00      4.67    592.97      0.00    592.97    593.19       .22      0.00      0.00    600.30
   250.         0.      250.         0.        0.       66.        0.        0.        0.     600.30
   0.00       0.00      3.76      0.00      .045      .039      .045     0.000    588.30    380.00
  .002426      0.        0.        0.         0         0         0      0.00     15.20    395.20

*SECNO 1473.000

3370 NORMAL BRIDGE,NRD= 10 MIN ELTRD=  600.20 MAX ELLC=  595.70

  1473.00      4.67    592.97      0.00      0.00    593.19       .22       .00       .00    600.30
   250.         0.      250.         0.        0.       66.        0.        0.        0.     600.30
    .00       0.00      3.76      0.00      .040      .020      .040      .010    588.30    380.00
  .000637      1.        1.        1.         0         0         0      0.00     15.20    395.20

*SECNO 1528.000

3370 NORMAL BRIDGE,NRD= 10 MIN ELTRD=  600.20 MAX ELLC=  595.70

                 HALL ROAD (M-59)  BRIDGE SECTION 5.1 (J&A)        SECT.A

  1528.00      4.71    593.01      0.00      0.00    593.23       .22       .03       .00    600.30
   250.         0.      250.         0.        0.       67.        0.        0.        0.     600.30
    .00       0.00      3.73      0.00      .040      .020      .040      .019    588.30    380.00
  .000621     55.       55.       55.         2         0         0      0.00     15.20    395.20

*SECNO 1529.000
  1529.00      4.71    593.01      0.00      0.00    593.23       .22       .00       .00    600.30
   250.         0.      250.         0.        0.       67.        0.        0.        0.     600.30
    .00       0.00      3.73      0.00      .042      .036      .042      .019    588.30    380.00
  .002012      1.        1.        1.         0         0         0      0.00     15.20    395.20

*SECNO 1628.000
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST

                 VALLEY SECTION 6.1 (J&A)                          SECT.B

  1628.00      5.69    593.29      0.00      0.00    593.34       .05       .07       .05    592.20
   250.         3.      247.         0.        6.      133.        0.        0.        0.     596.00
    .02        .43      1.86      0.00      .042      .036      .042      .030    587.60     88.11
  .000331     99.       99.       99.         2         0         0      0.00     43.23    131.34
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*SECNO 2028.000

VALLEY SECTION 8.1 (J&A) SECT.C

2028.00	5.43	593.43	0.00	0.00	593.49	.06	.15	.00	592.60
250.	1.	249.	0.	4.	125.	0.	2.	0.	596.40
.08	.40	1.99	0.00	.042	.036	.042	.034	588.00	90.94
.000405	400.	400.	400.	2	0	0	0.00	40.04	130.99

*SECNO 2305.000

VALLEY SECTION 9.1 (MCS) SECT.D

2305.00	5.35	593.55	0.00	0.00	593.58	.03	.07	.01	592.20
250.	11.	229.	11.	26.	171.	26.	3.	1.	592.20
.14	.41	1.34	.41	.042	.036	.042	.035	588.20	57.61
.000177	280.	280.	280.	1	0	0	0.00	111.38	169.99

*SECNO 2708.000

VALLEY SECTION 11.1 (MCS) SECT.E

2708.00	5.03	593.63	0.00	0.00	593.66	.03	.08	.00	592.60
250.	6.	238.	6.	16.	157.	16.	5.	2.	592.60
.21	.37	1.51	.37	.042	.036	.042	.035	588.60	60.98
.000254	400.	400.	400.	2	0	0	0.00	104.64	165.62

*SECNO 2808.000

VALLEY SECTION 12.1 (MCS) SECT.F

2808.00	4.96	593.66	0.00	0.00	593.69	.04	.03	.00	592.70
250.	5.	245.	0.	14.	156.	0.	5.	2.	597.90
.23	.38	1.57	0.00	.042	.036	.042	.035	588.70	62.77
.000311	100.	100.	100.	0	0	0	0.00	76.28	139.05

*SECNO 3608.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

VALLEY SECTION 14.1 (MCS) SECT.G

3608.00	4.64	593.94	0.00	0.00	593.99	.05	.29	.00	593.30
250.	2.	248.	0.	6.	141.	0.	8.	3.	593.50
.36	.34	1.76	0.00	.042	.036	.042	.035	589.30	72.09
.000427	800.	800.	800.	2	0	0	0.00	65.72	137.81

*SECNO 4008.000

VALLEY SECTION 15.1 (MCS) SECT.H

4008.00	4.52	594.12	0.00	0.00	594.17	.05	.18	.00	593.60
250.	1.	249.	0.	4.	135.	0.	9.	4.	593.80
.42	.32	1.84	0.00	.042	.036	.042	.036	589.60	75.70
.000485	400.	400.	400.	2	0	0	0.00	61.63	137.33

```
*SECNO 4187.000
   4187.00      4.60    594.20      0.00      0.00    594.38       .18       .15       .06    599.40
    250.          0.      250.        0.        0.       74.        0.       10.        4.     599.50
     .43        0.00      3.40      0.00      .042      .036      .042      .036    589.60     92.00
  .001620       179.      179.      179.         0         0         0      0.00     16.00    108.00

 *SECNO 4188.000

 3370 NORMAL BRIDGE,NRD=   5 MIN ELTRD=   599.30 MAX ELLC=   596.60

   4188.00      4.60    594.20      0.00      0.00    594.38       .18       .00       .00    599.40
    250.          0.      250.        0.        0.       74.        0.       10.        4.     599.50
     .43        0.00      3.39      0.00      .040      .033      .040      .036    589.60     92.00
  .001360         1.        1.        1.         0         0         0      0.00     16.00    108.00

 *SECNO 4256.000

 3370 NORMAL BRIDGE,NRD=   5 MIN ELTRD=   599.30 MAX ELLC=   596.60

                 MILLSTONE DRIVE  BRIDGE SECTION 16.1 (MCS)        SECT.I

                 16' X 7' CONCRETE BOX CULVERT

   4256.00      4.70    594.30      0.00      0.00    594.47       .17       .09       .00    599.40
    250.          0.      250.        0.        0.       75.        0.       10.        4.     599.50
     .44        0.00      3.32      0.00      .040      .033      .040      .035    589.60     92.00
  .001278        68.       68.       68.         0         0         0      0.00     16.00    108.00

 *SECNO 4257.000
    SECNO      DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
    Q          QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
    TIME       VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
    SLOPE      XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST

   4257.00      4.70    594.30      0.00      0.00    594.48       .17       .00       .00    599.40
    250.          0.      250.        0.        0.       75.        0.       10.        4.     599.50
     .44        0.00      3.32      0.00      .042      .036      .042      .035    589.60     92.00
  .001522         1.        1.        1.         0         0         0      0.00     16.00    108.00

 *SECNO 4376.000

                 VALLEY SECTION 17.1 (MCS)                          SECT.J

   4376.00      4.65    594.55      0.00      0.00    594.59       .04       .08       .04    593.90
    230.          2.      228.        0.        6.      142.        0.       10.        4.     599.10
     .46         .32      1.61      0.00      .042      .036      .042      .035    589.90     71.67
  .000356       119.      119.      119.         2         0         0      0.00     66.20    137.87

 *SECNO 5176.000

                 VALLEY SECTION 19.1 (MCS)                          SECT.K

   5176.00      4.38    594.88      0.00      0.00    594.93       .05       .33       .00    594.50
    230.          1.      229.        0.        2.      129.        0.       13.        5.     599.70
     .58         .25      1.78      0.00      .042      .036      .042      .036    590.50     80.07
  .000480       800.      800.      800.         2         0         0      0.00     56.68    136.75
```

*SECNO 5976.000

VALLEY SECTION 21.1 (MCS) SECT.L

5976.00	4.20	595.30	0.00	0.00	595.35	.06	.42	.00	595.10
230.	0.	230.	0.	1.	121.	0.	15.	6.	600.30
.70	.18	1.90	0.00	.042	.036	.042	.036	591.10	85.35
.000584	800.	800.	800.	2	0	0	0.00	50.69	136.05

*SECNO 6776.000

VALLEY SECTION 23.1 (MCS) SECT.M

6776.00	4.09	595.79	0.00	0.00	595.85	.06	.50	.00	595.70
230.	0.	230.	0.	0.	116.	0.	17.	7.	600.90
.81	.12	1.98	0.00	.042	.036	.042	.036	591.70	88.54
.000659	800.	800.	800.	2	0	0	0.00	47.08	135.62

*SECNO 7061.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

VALLEY SECTION 24.1 (MCS) SECT.N

7061.00	4.08	595.98	0.00	0.00	596.04	.06	.19	.00	595.90
230.	0.	230.	0.	0.	115.	0.	18.	8.	601.10
.85	.01	2.00	0.00	.042	.036	.042	.036	591.90	89.03
.000672	285.	285.	285.	1	0	0	0.00	46.52	135.56

*SECNO 7210.000

7210.00	3.86	596.06	0.00	0.00	596.33	.27	.18	.10	601.90
230.	0.	230.	0.	0.	56.	0.	18.	8.	602.00
.86	0.00	4.14	0.00	.042	.036	.042	.036	592.20	500.00
.002966	149.	149.	149.	1	0	0	0.00	16.00	516.00

*SECNO 7211.000

3370 NORMAL BRIDGE,NRD= 13 MIN ELTRD= 601.60 MAX ELLC= 598.90

7211.00	3.86	596.06	0.00	0.00	596.33	.27	.00	.00	601.90
230.	0.	230.	0.	0.	55.	0.	18.	8.	602.00
.86	0.00	4.15	0.00	.045	.020	.045	.036	592.20	500.00
.000921	1.	1.	1.	0	0	0	0.00	16.00	516.00

*SECNO 7259.000

3370 NORMAL BRIDGE,NRD= 13 MIN ELTRD= 601.60 MAX ELLC= 598.90

21 MILE ROAD BRIDGE SECTION 1 (J&A) SECT.O

7259.00	3.92	596.12	0.00	0.00	596.38	.26	.04	.00	601.90
230.	0.	230.	0.	0.	56.	0.	18.	8.	602.00
.87	0.00	4.09	0.00	.045	.020	.045	.036	592.20	500.00
.000881	48.	48.	48.	2	0	0	0.00	16.00	516.00

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*SECNO 7260.000
   7260.00     3.92   596.12     0.00     0.00   596.36      .26      .00      .00   601.90
    230.        0.     230.        0.       0.      56.       0.      18.       8.   602.00
     .87      0.00     4.09     0.00     .042     .036     .042     .036   592.20   500.00
 .002853        1.       1.       1.        0        0        0     0.00    16.00   516.00

*SECNO 7883.000
    SECNO    DEPTH    CWSEL    CRIWS    WSELK       EG       HV       HL    OLOSS  BANK ELEV
    Q         QLOB     QCH      QROB     ALOB      ACH     AROB      VOL      TWA  LEFT/RIGHT
    TIME      VLOB     VCH      VROB     XNL      XNCH      XNR      WTN    ELMIN      SSTA
    SLOPE    XLOBL    XLCH     XLOBR   ITRIAL      IDC    ICONT    CORAR   TOPWID     ENDST

                        VALLEY SECTION 2 (J&A)                         SECT.P

   7883.00     5.30   597.00     0.00     0.00   597.05      .05      .61      .06   600.40
    230.        0.     230.        0.       0.     134.       0.      20.       8.   600.00
     .97      0.00     1.71     0.00     .042     .036     .042     .036   591.70   518.01
 .000485      623.     623.     623.        2        0        0     0.00    50.59   568.60

*SECNO 8623.000

3470 ENCROACHMENT STATIONS=     536.0      577.0  TYPE=      1  TARGET=       41.000

                        VALLEY SECTION 3 (J&A)                         SECT.O

   8623.00     4.32   597.42     0.00     0.00   597.49      .07      .43      .01100000.00
    230.        0.     230.        0.       0.     111.       0.      22.       9. 100000.00
    1.07      0.00     2.08     0.00     .042     .036     .042     .036   593.10   536.00
 .000712      740.     740.     740.        3        0        0     0.00    41.00   577.00

*SECNO 8672.000
   8672.00     4.10   597.40     0.00     0.00   597.64      .24      .06      .09   602.10
    230.        0.     230.        0.       0.      59.       0.      22.       9.   602.10
    1.07      0.00     3.91     0.00     .042     .036     .042     .036   593.30   500.00
 .002681       49.      49.      49.        2        0        0     0.00    16.00   516.00

*SECNO 8673.000

3370 NORMAL BRIDGE,NRD= 13 MIN ELTRD=  600.70 MAX ELLC=  600.30

   8673.00     4.10   597.40     0.00     0.00   597.64      .24      .00      .00   602.10
    230.        0.     230.        0.       0.      59.       0.      22.       9.   602.10
    1.07      0.00     3.91     0.00     .040     .020     .040     .036   593.30   500.00
 .000826        1.       1.       1.        0        0        0     0.00    16.00   516.00

*SECNO 8741.000

3370 NORMAL BRIDGE,NRD= 13 MIN ELTRD=  600.70 MAX ELLC=  600.30

                        VALLEY FORGE DRIVE  BRIDGE SECTION 4 (J&A)     SECT.R

   8741.00     4.17   597.47     0.00     0.00   597.69      .23      .05      .00   602.10
    230.        0.     230.        0.       0.      60.       0.      22.       9.   602.10
    1.08      0.00     3.84     0.00     .040     .020     .040     .035   593.30   500.00
 .000785       68.      68.      68.        2        0        0     0.00    16.00   516.00

*SECNO 8742.000
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   SECNO      DEPTH      CWSEL      CRIWS      WSELK       EG         HV         HL        OLOSS   BANK ELEV
   Q          QLOB       QCH        QROB       ALOB        ACH        AROB       VOL       TWA    LEFT/RIGHT
   TIME       VLOB       VCH        VROB       XNL         XNCH       XNR        WTN       ELMIN     SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL      IDC        ICONT      CORAR     TOPWID    ENDST

  8742.00      4.17     597.47       0.00       0.00     597.70        .23        .00        .00    602.10
    230.         0.       230.         0.         0.        60.         0.        22.         9.     602.10
    1.08       0.00       3.84       0.00       .048       .040       .048       .035     593.30    500.00
 .003137         1.         1.         1.          0          0          0       0.00      16.00    516.00

*SECNO 9573.000

                VALLEY SECTION 5 (J&A)                          SECT.S

  9573.00      4.51     598.81       0.00       0.00     598.88        .07       1.13        .05    597.50
    230.        11.       214.         6.        15.       101.         8.        24.        10.     597.60
    1.19        .73       2.12        .66       .048       .040       .048       .036     594.30    166.56
 .000759       831.       831.       831.          2          0          0       0.00      67.55    234.11

*SECNO 10778.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       601.10 ELREA=       601.10

                VALLEY SECTION 6 (J&A)                          SECT.T

 10778.00      3.33     600.73       0.00       0.00     601.11        .39       2.07        .16    601.10
    220.         0.       220.         0.         0.        44.         0.        26.        11.     601.10
    1.26       0.00       4.99       0.00       .060       .040       .060       .036     597.40    500.90
 .007719      1205.      1205.      1265.          3          0          0       0.00      22.16    523.06

*SECNO 11078.000
3280 CROSS SECTION  11078.00 EXTENDED        .62 FEET

3470 ENCROACHMENT STATIONS=          .0      785.0  TYPE=      1  TARGET=       784.999
 11078.00      4.12     601.62       0.00       0.00     601.64        .02        .42        .11    601.20
    220.        87.       102.        31.       211.        63.       100.        27.        13.     601.20
    1.34        .41       1.62        .31       .060       .040       .060       .037     597.50    122.20
 .000561       300.       300.       300.          3          0          0       0.00     662.80    785.00

*SECNO 11378.000
3280 CROSS SECTION  11378.00 EXTENDED        .75 FEET

3470 ENCROACHMENT STATIONS=          .0      900.0  TYPE=      1  TARGET=       899.999
 11378.00      4.25     601.75       0.00       0.00     601.75        .01        .11        .00    601.20
    220.        81.        74.        65.       260.        66.       225.        31.        19.     601.20
    1.49        .31       1.12        .29       .060       .040       .060       .037     597.50    106.31
 .000255       300.       300.       300.          3          0          0       0.00     793.69    900.00

*SECNO 11705.000

3265 DIVIDED FLOW

3280 CROSS SECTION  11705.00 EXTENDED        .77 FEET
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SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA      LEFT/RIGHT
TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


3470 ENCROACHMENT STATIONS=      147.0      864.0  TYPE=      1  TARGET=      717.000
 11705.00      4.26    601.86      0.00      0.00    601.87       .01       .12       .00    602.20
     220.       38.       62.      120.      112.       41.      251.       34.       24.    601.90
     1.61       .34      1.49       .48      .060      .040      .060      .037    597.60    147.00
  .000524      327.      327.      327.         1         0         0      0.00    693.48    864.00

*SECNO 11706.000

3265 DIVIDED FLOW

3280 CROSS SECTION  11706.00 EXTENDED       .76 FEET


3370 NORMAL BRIDGE,NRD= 14 MIN ELTRD=  599.90 MAX ELLC=  601.40


3470 ENCROACHMENT STATIONS=      147.0      864.0  TYPE=      1  TARGET=      717.000
 11706.00      4.27    601.87      0.00      0.00    601.87       .01       .00       .00    602.20
     220.       43.       39.      138.      109.       36.      248.       34.       24.    601.90
     1.61       .40      1.08       .56      .050      .036      .050      .037    597.60    147.00
  .000499        1.        1.        1.         0         0         0     -5.70    692.15    864.00

*SECNO 11719.000

3265 DIVIDED FLOW

3280 CROSS SECTION  11719.00 EXTENDED       .77 FEET


3370 NORMAL BRIDGE,NRD= 14 MIN ELTRD=  599.90 MAX ELLC=  601.40


3470 ENCROACHMENT STATIONS=      147.0      864.0  TYPE=      1  TARGET=      717.000

                FARM CULVERT NO.1  BRIDGE SECT. 7 (J&A)         SECT.U

 11719.00      4.27    601.87      0.00      0.00    601.88       .01       .01       .00    602.20
     220.       44.       38.      138.      113.       36.      252.       34.       24.    601.90
     1.62       .39      1.05       .55      .050      .036      .050      .037    597.60    147.00
  .000472       13.       13.       13.         0         0         0     -6.20    694.21    864.00


*SECNO 11720.000

3265 DIVIDED FLOW

3280 CROSS SECTION  11720.00 EXTENDED       .77 FEET


3470 ENCROACHMENT STATIONS=      147.0      864.0  TYPE=      1  TARGET=      717.000
 11720.00      4.27    601.87      0.00      0.00    601.88       .01       .00       .00    602.20
     220.       39.       61.      120.      114.       41.      253.       34.       24.    601.90
     1.62       .34      1.47       .48      .060      .040      .060      .037    597.60    147.00
  .000514        1.        1.        1.         0         0         0      0.00    696.30    864.00
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*SECNO 12193.000

3470 ENCROACHMENT STATIONS=      269.0     1000.0  TYPE=      1  TARGET=     -269.000

                VALLEY SECTION 8 (J&A)                               SECT.V

  12193.00      4.47    602.07      0.00      0.00    602.09       .02       .20       .00    601.90
      220.       31.      123.       66.      110.       87.      160.       38.       31.    601.30
      1.76       .28      1.41       .41      .060      .040      .060      .037    597.60    269.00
   .000353      473.      473.      473.         2         0         0      0.00    473.51    742.51

*SECNO 12904.000
    SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS  BANK ELEV
    Q         QLOB      QCH       QROB      ALOB       ACH       AROB      VOL       TWA  LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL        XNCH      XNR       WTN      ELMIN      SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL     IDC       ICONT     CORAR    TOPWID     ENDST

3470 ENCROACHMENT STATIONS=      451.0      561.0  TYPE=      1  TARGET=      110.000
  12904.00      3.70    602.50      0.00      0.00    602.74       .24       .55       .11    599.40
      220.       28.      174.       18.       17.       40.       12.       42.       35.    599.70
      1.81      1.65      4.35      1.58      .060      .040      .060      .037    598.80    471.56
   .002790      711.      711.      711.         2         0         0      0.00     48.69    520.24

*SECNO 12905.000

3470 ENCROACHMENT STATIONS=      451.0      561.0  TYPE=      1  TARGET=      110.000
  12905.00      3.82    602.62      0.00      0.00    602.77       .15       .00       .03    599.40
      220.       46.      145.       29.       22.       41.       13.       42.       35.    599.70
      1.81      2.14      3.50      2.30      .050      .060      .050      .037    598.80    451.00
   .003874        1.        1.        1.         2         0         0      0.00     69.59    520.59

SPECIAL BRIDGE

SB   XK        XKOR      COFQ      RDLEN       BWC       BWP     BAREA        SS     ELCHU     ELCHD
     0.00      1.79      2.90      0.00       9.70      0.00     36.80      0.00    598.80    598.80
*SECNO 12920.000

3265 DIVIDED FLOW

PRESSURE AND WEIR FLOW

  EGPRS     EGLWC        H3     QWEIR       QPR     BAREA  TRAPEZOID      ELLC     ELTRD
                                                              AREA
   603.62    602.77      0.00       67.      154.       37.       37.    602.60    602.61

3470 ENCROACHMENT STATIONS=      451.0      561.0  TYPE=      1  TARGET=      110.000

                FARM CULVERT NO.2  BRIDGE SECT. 9 (J&A)              SECT.W

  12920.00      4.23    603.03      0.00      0.00    603.11       .08       .34      0.00    599.40
      220.       63.      125.       32.       42.       46.       22.       42.       35.    599.70
      1.81      1.51      2.71      1.45      .050      .060      .050      .037    598.80    451.00
   .002000       15.       15.       15.         2         0         2      0.00    103.14    561.00
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*SECNO 12921.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=      451.0      561.0  TYPE=      1  TARGET=      110.000
 12921.00      4.21    603.01      0.00      0.00    603.14       .13       .00       .03    599.40
     220.       43.      156.       21.       41.       46.       21.       42.       35.    599.70
     1.81      1.05      3.39      1.03      .060      .040      .060      .037    598.80    451.00
  .001407        1.        1.        1.         2         0         0      0.00    100.67    561.00

*SECNO 13078.000

3470 ENCROACHMENT STATIONS=      500.0      531.0  TYPE=      1  TARGET=       31.000

                VALLEY SECTION 10 (J&A)                              SECT.X

 13078.00      3.57    603.27      0.00      0.00    603.42       .16       .27       .01    603.50
     220.        0.      217.        3.        0.       63.        3.       42.       35.    602.50
     1.82      0.00      3.18       .87      .060      .040      .060      .037    599.70    500.53
  .002197      157.      157.      157.         0         0         0      0.00     30.47    531.00
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*********************************************
 HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
 ERROR CORR -  01,02
 MODIFICATION -  50,51,52,53
*********************************************


T1              MACOMB TWP. FIS J&A FILE NO. 5850-03-1
T2              100 YEAR FLOOD
T3              CRITTENDEN DRAIN

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.         4.         0.        0.  0.000000     0.00       0.0        0.   592.970    0.000

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      3.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
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*PROF 3

CCHV=     .300 CEHV=      .500
*SECNO 1472.000
   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS     BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA     LEFT/RIGHT
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN       SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID      ENDST

   1472.00     4.67     592.97      0.00     592.97     593.19       .22       0.00       0.00     600.30
     250.        0.       250.        0.         0.        66.        0.         0.         0.      600.30
     0.00      0.00      3.76      0.00       .045       .039      .045      0.000     588.30     380.00
   .002426       0.        0.        0.          0          0         0       0.00      15.20     395.20

*SECNO 1473.000

3370 NORMAL BRIDGE,NRD= 10 MIN ELTRD=  600.20 MAX ELLC=  595.70

   1473.00     4.67     592.97      0.00       0.00     593.19       .22        .00        .00     600.30
     250.        0.       250.        0.         0.        66.        0.         0.         0.      600.30
      .00      0.00      3.76      0.00       .040       .020      .040       .010     588.30     380.00
   .000637       1.        1.        1.          0          0         0       0.00      15.20     395.20

*SECNO 1528.000

3370 NORMAL BRIDGE,NRD= 10 MIN ELTRD=  600.20 MAX ELLC=  595.70

                HALL ROAD (M-59)  BRIDGE SECTION 5.1 (J&A)        SECT.A

   1528.00     4.71     593.01      0.00       0.00     593.23       .22        .03        .00     600.30
     250.        0.       250.        0.         0.        67.        0.         0.         0.      600.30
      .00      0.00      3.73      0.00       .040       .020      .040       .019     588.30     380.00
   .000621      55.       55.       55.          2          0         0       0.00      15.20     395.20

*SECNO 1529.000
   1529.00     4.71     593.01      0.00       0.00     593.23       .22        .00        .00     600.30
     250.        0.       250.        0.         0.        67.        0.         0.         0.      600.30
      .00      0.00      3.73      0.00       .042       .036      .042       .019     588.30     380.00
   .002012       1.        1.        1.          0          0         0       0.00      15.20     395.20

*SECNO 1628.000
   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS     BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA     LEFT/RIGHT
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN       SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID      ENDST

3470 ENCROACHMENT STATIONS=      100.0      300.0  TYPE=       1  TARGET=     -100.000

                VALLEY SECTION 6.1 (J&A)                          SECT.B

   1628.00     5.69     593.29      0.00       0.00     593.35       .05        .07        .05     592.20
     250.        0.       250.        0.         0.       133.        0.         0.         0.      596.00
      .02      0.00      1.88      0.00       .042       .036      .042       .030     587.60     100.00
   .000354      99.       99.       99.          2          0         0       0.00      31.34     131.34
```

Starting WSEL
from Gloede Ditch
see Hydraulic Book

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*SECNO 2028.000
3470 ENCROACHMENT STATIONS=       100.0      300.0  TYPE=      1  TARGET=     -100.000

                    VALLEY SECTION 8.1 (J&A)                                SECT.C

     2028.00      5.44    593.44      0.00      0.00    593.50       .06       .15       .00    592.60
      250.         0.       250.        0.        0.      125.        0.        1.        0.    596.40
        .07      0.00      2.00      0.00      .042      .036      .042      .034    588.00    100.00
     .000422      400.      400.      400.         2         0         0      0.00     31.00    131.00

*SECNO 2305.000
3470 ENCROACHMENT STATIONS=        91.3      135.3  TYPE=      1  TARGET=       44.000

                    VALLEY SECTION 9.1 (MCS)                                SECT.D

     2305.00      5.36    593.56      0.00      0.00    593.60       .03       .08       .01    592.20
      250.         0.       250.        0.        0.      172.        0.        2.        1. 100000.00
        .13      0.00      1.46      0.00      .042      .036      .042      .035    588.20     91.30
     .000226      280.      280.      280.         1         0         0      0.00     44.00    135.30

*SECNO 2708.000
3470 ENCROACHMENT STATIONS=        91.3      135.3  TYPE=      1  TARGET=       44.000

                    VALLEY SECTION 11.1 (MCS)                               SECT.E

     2708.00      5.06    593.66      0.00      0.00    593.70       .04       .10       .00    592.00
      250.         0.       250.        0.        0.      159.        0.        4.        1. 100000.00
        .20      0.00      1.57      0.00      .042      .036      .042      .035    588.60     91.30
     .000289      400.      400.      400.         2         0         0      0.00     44.00    135.30

*SECNO 2808.000
3470 ENCROACHMENT STATIONS=        91.3      166.0  TYPE=      1  TARGET=      -91.300

                    VALLEY SECTION 12.1 (MCS)                               SECT.F

     2808.00      4.99    593.69      0.00      0.00    593.73       .04       .03       .00    592.70
      250.         0.       250.        0.        0.      157.        0.        4.        1.    597.90
        .22      0.00      1.59      0.00      .042      .036      .042      .035    588.70     91.30
     .000322      100.      100.      100.         0         0         0      0.00     47.90    139.20

*SECNO 3608.000
      SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS   BANK ELEV
      Q          QLOB      QCH       QROB      ALOB       ACH      AROB       VOL       TWA  LEFT/RIGHT
      TIME       VLOB      VCH       VROB      XNL       XNCH       XNR       WTN     ELMIN       SSTA
      SLOPE      XLOBL     XLCH      XLOBR     ITRIAL     IDC      ICONT     CORAR    TOPWID      ENDST

3470 ENCROACHMENT STATIONS=        91.3      166.0  TYPE=      1  TARGET=      -91.300

                    VALLEY SECTION 14.1 (MCS)                               SECT.G

     3608.00      4.68    593.98      0.00      0.00    594.03       .05       .29       .00    593.30
      250.         0.       250.        0.        0.      143.        0.        7.        2.    598.50
        .34      0.00      1.75      0.00      .042      .036      .042      .035    589.30     91.30
     .000426      800.      800.      800.         2         0         0      0.00     46.68    137.98
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*SECNO 4008.000
3470 ENCROACHMENT STATIONS=       91.3      166.0  TYPE=      1  TARGET=      -91.300

                VALLEY SECTION 15.1 (MCS)                          SECT.H

   4008.00      4.56    594.16     0.00     0.00    594.21      .05       .18       .00    593.60
    250.         0.      250.       0.       0.      137.        0.        8.        2.     593.80
     .40        0.00     1.82      0.00     .042      .036      .042      .036    589.60     91.30
  .000479       400.     400.      400.       2         0         0       0.00     45.20    137.50

*SECNO 4187.000
   4187.00      4.64    594.24     0.00     0.00    594.42      .18       .14       .06    599.40
    250.         0.      250.       0.       0.       74.        0.        9.        3.     599.50
     .42        0.00     3.37      0.00     .042      .036      .042      .036    589.60     92.00
  .001580       179.     179.      179.       0         0         0       0.00     16.00    108.00

*SECNO 4188.000

3370 NORMAL BRIDGE,NRD=  5 MIN ELTRD=  599.30 MAX ELLC=  596.60

   4188.00      4.64    594.24     0.00     0.00    594.42      .18       .00       .00    599.40
    250.         0.      250.       0.       0.       74.        0.        9.        3.     599.50
     .42        0.00     3.36      0.00     .040      .033      .040      .036    589.60     92.00
  .001327        1.       1.        1.        0         0         0       0.00     16.00    108.00

*SECNO 4256.000

3370 NORMAL BRIDGE,NRD=  5 MIN ELTRD=  599.30 MAX ELLC=  596.60

                MILLSTONE DRIVE  BRIDGE SECTION 16.1 (MCS)         SECT.I

                16' X 7' CONCRETE BOX CULVERT

   4256.00      4.74    594.34     0.00     0.00    594.51      .17       .09       .00    599.40
    250.         0.      250.       0.       0.       76.        0.        9.        3.     599.50      ...x 4.07
     .42        0.00     3.29      0.00     .040      .033      .040      .035    589.60     92.00          1.5
  .001249        68.      68.       68.       0         0         0       0.00     16.00    108.00           0

*SECNO 4257.000
    SECNO      DEPTH     CWSEL     CRIWS    WSELK      EG         HV        HL       OLOSS    BANK ELEV
     Q         QLOB      QCH       QROB     ALOB      ACH        AROB      VOL       TWA    LEFT/RIGHT
    TIME       VLOB      VCH       VROB     XNL       XNCH       XNR       WTN      ELMIN      SSTA       kf=1
    SLOPE      XLOBL     XLCH      XLOBR    ITRIAL    IDC        ICONT     CORAR    TOPWID     ENDST        .27
                                                                                                         .17   ΔEL=.09   close ✓
   4257.00      4.74    594.34     0.00     0.00    594.51      .17       .00       .00    599.40
    250.         0.      250.       0.       0.       75.        0.        9.        3.     599.50
     .42        0.00     3.29      0.00     .042      .036      .042      .035    589.50     92.00
  .001487        1.       1.        1.        0         0         0       0.00     16.00    108.00

*SECNO 4376.000

3470 ENCROACHMENT STATIONS=       91.3      166.0  TYPE=      1  TARGET=      -91.300

                VALLEY SECTION 17.1 (MCS)                          SECT.J

   4376.00      4.69    594.59     0.00     0.00    594.63      .04       .08       .04    593.90
    230.         0.      230.       0.       0       143.        0.        9.        3.     599.10
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      .45      0.00      1.61      0.00      .042      .036      .042      .035    589.90     91.30
  .000359      119.      119.      119.         2         0         0      0.00     46.70    138.00

*SECNO 5176.000

3470 ENCROACHMENT STATIONS=       91.3      156.0  TYPE=      1  TARGET=        64.700

                VALLEY SECTION 19.1 (MCS)                          SECT.K

  5176.00      4.41    594.91      0.00      0.00    594.96       .05       .33       .00    594.50
     230.        0.      230.        0.        0.      130.        0.       12.        3. 100000.00
      .57      0.00      1.77      0.00      .042      .036      .042      .036    590.50     91.30
  .000473      800.      800.      800.         2         0         0      0.00     45.58    136.88

*SECNO 5976.000

                VALLEY SECTION 21.1 (MCS)                          SECT.L

  5976.00      4.22    595.32      0.00      0.00    595.38       .06       .41       .00    595.10
     230.        0.      230.        0.        1.      122.        0.       14.        4.    600.30
      .69       .19      1.89      0.00      .042      .036      .042      .036    591.10     84.63
  .000568      800.      800.      800.         2         0         0      0.00     51.52    136.14

*SECNO 6776.000

                VALLEY SECTION 23.1 (MCS)                          SECT.M

  6776.00      4.11    595.81      0.00      0.00    595.87       .06       .49       .00    595.70
     230.        0.      230.        0.        0.      117.        0.       16.        5.    600.90
      .80       .13      1.97      0.00      .042      .036      .042      .036    591.70     88.14
  .000649      800.      800.      800.         2         0         0      0.00     47.54    135.68

*SECNO 7061.000
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST

                VALLEY SECTION 24.1 (MCS)                          SECT.N

  7061.00      4.09    595.99      0.00      0.00    596.05       .06       .19       .00    595.90
     230.        0.      230.        0.        0.      115.        0.       17.        6.    601.10
      .84       .11      1.99      0.00      .042      .036      .042      .036    591.90     88.73
  .000664      285.      285.      285.         1         0         0      0.00     46.87    135.60

*SECNO 7210.000
  7210.00      3.87    596.07      0.00      0.00    596.34       .26       .18       .10    601.90
     230.        0.      230.        0.        0.       56.        0.       17.        6.    602.00
      .85      0.00      4.13      0.00      .042      .036      .042      .036    592.20    500.00
  .002943      149.      149.      149.         1         0         0      0.00     16.00    516.00

*SECNO 7211.000

3370 NORMAL BRIDGE,NRD= 13 MIN ELTRD=  601.60 MAX ELLC=  598.90

  7211.00      3.87    596.07      0.00      0.00    596.34       .27       .00       .00    601.90
     230.        0.      230.        0.        0.       56.        0.       17.        6.    602.00
      .85      0.00      4.13      0.00      .045      .020      .045      .036    592.20    500.00
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  .000914      1.       1.       1.        0        0        0     0.00    16.00   516.00

 *SECNO 7259.000

 3370 NORMAL BRIDGE,NRD= 13 MIN ELTRD=   601.60 MAX ELLC=   598.90

                 21 MILE ROAD  BRIDGE SECTION 1 (J&A)               SECT.O

  7259.00      3.93   596.13     0.00     0.00   596.38      .26      .04      .00   601.90
     230.        0.     230.       0.       0.      56.       0.      17.       6.   602.00
      .85      0.00     4.08     0.00     .045     .020     .045     .036   592.20   500.00
  .000875       48.      48.      48.        2        0        0     0.00    16.00   516.00

 *SECNO 7260.000
  7260.00      3.93   596.13     0.00     0.00   596.39      .26      .00      .00   601.90
     230.        0.     230.       0.       0.      56.       0.      17.       6.   602.00
      .85      0.00     4.08     0.00     .042     .036     .042     .036   592.20   500.00
  .002832        1.       1.       1.        0        0        0     0.00    16.00   516.00

 *SECNO 7883.000
   SECNO     DEPTH    CWSEL    CRIWS    WSELK       EG       HV       HL    OLOSS   BANK ELEV
   Q         QLOB     QCH      QROB     ALOB      ACH      AROB      VOL      TWA  LEFT/RIGHT
   TIME      VLOB     VCH      VROB     XNL       XNCH     XNR       WTN    ELMIN     SSTA
   SLOPE     XLOBL    XLCH     XLOBR    ITRIAL    IDC      ICONT    CORAR   TOPWID     ENDST

                 VALLEY SECTION 2 (J&A)                             SECT.P

  7883.00      5.31   597.01     0.00     0.00   597.05      .05      .60      .06   600.40
     230.        0.     230.       0.       0.     135.       0.      19.       6.   600.00
      .95      0.00     1.71     0.00     .042     .036     .042     .036   591.70   517.98
  .000484      623.     623.     623.        2        0        0     0.00    50.64   568.62

 *SECNO 8623.000

 3470 ENCROACHMENT STATIONS=      536.0      577.0  TYPE=      1  TARGET=      41.000

                 VALLEY SECTION 3 (J&A)                             SECT.Q

  8623.00      4.33   597.43     0.00     0.00   597.49      .07      .43     .01100000.00
     230.        0.     230.       0.       0.     111.       0.      21.       7. 100000.00
     1.06      0.00     2.07     0.00     .042     .036     .042     .036   593.10   536.00
  .000709      740.     740.     740.        3        0        0     0.00    41.00   577.00

 *SECNO 8672.000
  8672.00      4.10   597.40     0.00     0.00   597.64      .24      .06      .09   602.10
     230.        0.     230.       0.       0.      59.       0.      21.       7.   602.10
     1.05      0.00     3.91     0.00     .042     .036     .042     .036   593.30   500.00
  .002673       49.      49.      49.        2        0        0     0.00    16.00   516.00

 *SECNO 8673.000

 3370 NORMAL BRIDGE,NRD= 13 MIN ELTRD=   600.70 MAX ELLC=   600.30

  8673.00      4.10   597.40     0.00     0.00   597.64      .24      .00      .00   602.10
     230.        0.     230.       0.       0.      59.       0.      21.       7.   602.10
     1.06      0.00     3.91     0.00     .040     .020     .040     .036   593.30   500.00
  .000824        1.       1.       1.        0        0        0     0.00    16.00   516.00
```

16x7' Box culvert

$h_f = .04$

$26 \times 5 = \underline{.13'}$

$.17'$

$\approx .17'$

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*SECNO 8741.000

3370 NORMAL BRIDGE,NRD= 13 MIN ELTRD=   600.70 MAX ELLC=   600.30

                VALLEY FORGE DRIVE  BRIDGE SECTION 4 (J&A)        SECT.R

    8741.00       4.17    597.47     0.00      0.00    597.70       .23       .05       .00    602.10
     230.          0.      230.       0.        0.       60.         0.       21.        7.     602.10
      1.06        0.00      3.84     0.00      .040      .020      .040      .035    593.30    500.00
    .000783        68.       68.      68.         2         0         0      0.00     16.00    516.00

*SECNO 8742.000
  SECNO       DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
  Q           QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
  TIME        VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
  SLOPE       XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST

    8742.00       4.17    597.47     0.00      0.00    597.70       .23       .00       .00    602.10
     230.          0.      230.       0.        0.       60.         0.       21.        7.     602.10
      1.06        0.00      3.84     0.00      .048      .040      .048      .035    593.30    500.00
    .003129         1.        1.       1.         0         0         0      0.00     16.00    516.00

*SECNO 9573.000

                VALLEY SECTION 5 (J&A)                               SECT.S

    9573.00       4.51    598.31     0.00      0.00    598.38       .07      1.13       .05    597.50
     230.         11.      214.       6.       15.      101.         8.       23.        8.     597.80
      1.18         .73      2.12      .66      .048      .040      .048      .036    594.30    166.55
    .000758       831.      831.     831.         2         0         0      0.00     67.57    234.12

*SECNO 10778.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      601.10 ELREA=      601.10

                VALLEY SECTION 6 (J&A)                               SECT.T

   10778.00       3.32    600.72     0.00      0.00    601.11       .39      2.07       .16    601.10
     220.          0.      220.       0.        0.       44.         0.       25.        9.     601.10
      1.25        0.00      5.00     0.00      .060      .040      .060      .036    597.40    500.91
    .007728      1205.     1205.    1205.         3         0         0      0.00     22.15    523.06

*SECNO 11078.000
3280 CROSS SECTION  11078.00 EXTENDED        .65 FEET

3470 ENCROACHMENT STATIONS=     222.0      685.0  TYPE=      1  TARGET=      463.000
   11078.00       4.15    601.65     0.00      0.00    601.68       .02       .45       .11    601.20
     220.         85.      109.      25.      182.       64.        71.       26.       11.     601.20
      1.32         .47      1.72      .36      .060      .040      .060      .037    597.50    222.00
    .000625       300.      300.     300.         3         0         0      0.00    463.00    685.00

*SECNO 11378.000
3280 CROSS SECTION  11378.00 EXTENDED        .80 FEET
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$h_e = .05$ .06
$h_v = .23 \times ? = .05$ .05

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3470 ENCROACHMENT STATIONS=      206.0      800.0  TYPE=      1  TARGET=      594.000
 11378.00      4.30    601.80      0.00      0.00    601.81       .01       .13       .00    601.20
     220.       88.       84.       48.      235.       67.      159.       29.       14.    601.20
     1.44       .37      1.25       .30      .060      .040      .060      .037    597.50    206.00
  .000307      300.      300.      300.         3         0         0      0.00    594.00    800.00

*SECNO 11705.000

3265 DIVIDED FLOW

3280 CROSS SECTION  11705.00 EXTENDED        .82 FEET

   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST


3470 ENCROACHMENT STATIONS=      247.0      764.0  TYPE=      1  TARGET=      517.000
 11705.00      4.32    601.92      0.00      0.00    601.94       .01       .13       .00    602.20
     220.       45.       63.      113.      118.       42.      214.       32.       18.    601.90
     1.56       .38      1.49       .53      .060      .040      .060      .037    597.60    247.00
  .000520      327.      327.      327.         2         0         0      0.00    499.74    764.00

*SECNO 11706.000

3265 DIVIDED FLOW

3280 CROSS SECTION  11706.00 EXTENDED        .82 FEET


3370 NORMAL BRIDGE,NRD= 12 MIN ELTRD=  599.90 MAX ELLC=  601.40

3470 ENCROACHMENT STATIONS=      247.0      764.0  TYPE=      1  TARGET=      517.000
 11706.00      4.33    601.93      0.00      0.00    601.94       .01       .00       .00    602.20
     220.       53.       35.      133.      118.       35.      214.       32.       19.    601.90
     1.56       .45       .97       .62      .050      .036      .050      .037    597.60    247.00
  .000502        1.        1.        1.         0         0         0     -6.63    499.76    764.00

*SECNO 11719.000
                                                                                  porched structure
3265 DIVIDED FLOW

3280 CROSS SECTION  11719.00 EXTENDED        .84 FEET                             Sub. road)

                                                                           Appears that portion of road in cut
3370 NORMAL BRIDGE,NRD= 12 MIN ELTRD=  599.90 MAX ELLC=  601.40            should not no effect

3470 ENCROACHMENT STATIONS=      247.0      764.0  TYPE=      1  TARGET=      517.000

                     FARM CULVERT NO.1  BRIDGE SECT. 7 (J&A)        SECT.U

 11719.00      4.34    601.94      0.00      0.00    601.95       .01       .01       .00    602.20
     220.       54.       34.      132.      121.       36.      217.       32.       19.    601.90
     1.57       .44       [illegible]        61      .050      .036      .050      .037    5[illegible]7.60    247.00
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 .000476      13.       13.       13.        0         0         0     -6.74    500.66    754.00

*SECNO 11720.000

3265 DIVIDED FLOW

3280 CROSS SECTION  11720.00 EXTENDED        .84 FEET


3470 ENCROACHMENT STATIONS=      247.0      764.0  TYPE=      1  TARGET=      517.000
  11720.00      4.34    601.94      0.00      0.00    601.95       .01       .00       .00    602.20
      220.       46.       61.      113.      121.       42.      218.       32.       19.    601.90
      1.57       .38      1.46       .52      .060      .040      .060      .037    597.60    247.00
   .000494        1.        1.        1.        0         0         0      0.00    500.70    764.00

*SECNO 12193.000

3470 ENCROACHMENT STATIONS=      319.0      693.0  TYPE=      1  TARGET=      374.000

                VALLEY SECTION B (J&A)                              SECT.V

  12193.00      4.53    602.13      0.00      0.00    602.15       .02       .19       .00    601.90
      220.       24.      126.       70.       85.       89.      157.       36.       23.    601.30
      1.70       .28      1.42       .45      .060      .040      .060      .037    597.60    319.00
   .000345      473.      473.      473.        2         0         0      0.00    374.00    693.00

*SECNO 12904.000
     SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS   BANK ELEV
         Q      QLOB       QCH      QROB      ALOB       ACH      AROB       VOL       TWA  LEFT/RIGHT
      TIME      VLOB       VCH      VROB       XNL      XNCH       XNR       WTN     ELMIN      SSTA
     SLOPE     XLOBL      XLCH     XLOBR    ITRIAL       IDC     ICONT     CORAR    TOPWID     ENDST


3470 ENCROACHMENT STATIONS=      451.0      561.0  TYPE=      1  TARGET=      110.000
  12904.00      3.75    602.55      0.00      0.00    602.78       .23       .53       .10    599.40
      220.       29.      172.       19.       19.       41.       12.       39.       27.    599.70
      1.75      1.55      4.25      1.55      .060      .040      .060      .037    598.80    462.14
   .002612      711.      711.      711.        2         0         0      0.00     58.26    520.40

*SECNO 12905.000

3470 ENCROACHMENT STATIONS=      451.0      561.0  TYPE=      1  TARGET=      110.000
  12905.00      3.87    602.67      0.00      0.00    602.61       .14       .00       .03    599.40
      220.       48.      143.       29.       24.       42.       13.       39.       27.    599.70
      1.75      2.00      3.40      2.23      .050      .060      .050      .037    598.80    451.00
   .003586        1.        1.        1.        2         0         0      0.00     69.74    520.74
                                                                                            - 5?0.3

SPECIAL BRIDGE

SB  XK         XKOR         COFQ         RDLEN         BWC         BWP         BAREA        SS         ELCHU        ELCHD
      0.00       1.79         2.90         0.00         9.70        0.00        36.80        0.00       598.80       598.80

*SECNO 12920.000

3265 DIVIDED FLOW

PRESSURE AND WEIR FLOW
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 EGPRS     EGLWC      H3     QWEIR     QPR     BAREA   TRAPEZOID    ELLC     ELTRD
                                                          AREA
 603.67    602.81    0.00     71.      150.     37.      37.       602.60   602.61

3470 ENCROACHMENT STATIONS=     451.0     561.0  TYPE=     1  TARGET=      110.000

                    FARM CULVERT NO.2  BRIDGE SECT. 9 (J&A)          SECT.W

  12920.00     4.26   603.06     0.00     0.00   603.13     .08      .32     0.00    599.40
      220.      64.     124.      32.      43.      47.      23.      39.      27.    599.70
      1.76     1.49     2.66     1.40     .050     .060     .050     .037   598.80    451.00
   .001912      15.      15.      15.        2        0        3     0.00   105.78    561.00
                                                                                      561.3

*SECNO 12921.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=     451.0     561.0  TYPE=     1  TARGET=      110.000
  12921.00     4.23   603.03     0.00     0.00   603.16     .13      .00      .03    599.40
      220.      43.     155.      22.      42.      46.      22.      39.      27.    599.70
      1.76     1.04     3.34     1.00     .060     .040     .060     .037   598.80    451.00
   .001353       1.       1.       1.        2        0        0     0.00   103.39    561.00

*SECNO 13078.000

3470 ENCROACHMENT STATIONS=     500.0     531.0  TYPE=     1  TARGET=       31.000

                    VALLEY SECTION 10 (J&A)                          SECT.X

  13078.00     3.59   603.29     0.00     0.00   603.44     .15      .26      .01    603.50
      220.       0.     217.       3.       0.      69.       3.      40.      27.    602.50
      1.77     0.00     3.16      .88     .060     .040     .060     .037   599.70    500.49
   .002155     157.     157.     157.        0        0        0     0.00    30.51    531.00
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From Rd. profile appears all weir flow over channel & ROB, none in LOB, may be more appropriate to eliminate LOB flow

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*************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

CRITTENDEN DRAIN

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
1472.000	0.00	0.00	0.00	588.30	150.00	591.96	0.00	592.09	18.59	2.94	51.07	34.79
1472.000	0.00	0.00	0.00	588.30	220.00	592.79	0.00	592.98	21.17	3.45	63.69	47.82
1472.000	0.00	0.00	0.00	588.30	250.00	592.97	0.00	593.19	24.26	3.76	66.42	50.76
1472.000	0.00	0.00	0.00	588.30	345.00	593.80	0.00	594.10	28.35	4.36	79.04	64.80
1473.000	1.00	600.20	595.70	588.30	150.00	591.96	0.00	592.09	4.88	2.94	51.10	67.89
1473.000	1.00	600.20	595.70	588.30	220.00	592.79	0.00	592.98	5.56	3.45	63.72	93.31
1473.000	1.00	600.20	595.70	588.30	250.00	592.97	0.00	593.19	6.37	3.76	66.46	99.06
1473.000	1.00	600.20	595.70	588.30	345.00	593.80	0.00	594.10	7.44	4.36	79.08	126.45
1528.000	55.00	600.20	595.70	588.30	150.00	591.99	0.00	592.12	4.76	2.91	51.54	68.74
1528.000	55.00	600.20	595.70	588.30	220.00	592.83	0.00	593.01	5.44	3.43	64.22	94.36
1528.000	55.00	600.20	595.70	588.30	250.00	593.01	0.00	593.23	6.21	3.73	67.05	100.30
1528.000	55.00	600.20	595.70	588.30	345.00	593.85	0.00	594.14	7.26	4.32	79.78	128.01
1529.000	1.00	0.00	0.00	588.30	150.00	591.99	0.00	592.12	15.42	2.91	51.54	38.19
1529.000	1.00	0.00	0.00	588.30	220.00	592.83	0.00	593.01	17.61	3.43	64.23	52.43
1529.000	1.00	0.00	0.00	588.30	250.00	593.01	0.00	593.23	20.12	3.73	67.06	55.73
1529.000	1.00	0.00	0.00	588.30	345.00	593.85	0.00	594.14	23.53	4.32	79.79	71.13
1628.000	99.00	0.00	0.00	587.60	150.00	592.17	0.00	592.21	3.03	1.52	98.71	86.16
1628.000	99.00	0.00	0.00	587.60	220.00	593.06	0.00	593.11	3.21	1.75	125.81	122.76
1628.000	99.00	0.00	0.00	587.60	250.00	593.29	0.00	593.35	3.54	1.88	132.89	132.94
1628.000	99.00	0.00	0.00	587.60	345.00	594.21	0.00	594.28	3.78	2.12	162.35	177.41
2028.000	400.00	0.00	0.00	588.00	150.00	592.31	0.00	592.35	3.84	1.65	90.85	76.58
2028.000	400.00	0.00	0.00	588.00	220.00	593.20	0.00	593.26	3.90	1.87	117.70	111.38
2028.000	400.00	0.00	0.00	588.00	250.00	593.44	0.00	593.50	4.22	2.00	125.06	121.70
2028.000	400.00	0.00	0.00	588.00	345.00	594.37	0.00	594.45	4.37	2.23	154.42	165.12
2305.000	280.00	0.00	0.00	588.20	150.00	592.41	0.00	592.44	2.44	1.24	121.17	96.10
2305.000	280.00	0.00	0.00	588.20	220.00	593.31	0.00	593.34	2.15	1.37	160.72	149.96
2305.000	280.00	0.00	0.00	588.20	250.00	593.56	0.00	593.60	2.26	1.46	171.70	166.25
2305.000	280.00	0.00	0.00	588.20	345.00	594.50	0.00	594.54	2.21	1.62	212.96	231.99
2708.000	400.00	0.00	0.00	588.60	150.00	592.53	0.00	592.55	3.35	1.38	109.05	81.91
2708.000	400.00	0.00	0.00	588.60	220.00	593.41	0.00	593.44	2.81	1.49	147.59	131.20
2708.000	400.00	0.00	0.00	588.60	250.00	593.66	0.00	593.70	2.89	1.57	158.75	147.10
2708.000	400.00	0.00	0.00	588.60	345.00	594.60	0.00	594.64	2.69	1.73	199.91	210.48

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
2808.000	100.00	0.00	0.00	588.70	150.00	592.56	0.00	592.59	3.66	1.42	105.60	78.44
2808.000	100.00	0.00	0.00	588.70	220.00	593.44	0.00	593.47	3.14	1.51	145.24	124.06
2808.000	100.00	0.00	0.00	588.70	250.00	593.69	0.00	593.73	3.22	1.59	157.31	139.25
2808.000	100.00	0.00	0.00	588.70	345.00	594.63	0.00	594.67	2.92	1.69	203.80	201.76
3608.000	800.00	0.00	0.00	589.30	150.00	592.89	0.00	592.93	4.92	1.58	94.68	67.64
3608.000	800.00	0.00	0.00	589.30	220.00	593.72	0.00	593.77	4.25	1.68	130.94	106.70
3608.000	800.00	0.00	0.00	589.30	250.00	593.98	0.00	594.03	4.26	1.75	142.90	121.17
3608.000	800.00	0.00	0.00	589.30	345.00	594.89	0.00	594.94	3.75	1.85	186.75	178.14
4008.000	400.00	0.00	0.00	589.60	150.00	593.10	0.00	593.14	5.50	1.65	90.90	63.99
4008.000	400.00	0.00	0.00	589.60	220.00	593.90	0.00	593.95	4.82	1.75	125.45	100.22
4008.000	400.00	0.00	0.00	589.60	250.00	594.16	0.00	594.21	4.79	1.82	137.25	114.27
4008.000	400.00	0.00	0.00	589.60	345.00	595.04	0.00	595.10	4.20	1.92	179.57	168.43
4187.000	179.00	0.00	0.00	589.60	150.00	593.21	0.00	593.31	11.84	2.60	57.59	43.59
4187.000	179.00	0.00	0.00	589.60	220.00	593.99	0.00	594.14	14.40	3.14	70.16	57.98
4187.000	179.00	0.00	0.00	589.60	250.00	594.24	0.00	594.42	15.80	3.37	74.29	62.90
4187.000	179.00	0.00	0.00	589.60	345.00	595.09	0.00	595.33	18.74	3.93	87.87	79.69
4188.000	1.00	599.30	596.60	589.60	150.00	593.21	0.00	593.31	9.89	2.60	57.72	47.71
4188.000	1.00	599.30	596.60	589.60	220.00	593.99	0.00	594.14	12.05	3.13	70.25	63.37
4188.000	1.00	599.30	596.60	589.60	250.00	594.24	0.00	594.42	13.27	3.36	74.30	68.63
4188.000	1.00	599.30	596.60	589.60	345.00	595.09	0.00	595.33	15.74	3.93	87.89	86.96
4256.000	68.00	599.30	596.60	589.60	150.00	593.28	0.00	593.38	9.31	2.55	58.92	49.15
4256.000	68.00	599.30	596.60	589.60	220.00	594.08	0.00	594.23	11.37	3.07	71.70	65.25
4256.000	68.00	599.30	596.60	589.60	250.00	594.34	0.00	594.51	12.49	3.29	75.88	70.73
4256.000	68.00	599.30	596.60	589.60	345.00	595.21	0.00	595.44	14.84	3.84	89.78	89.57
4257.000	1.00	0.00	0.00	589.60	150.00	593.28	0.00	593.38	11.10	2.55	58.88	45.02
4257.000	1.00	0.00	0.00	589.60	220.00	594.08	0.00	594.23	13.54	3.07	71.68	59.79
4257.000	1.00	0.00	0.00	589.60	250.00	594.34	0.00	594.51	14.87	3.29	75.88	64.82
4257.000	1.00	0.00	0.00	589.60	345.00	595.21	0.00	595.44	17.65	3.84	89.79	82.13
4376.000	119.00	0.00	0.00	589.90	145.00	593.45	0.00	593.48	4.66	1.56	92.79	65.80
4376.000	119.00	0.00	0.00	589.90	210.00	594.30	0.00	594.34	3.98	1.62	129.74	105.27
4376.000	119.00	0.00	0.00	589.90	230.00	594.59	0.00	594.63	3.59	1.61	143.12	121.44
4376.000	119.00	0.00	0.00	589.90	330.00	595.53	0.00	595.57	3.33	1.75	188.71	180.82
5176.000	800.00	0.00	0.00	590.50	145.00	593.87	0.00	593.92	5.99	1.69	85.88	59.22
5176.000	800.00	0.00	0.00	590.50	210.00	594.66	0.00	594.70	5.17	1.77	118.64	92.35
5176.000	800.00	0.00	0.00	590.50	230.00	594.91	0.00	594.96	4.73	1.77	130.16	105.77
5176.000	800.00	0.00	0.00	590.50	330.00	595.82	0.00	595.88	4.25	1.90	173.24	159.98
5976.000	800.00	0.00	0.00	591.10	145.00	594.38	0.00	594.43	6.73	1.76	82.30	55.89
5976.000	800.00	0.00	0.00	591.10	210.00	595.10	0.00	595.16	6.11	1.88	111.98	84.95
5976.000	800.00	0.00	0.00	591.10	230.00	595.32	0.00	595.38	5.68	1.89	122.53	96.47
5976.000	800.00	0.00	0.00	591.10	330.00	596.18	0.00	596.24	4.74	1.98	179.17	151.50
6776.000	800.00	0.00	0.00	591.70	145.00	594.93	0.00	594.98	7.14	1.80	80.54	54.26
6776.000	800.00	0.00	0.00	591.70	210.00	595.61	0.00	595.67	6.73	1.94	108.09	80.96
6776.000	800.00	0.00	0.00	591.70	230.00	595.81	0.00	595.87	6.49	1.97	116.73	90.26
6776.000	800.00	0.00	0.00	591.70	330.00	596.59	0.00	596.66	5.74	2.12	164.66	137.69

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
7061.000	285.00	0.00	0.00	591.90	145.00	595.14	0.00	595.19	7.16	1.80	80.45	54.18
7061.000	285.00	0.00	0.00	591.90	210.00	595.81	0.00	595.86	6.82	1.95	107.57	80.44
7061.000	285.00	0.00	0.00	591.90	230.00	595.99	0.00	596.05	6.64	1.99	115.81	89.25
7061.000	285.00	0.00	0.00	591.90	330.00	596.76	0.00	596.83	5.99	2.15	161.56	134.79
7210.000	149.00	0.00	0.00	592.20	145.00	595.25	0.00	595.44	26.21	3.42	42.38	28.32
7210.000	149.00	0.00	0.00	592.20	210.00	595.90	0.00	596.14	28.66	3.98	52.81	39.23
7210.000	149.00	0.00	0.00	592.20	230.00	596.07	0.00	596.34	29.43	4.13	55.70	42.40
7210.000	149.00	0.00	0.00	592.20	330.00	596.78	0.00	597.16	35.59	4.93	66.96	55.32
7211.000	1.00	601.60	598.90	592.20	145.00	595.26	0.00	595.44	8.02	3.41	42.51	51.20
7211.000	1.00	601.60	598.90	592.20	210.00	595.90	0.00	596.14	8.87	3.98	52.75	70.49
7211.000	1.00	601.60	598.90	592.20	230.00	596.07	0.00	596.34	9.14	4.14	55.59	76.09
7211.000	1.00	601.60	598.90	592.20	330.00	596.79	0.00	597.16	10.97	4.93	66.99	99.64
7259.000	48.00	601.60	598.90	592.20	145.00	595.30	0.00	595.48	7.61	3.35	43.25	52.55
7259.000	48.00	601.60	598.90	592.20	210.00	595.95	0.00	596.19	8.49	3.92	53.57	72.09
7259.000	48.00	601.60	598.90	592.20	230.00	596.13	0.00	596.38	8.75	4.08	56.42	77.77
7259.000	48.00	601.60	598.90	592.20	330.00	596.85	0.00	597.22	10.48	4.85	68.06	101.93
7260.000	1.00	0.00	0.00	592.20	145.00	595.30	0.00	595.43	24.65	3.35	43.26	29.20
7260.000	1.00	0.00	0.00	592.20	210.00	595.95	0.00	596.19	27.47	3.92	53.58	40.06
7260.000	1.00	0.00	0.00	592.20	230.00	596.13	0.00	596.39	28.32	4.08	56.44	43.22
7260.000	1.00	0.00	0.00	592.20	330.00	596.86	0.00	597.22	33.94	4.85	68.08	56.65
7883.000	623.00	0.00	0.00	591.70	145.00	596.01	0.00	596.05	4.27	1.57	92.24	70.16
7883.000	623.00	0.00	0.00	591.70	210.00	596.80	0.00	596.84	4.78	1.69	124.47	96.01
7883.000	623.00	0.00	0.00	591.70	230.00	597.01	0.00	597.05	4.84	1.71	134.61	104.58
7883.000	623.00	0.00	0.00	591.70	330.00	597.86	0.00	597.91	4.46	1.82	181.15	156.19
8623.000	740.00	0.00	0.00	593.10	145.00	596.46	0.00	596.52	9.93	2.01	72.16	46.02
8623.000	740.00	0.00	0.00	593.10	210.00	597.22	0.00	597.29	7.56	2.05	102.64	76.37
8623.000	740.00	0.00	0.00	593.10	230.00	597.43	0.00	597.49	7.09	2.07	110.92	86.37
8623.000	740.00	0.00	0.00	593.10	330.00	598.24	0.00	598.32	6.39	2.29	144.25	130.53
8672.000	49.00	0.00	0.00	593.30	145.00	596.48	0.00	596.65	24.72	3.28	44.22	29.16
8672.000	49.00	0.00	0.00	593.30	210.00	597.21	0.00	597.43	26.08	3.77	55.75	41.12
8672.000	49.00	0.00	0.00	593.30	230.00	597.40	0.00	597.64	26.73	3.91	58.83	44.49
8672.000	49.00	0.00	0.00	593.30	330.00	598.17	0.00	598.51	31.72	4.64	71.17	58.59
8673.000	1.00	600.70	600.30	593.30	145.00	596.48	0.00	596.65	7.67	3.29	44.14	52.34
8673.000	1.00	600.70	600.30	593.30	210.00	597.21	0.00	597.43	8.04	3.76	55.78	74.07
8673.000	1.00	600.70	600.30	593.30	230.00	597.40	0.00	597.64	8.24	3.91	58.86	80.13
8673.000	1.00	600.70	600.30	593.30	330.00	598.17	0.00	598.51	9.78	4.64	71.20	105.52
8741.000	68.00	600.70	600.30	593.30	145.00	596.54	0.00	596.70	7.20	3.22	45.08	54.02
8741.000	68.00	600.70	600.30	593.30	210.00	597.27	0.00	597.49	7.62	3.70	56.79	76.05
8741.000	68.00	600.70	600.30	593.30	230.00	597.47	0.00	597.70	7.83	3.84	59.90	82.21
8741.000	68.00	600.70	600.30	593.30	330.00	598.25	0.00	598.58	9.29	4.55	72.48	108.25
8742.000	1.00	0.00	0.00	593.30	145.00	596.54	0.00	596.70	28.80	3.22	45.09	27.02
8742.000	1.00	0.00	0.00	593.30	210.00	597.28	0.00	597.49	30.48	3.70	56.80	38.04
8742.000	1.00	0.00	0.00	593.30	230.00	597.47	0.00	597.70	31.29	3.84	59.91	41.12
8742.000	1.00	0.00	0.00	593.30	330.00	598.26	0.00	598.58	37.15	4.55	72.49	54.14

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
9573.000	831.00	0.00	0.00	594.30	145.00	597.98	0.00	598.04	9.90	1.96	76.00	46.08
9573.000	831.00	0.00	0.00	594.30	210.00	598.63	0.00	598.70	8.05	2.10	112.49	74.02
9573.000	831.00	0.00	0.00	594.30	230.00	598.81	0.00	598.88	7.58	2.12	124.25	83.53
9573.000	831.00	0.00	0.00	594.30	330.00	599.60	0.00	599.67	5.98	2.19	183.36	134.91
10778.000	1205.00	0.00	0.00	597.40	135.00	600.23	0.00	600.48	59.79	3.99	33.85	17.46
10778.000	1205.00	0.00	0.00	597.40	200.00	600.63	0.00	600.98	73.18	4.77	41.89	23.38
10778.000	1205.00	0.00	0.00	597.40	220.00	600.72	0.00	601.11	77.28	5.00	44.03	25.03
10778.000	1205.00	0.00	0.00	597.40	315.00	601.11	600.54	601.34	54.20	4.47	175.30	42.79
11078.000	300.00	0.00	0.00	597.50	135.00	601.20	0.00	601.27	13.21	2.20	112.51	37.14
11078.000	300.00	0.00	0.00	597.50	200.00	601.55	0.00	601.58	7.32	1.81	270.67	73.91
11078.000	300.00	0.00	0.00	597.50	220.00	601.65	0.00	601.68	6.25	1.72	315.95	88.01
11078.000	300.00	0.00	0.00	597.50	315.00	601.84	0.00	601.86	7.13	1.92	399.83	117.95
11378.000	300.00	0.00	0.00	597.50	135.00	601.46	0.00	601.48	4.04	1.32	267.41	67.19
11378.000	300.00	0.00	0.00	597.50	200.00	601.72	0.00	601.73	3.30	1.27	416.44	110.10
11378.000	300.00	0.00	0.00	597.50	220.00	601.80	0.00	601.81	3.07	1.25	461.50	125.59
11378.000	300.00	0.00	0.00	597.50	315.00	602.00	0.00	602.01	3.37	1.37	580.73	171.61
11705.000	327.00	0.00	0.00	597.60	135.00	601.62	0.00	601.64	5.72	1.52	229.32	56.46
11705.000	327.00	0.00	0.00	597.60	200.00	601.85	0.00	601.87	5.42	1.51	339.24	85.90
11705.000	327.00	0.00	0.00	597.60	220.00	601.92	0.00	601.94	5.20	1.49	373.55	96.48
11705.000	327.00	0.00	0.00	597.60	315.00	602.14	0.00	602.15	5.47	1.57	481.47	134.66
11706.000	1.00	599.90	601.40	597.60	135.00	601.63	0.00	601.64	5.89	1.19	226.14	55.64
11706.000	1.00	599.90	601.40	597.60	200.00	601.86	0.00	601.87	5.15	1.10	333.50	88.13
11706.000	1.00	599.90	601.40	597.60	220.00	601.93	0.00	601.94	5.02	.97	367.14	98.16
11706.000	1.00	599.90	601.40	597.60	315.00	602.14	0.00	602.15	5.01	.90	474.16	140.75
11719.000	13.00	599.90	601.40	597.60	135.00	601.64	0.00	601.65	5.49	1.15	233.29	57.64
11719.000	13.00	599.90	601.40	597.60	200.00	601.87	0.00	601.88	4.88	1.07	340.56	90.54
11719.000	13.00	599.90	601.40	597.60	220.00	601.94	0.00	601.95	4.76	.94	374.19	100.82
11719.000	13.00	599.90	601.40	597.60	315.00	602.15	0.00	602.16	4.80	.88	481.05	143.83
11720.000	1.00	0.00	0.00	597.60	135.00	601.64	0.00	601.65	5.32	1.47	237.65	58.55
11720.000	1.00	0.00	0.00	597.60	200.00	601.87	0.00	601.88	5.14	1.47	347.02	88.21
11720.000	1.00	0.00	0.00	597.60	220.00	601.94	0.00	601.95	4.94	1.46	381.22	98.99
11720.000	1.00	0.00	0.00	597.60	315.00	602.15	0.00	602.16	5.25	1.54	488.81	137.47
12193.000	473.00	0.00	0.00	597.60	135.00	601.82	0.00	601.83	2.93	1.22	215.54	78.92
12193.000	473.00	0.00	0.00	597.60	200.00	602.06	0.00	602.08	3.41	1.38	305.51	108.29
12193.000	473.00	0.00	0.00	597.60	220.00	602.13	0.00	602.15	3.48	1.42	330.53	117.87
12193.000	473.00	0.00	0.00	597.60	315.00	602.36	0.00	602.38	4.10	1.62	418.41	155.52
12904.000	711.00	0.00	0.00	598.80	135.00	602.17	0.00	602.29	15.83	3.06	57.76	33.93
12904.000	711.00	0.00	0.00	598.80	200.00	602.48	0.00	602.68	23.75	3.99	67.34	41.04
12904.000	711.00	0.00	0.00	598.80	220.00	602.55	0.00	602.78	26.12	4.25	71.25	43.05
12904.000	711.00	0.00	0.00	598.80	315.00	602.86	0.00	603.19	35.44	5.25	93.57	52.92
12905.000	1.00	0.00	0.00	598.80	135.00	602.22	0.00	602.31	25.38	2.61	59.06	26.80
12905.000	1.00	0.00	0.00	598.80	200.00	602.57	0.00	602.71	34.46	3.27	72.26	34.07
12905.000	1.00	0.00	0.00	598.80	220.00	602.67	0.00	602.81	35.86	3.40	79.09	36.74
12905.000	1.00	0.00	0.00	598.80	315.00	603.10	0.00	603.24	36.72	3.71	116.59	51.98

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
12920.000	15.00	602.61	602.60	598.80	135.00	602.22	0.00	602.43	77.98	3.83	37.37	15.29
12920.000	15.00	602.61	602.60	598.80	200.00	602.94	0.00	603.02	19.16	2.61	100.99	45.69
12920.000	15.00	602.61	602.60	598.80	220.00	603.06	0.00	603.13	19.12	2.66	112.45	50.31
12920.000	15.00	602.61	602.60	598.80	315.00	603.45	0.00	603.53	19.56	2.87	155.74	71.22
12921.000	1.00	0.00	0.00	598.80	135.00	602.36	0.00	602.46	12.53	2.83	63.21	38.13
12921.000	1.00	0.00	0.00	598.80	200.00	602.92	0.00	603.04	13.12	3.23	98.98	55.22
12921.000	1.00	0.00	0.00	598.80	220.00	603.03	0.00	603.16	13.53	3.34	109.96	59.80
12921.000	1.00	0.00	0.00	598.80	315.00	603.42	0.00	603.57	15.64	3.83	152.15	79.65
13078.000	157.00	0.00	0.00	599.70	135.00	602.60	0.00	602.71	20.54	2.64	51.45	29.79
13078.000	157.00	0.00	0.00	599.70	200.00	603.17	0.00	603.31	20.50	3.01	68.39	44.17
13078.000	157.00	0.00	0.00	599.70	220.00	603.29	0.00	603.44	21.55	3.16	71.89	47.39
13078.000	157.00	0.00	0.00	599.70	315.00	603.70	0.00	603.93	27.79	3.88	84.41	59.76

CRITTENDEN DRAIN

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
1472.000	150.00	591.96	0.00	0.00	0.00	15.20	0.00
1472.000	220.00	592.79	.83	0.00	0.00	15.20	0.00
1472.000	250.00	592.97	.18	0.00	0.00	15.20	0.00
1472.000	345.00	593.80	.83	0.00	0.00	15.20	0.00
1473.000	150.00	591.96	0.00	.00	0.00	15.20	1.00
1473.000	220.00	592.79	.83	.00	0.00	15.20	1.00
1473.000	250.00	592.97	.18	.00	0.00	15.20	1.00
1473.000	345.00	593.80	.83	.00	0.00	15.20	1.00
1528.000	150.00	591.99	0.00	.03	0.00	15.20	55.00
1528.000	220.00	592.83	.83	.03	0.00	15.20	55.00
1528.000	250.00	593.01	.19	.04	0.00	15.20	55.00
1528.000	345.00	593.85	.84	.05	0.00	15.20	55.00
1529.000	150.00	591.99	0.00	.00	0.00	15.20	1.00
1529.000	220.00	592.83	.83	.00	0.00	15.20	1.00
1529.000	250.00	593.01	.19	.00	0.00	15.20	1.00
1529.000	345.00	593.85	.34	.00	0.00	15.20	1.00
1628.000	150.00	592.17	0.00	.18	0.00	29.78	99.00
1628.000	220.00	593.06	.89	.24	0.00	31.03	99.00
1628.000	250.00	593.29	.23	.28	0.00	31.34	99.00
1628.000	345.00	594.21	.92	.36	0.00	32.58	99.00
2028.000	150.00	592.31	0.00	.13	0.00	28.98	400.00
2028.000	220.00	593.20	.90	.14	0.00	30.68	400.00
2028.000	250.00	593.44	.24	.15	0.00	31.00	400.00
2028.000	345.00	594.37	.93	.16	0.00	32.25	400.00
2305.000	150.00	592.41	0.00	.11	0.00	44.00	280.00
2305.000	220.00	593.31	.90	.11	0.00	44.00	280.00
2305.000	250.00	593.56	.25	.12	0.00	44.00	280.00
2305.000	345.00	594.50	.94	.13	0.00	44.00	280.00
2708.000	150.00	592.53	0.00	.11	0.00	43.46	400.00
2708.000	220.00	593.41	.88	.10	0.00	44.00	400.00
2708.000	250.00	593.66	.25	.10	0.00	44.00	400.00
2708.000	345.00	594.60	.94	.09	0.00	44.00	400.00
2808.000	150.00	592.56	0.00	.03	0.00	42.79	100.00
2808.000	220.00	593.44	.88	.03	0.00	46.88	100.00
2808.000	250.00	593.69	.25	.03	0.00	47.90	100.00
2808.000	345.00	594.63	.94	.03	0.00	51.63	100.00
3608.000	150.00	592.89	0.00	.33	0.00	40.70	800.00
3608.000	220.00	593.72	.83	.29	0.00	45.65	800.00
3608.000	250.00	593.98	.26	.29	0.00	46.68	800.00
3608.000	345.00	594.89	.90	.26	0.00	50.29	800.00
4008.000	150.00	593.10	0.00	.21	0.00	39.96	400.00
4008.000	220.00	593.90	.80	.18	0.00	45.17	400.00
4008.000	250.00	594.16	.26	.18	0.00	46.20	400.00
4008.000	345.00	595.04	.88	.16	0.00	49.72	400.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
4187.000	150.00	593.21	0.00	.11	0.00	16.00	179.00
4187.000	220.00	593.99	.78	.09	0.00	16.00	179.00
4187.000	250.00	594.24	.25	.08	0.00	16.00	179.00
4187.000	345.00	595.09	.85	.05	0.00	16.00	179.00
4188.000	150.00	593.21	0.00	.00	0.00	16.00	1.00
4188.000	220.00	593.99	.78	.00	0.00	16.00	1.00
4188.000	250.00	594.24	.25	.00	0.00	16.00	1.00
4188.000	345.00	595.09	.85	.00	0.00	16.00	1.00
4256.000	150.00	593.28	0.00	.07	0.00	16.00	68.00
4256.000	220.00	594.08	.80	.09	0.00	16.00	68.00
4256.000	250.00	594.34	.26	.10	0.00	16.00	68.00
4256.000	345.00	595.21	.87	.12	0.00	16.00	68.00
4257.000	150.00	593.28	0.00	.00	0.00	16.00	1.00
4257.000	220.00	594.08	.80	.00	0.00	16.00	1.00
4257.000	250.00	594.34	.26	.00	0.00	16.00	1.00
4257.000	345.00	595.21	.87	.00	0.00	16.00	1.00
4376.000	145.00	593.45	0.00	.17	0.00	40.33	119.00
4376.000	210.00	594.30	.85	.22	0.00	45.55	119.00
4376.000	230.00	594.59	.29	.25	0.00	46.70	119.00
4376.000	330.00	595.53	.94	.31	0.00	50.45	119.00
5176.000	145.00	593.87	0.00	.43	0.00	38.94	800.00
5176.000	210.00	594.66	.78	.36	0.00	44.56	800.00
5176.000	230.00	594.91	.26	.32	0.00	45.58	800.00
5176.000	330.00	595.82	.91	.30	0.00	49.21	800.00
5976.000	145.00	594.38	0.00	.51	0.00	38.20	800.00
5976.000	210.00	595.10	.72	.45	0.00	44.01	800.00
5976.000	230.00	595.32	.22	.41	0.00	51.52	800.00
5976.000	330.00	596.18	.86	.36	0.00	79.40	800.00
6776.000	145.00	594.93	0.00	.55	0.00	37.83	800.00
6776.000	210.00	595.61	.68	.51	0.00	43.26	800.00
6776.000	230.00	595.81	.19	.48	0.00	47.54	800.00
6776.000	330.00	596.59	.79	.41	0.00	74.28	800.00
7061.000	145.00	595.14	0.00	.20	0.00	37.81	285.00
7061.000	210.00	595.81	.67	.19	0.00	43.16	285.00
7061.000	230.00	595.99	.19	.19	0.00	46.87	285.00
7061.000	330.00	596.76	.77	.17	0.00	72.86	285.00
7210.000	145.00	595.25	0.00	.12	0.00	16.00	149.00
7210.000	210.00	595.90	.64	.09	0.00	16.00	149.00
7210.000	230.00	596.07	.18	.08	0.00	16.00	149.00
7210.000	330.00	596.78	.71	.03	0.00	16.00	149.00
7211.000	145.00	595.26	0.00	.00	0.00	16.00	1.00
7211.000	210.00	595.90	.64	.00	0.00	16.00	1.00
7211.000	230.00	596.07	.18	.00	0.00	16.00	1.00
7211.000	330.00	596.79	.71	.00	0.00	16.00	1.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
7259.000	145.00	595.30	0.00	.05	0.00	16.00	48.00
7259.000	210.00	595.95	.64	.05	0.00	16.00	48.00
7259.000	230.00	596.13	.18	.05	0.00	16.00	48.00
7259.000	330.00	596.85	.73	.07	0.00	16.00	48.00
7260.000	145.00	595.30	0.00	.00	0.00	16.00	1.00
7260.000	210.00	595.95	.64	.00	0.00	16.00	1.00
7260.000	230.00	596.13	.18	.00	0.00	16.00	1.00
7260.000	330.00	596.86	.73	.00	0.00	16.00	1.00
7883.000	145.00	596.01	0.00	.71	0.00	35.64	623.00
7883.000	210.00	596.80	.78	.85	0.00	47.35	623.00
7883.000	230.00	597.01	.21	.88	0.00	50.64	623.00
7883.000	330.00	597.86	.85	1.01	0.00	58.40	623.00
8623.000	145.00	596.46	0.00	.45	0.00	36.90	740.00
8623.000	210.00	597.22	.76	.43	0.00	41.00	740.00
8623.000	230.00	597.43	.20	.42	0.00	41.00	740.00
8623.000	330.00	598.24	.81	.38	0.00	41.00	740.00
8672.000	145.00	596.48	0.00	.02	0.00	16.00	49.00
8672.000	210.00	597.21	.73	-.02	0.00	16.00	49.00
8672.000	230.00	597.40	.19	-.02	0.00	16.00	49.00
8672.000	330.00	598.17	.77	-.07	0.00	16.00	49.00
8673.000	145.00	596.48	0.00	.00	0.00	16.00	1.00
8673.000	210.00	597.21	.73	.00	0.00	16.00	1.00
8673.000	230.00	597.40	.19	.00	0.00	16.00	1.00
8673.000	330.00	598.17	.77	.00	0.00	16.00	1.00
8741.000	145.00	596.54	0.00	.06	0.00	16.00	68.00
8741.000	210.00	597.27	.73	.06	0.00	16.00	68.00
8741.000	230.00	597.47	.19	.07	0.00	16.00	68.00
8741.000	330.00	598.25	.79	.08	0.00	16.00	68.00
8742.000	145.00	596.54	0.00	.00	0.00	16.00	1.00
8742.000	210.00	597.28	.73	.00	0.00	16.00	1.00
8742.000	230.00	597.47	.19	.00	0.00	16.00	1.00
8742.000	330.00	598.26	.79	.00	0.00	16.00	1.00
9573.000	145.00	597.98	0.00	1.44	0.00	45.38	831.00
9573.000	210.00	598.63	.65	1.36	0.00	64.38	831.00
9573.000	230.00	598.81	.18	1.34	0.00	67.57	831.00
9573.000	330.00	599.60	.79	1.35	0.00	81.71	831.00
10778.000	135.00	600.23	0.00	2.25	0.00	19.77	1205.00
10778.000	200.00	600.63	.40	1.99	0.00	21.67	1205.00
10778.000	220.00	600.72	.10	1.91	0.00	22.15	1205.00
10778.000	315.00	601.11	.38	1.50	0.00	701.97	1205.00
11078.000	135.00	601.20	0.00	.97	0.00	396.64	300.00
11078.000	200.00	601.55	.35	.93	0.00	463.00	300.00
11078.000	220.00	601.65	.10	.93	0.00	463.00	300.00
11078.000	315.00	601.84	.19	.73	0.00	463.00	300.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
11378.000	135.00	601.46	0.00	.26	0.00	582.58	300.00
11378.000	200.00	601.72	.26	.17	0.00	594.00	300.00
11378.000	220.00	601.80	.08	.15	0.00	594.00	300.00
11378.000	315.00	602.00	.20	.16	0.00	594.00	300.00
11705.000	135.00	601.62	0.00	.16	0.00	417.28	327.00
11705.000	200.00	601.85	.23	.14	0.00	491.35	327.00
11705.000	220.00	601.92	.07	.13	0.00	499.74	327.00
11705.000	315.00	602.14	.21	.14	0.00	513.06	327.00
11706.000	135.00	601.63	0.00	.01	0.00	417.84	1.00
11706.000	200.00	601.86	.23	.01	0.00	491.42	1.00
11706.000	220.00	601.93	.07	.01	0.00	499.76	1.00
11706.000	315.00	602.14	.21	.01	0.00	513.09	1.00
11719.000	135.00	601.64	0.00	.01	0.00	428.67	13.00
11719.000	200.00	601.87	.23	.01	0.00	493.65	13.00
11719.000	220.00	601.94	.07	.01	0.00	500.66	13.00
11719.000	315.00	602.15	.21	.01	0.00	513.93	13.00
11720.000	135.00	601.64	0.00	-.00	0.00	429.57	1.00
11720.000	200.00	601.87	.23	-.00	0.00	493.76	1.00
11720.000	220.00	601.94	.07	-.00	0.00	500.70	1.00
11720.000	315.00	602.15	.21	-.00	0.00	513.95	1.00
12193.000	135.00	601.82	0.00	.18	0.00	342.49	473.00
12193.000	200.00	602.06	.24	.19	0.00	374.00	473.00
12193.000	220.00	602.13	.07	.19	0.00	374.00	473.00
12193.000	315.00	602.36	.23	.21	0.00	374.00	473.00
12904.000	135.00	602.17	0.00	.35	0.00	28.51	711.00
12904.000	200.00	602.48	.31	.42	0.00	44.32	711.00
12904.000	220.00	602.55	.06	.43	0.00	58.26	711.00
12904.000	315.00	602.86	.31	.50	0.00	86.01	711.00
12905.000	135.00	602.22	0.00	.05	0.00	28.79	1.00
12905.000	200.00	602.57	.35	.09	0.00	61.37	1.00
12905.000	220.00	602.67	.10	.12	0.00	69.74	1.00
12905.000	315.00	603.10	.43	.24	0.00	109.64	1.00
12920.000	135.00	602.22	0.00	.00	0.00	28.79	15.00
12920.000	200.00	602.94	.72	.37	0.00	94.28	15.00
12920.000	220.00	603.06	.11	.39	0.00	105.78	15.00
12920.000	315.00	603.45	.39	.35	0.00	110.00	15.00
12921.000	135.00	602.36	0.00	.14	0.00	29.69	1.00
12921.000	200.00	602.92	.56	-.02	0.00	92.11	1.00
12921.000	220.00	603.03	.11	-.02	0.00	103.39	1.00
12921.000	315.00	603.42	.39	-.03	0.00	110.00	1.00
13078.000	135.00	602.60	0.00	.25	0.00	28.89	157.00
13078.000	200.00	603.17	.56	.25	0.00	30.24	157.00
13078.000	220.00	603.29	.12	.25	0.00	30.51	157.00
13078.000	315.00	603.70	.41	.28	0.00	31.00	157.00

SUMMARY OF ERRORS

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Macomb Twp.

3) WATERCOURSE: Crittenden Drain Clean out

4) DOCUMENT TYPE: Analysis

00BREAK00

8708 705

ANDERSON,
ECKSTEIN AND
WESTRICK, INC.

42800 Garfield Road, Mount Clemens, Michigan 48044

Phone 313/286-1234

Macomb Twp
Macomb Co.

May 24, 1988

RECEIVED

MAY 26 1988

NATURAL RESOURCES
LAND & WATER MGMT

Michigan Department of Natural Resources
Land Resource Programs Division
Steven T. Mason Building
P.O. Box 30028
Lansing, Michigan 48909

Attention: Mr. Dave Bastian

Reference: CRITTENDEN DRAIN CLEAN-OUT
AEW PROJECT NO. 26028

Dear Mr. Bastian,

On February 3, 1988 our office submitted a permit application for the above referenced project in conjunction with a proposed plat for Cross Creek Subdivision. After further detailed engineering, specifically earthwork was completed, we have found the site is short of dirt. The scope of the work has not changed, however we find it necessary to take advantage of the revised water surface profile established by the proposed improvements.

We request that the enclosed backwater analysis be forwarded to the appropriate departments for inclusion in the current permit review still in process. We appreciate your cooperation, please call if you have any questions.

Sincerely,

ANDERSON, ECKSTEIN AND WESTRICK, INC.

Lawrence C. Miller

Lawrence C. Miller, P.E.

LCM/gac
1-1

HYDRAULIC ANALYSIS

OF THE

CRITTENDEN DRAIN

IN CONJUNCTION WITH

CROSS CREEK SUBDIVISION

MAY, 1988

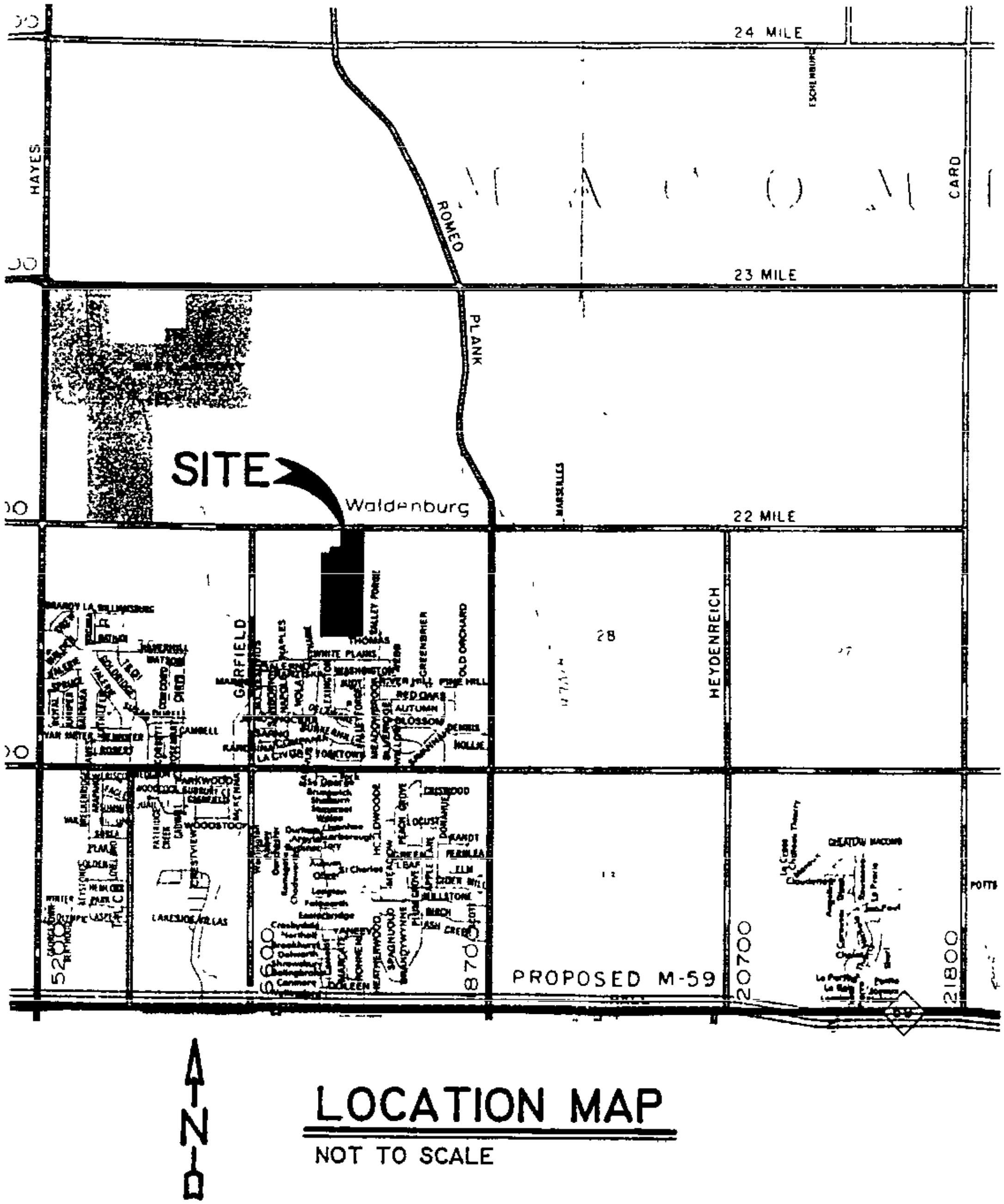
WATERCOURSE:	THE CRITTENDEN DRAIN
SECTION:	29
TOWNSHIP:	MACOMB
COUNTY:	MACOMB

ANDERSON, ECKSTEIN AND WESTRICK, INC.
42800 GARFIELD ROAD
MOUNT CLEMENS, MICHIGAN 48044

AEW PROJECT NO. 26028

STATE OF MICHIGAN
LAWRENCE C. MILLER
ENGINEER
No.
LICENSED PROFESSIONAL ENGINEER

TABLE OF CONTENTS



LOCATION MAP

NOT TO SCALE

PROJECT SUMMARY

This is a hydraulic study of the proposed drain improvements for the Crittenden Drain, Macomb Township, Macomb County, Michigan. The project site is located adjacent to the proposed Cross Creek Estates Subdivision south of 22 Mile Road between Garfield and Romeo Plank roads. The improvements planned, are in conjunction with the proposed subdivision and will be accomplished under contract with the Macomb County Public Works Office.

The intent of this report is to verify a balance of flood storage between the drain and the proposed subdivision and to lower the flood plain elevation in the improved reach. The excavation from the improvements will be spoiled adjacent to the drain in existing floodplain fringe.

The first portion of the study is a simple earthwork balance between the excavation from the drain below the 100 year floodplain elevation and the fill in the adjacent property. The proposed drain section was provided by the M.C.P.W.O.. Cross Sections are included on plan sheets 2-4 and the computational summary on page 6.

The foundation for this hydraulic analysis is the current Flood Insurance Study for the area. Input data for this reach as well as current flows were obtained from the Michigan Department of Natural Resources. The U.S. Army Corp of Engineers, HEC-2 program was used for our analysis. Actual F.I.S. data was run to establish the existing conditions, then modifications were made and sections were added to model the proposed improvements.

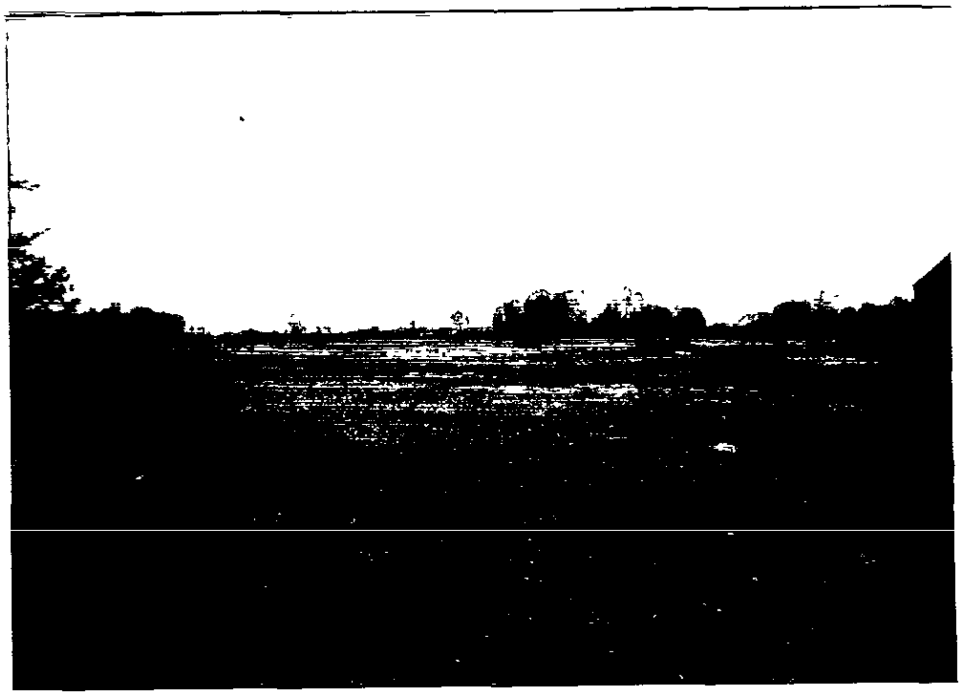
Our existing analysis includes all the F.I.S. imput sections within the limits of our study, plus an additional section along the south property line of the proposed subdivision. The starting water surface elevation of 598.81 (from the F.I.S.) was input and run. The resultant one hundred (100) year water surface profile was slightly lower (.03 ft.) due to the addition of the section on the south property line.

Proposed drain sections were added at various locations to most accurately describe the proposed improvements (see sheet 1). The 100 year flood elevation of 599.94 (sec. 104+08 ex. run) was input in the proposed run at the downstream end of the project. A Mannings roughness coefficient of 0.04 was used for the proposed run. The resulting backwater is a fairly uniform decrease in water surface adjacent to the majority of the site. At SEC. NO. 11+403 and SEC. NO. 12+907 decreases of .81 ft. and .57 ft. respectively were obtained. Refer to Plan Sheet 1 for the plot of both existing and proposed water surface profiles for comparison. We have included on the following pages pictures of the site for aid in your review.

Culvert at Upstream
End of Study
(looking upstream)

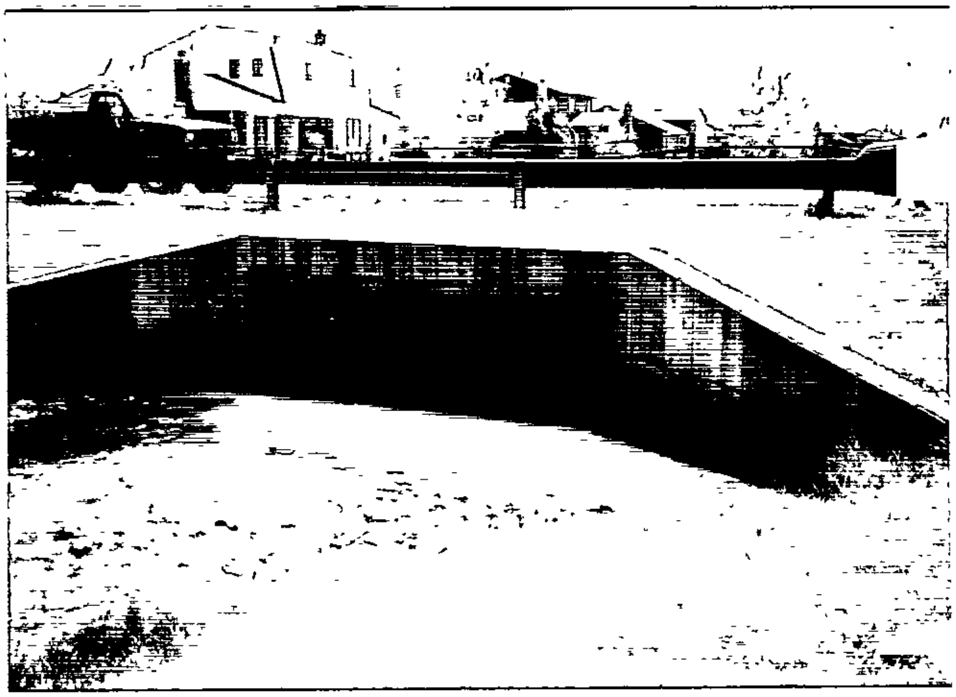
Existing Drain and
overbank area
(upstream looking
downstream)

Existing Flood Plain
(upstream looking
downstream)



Main Channel
at Downstream End
of Study (looking
upstream)

Box Culvert at
Downstream End of
Study (upstream looking
downstream)



Existing Improved
Channel Downstream of
Proposed Cross Creek
Estates

VOLUME OF EXISTING FLOOD PLAIN:

THE SHADED AREAS OF SECTIONS A-A TO H-H WERE USED TO CALCULATE THE VOLUME OF THE EXISTING FLOOD PLAIN EFFECTING PROPOSED CROSS CREEK ESTATES. THE FLOOD PLAIN ELEVATIONS ARE BASED ON A 100 YEAR STORM

SECTION	AREA		DISTANCE	VOLUME (ft^3)
	0			
		18.54	170'	3152
A-A	37.08			
		39.81	106	4220
B-B	42.54			
		27.77	500	14,885
C-C	17.0			
		64.84	298	19,322
D-D	112.68			
		64.34	140	9008
E-E	16			
		239.43	460	110,136
F-F	462.85			
		269.70	405	109,229
G-G	76.55			
			400	30,096
H-H	50.08	23.85		
			160	4006
	0			
				$\boxed{304,054 \text{ ft}^3}$

VOLUME OF PROPOSED FLOOD PLAIN:

A TYPICAL SECTION OF THE PROPOSED DITCH IS SHOWN ON SECTION A-A. THE VOLUME OF THE PROPOSED FLOOD PLAIN WAS CALCULATED TO THE EAST PROPERTY LINE (CENTER LINE OF PROPOSED DITCH) AND TO THE 100 YR FLOOD PLAIN ELEVATIONS SHOWN.

AVERAGE X-SECTION AREA OF PROPOSED DITCH = 142.2 ft^2

VOLUME = 2146' x 142.2 = 305,161 ft^3

$\boxed{\text{Volume} = 305,161 \text{ ft}^3}$

```
*****************************************************          ***************************************
* WATER SURFACE PROFILES                            *          * U.S. ARMY CORPS OF ENGINEERS        *
* VERSION OF NOVEMBER 1976                          *          * THE HYDROLOGIC ENGINEERING CENTER   *
* UPDATED MAY 1984                                  *          * 609 SECOND STREET, SUITE D          *
* IBM-PC-XT VERSION AUGUST 1985                     *          * DAVIS, CALIFORNIA 95616             *
* RUN DATE  05-24-88   TIME  13:46:58                *          * (916) 440-2105 (FTS) 448-2105       *
*****************************************************          ***************************************
```

```
X     X  XXXXXXX   XXXXX             XXXXX
X     X  X        X     X           X     X
X     X  X        X                       X
XXXXXXX  XXXX     X         XXXXX    XXXXX
X     X  X        X                 X
X     X  X        X     X           X
X     X  XXXXXXX   XXXXX            XXXXXXX
```

EXISTING

THIS RUN EXECUTED 05-24-88

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**************************************************
 HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
 ERROR CORR -  01,02,03,04,05,06
 MODIFICATION -  50,51,52,53,54,55,56
 IBM-PC-XT VERSION AUGUST 1985
**************************************************
```

C
T1 BACKWATER ANALYSIS
T2 CRITTENDEN DRAIN ROUGHNESS COEF. = 0.04
T3 FLOOD PLAIN IMPROVEMENTS

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	2.	0.	0.	.000000	.00	.0	0.	598.810	.000

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	-1.000	.000	-1.000	.000	.000	.000	.000	.000	.000	.000

NC	.060	.060	.040	.100	.300	.000	.000	.000	.000	.000
QT	1.000	230.000	.000	.000	.000	.000	.000	.000	.000	.000
X1	9573.000	17.000	187.000	220.000	.000	.000	.000	.000	.000	.000
GR	601.200	.000	602.200	87.000	601.300	147.000	598.500	169.000	597.500	187.000
GR	597.500	187.000	595.500	195.000	594.300	199.000	594.300	204.000	597.800	220.000
GR	598.200	228.000	600.300	249.000	600.500	287.000	600.300	387.000	600.700	487.000
GR	600.700	587.000	601.100	687.000	.000	.000	.000	.000	.000	.000
QT	1.000	220.000	.000	.000	.000	.000	.000	.000	.000	.000

SOUTH PROPERTY LINE (same location as proposed AEW section "I")

X1	10408.000	10.000	342.000	372.000	835.000	835.000	835.000	.000	.000	.000
X3	10.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
GR	601.590	.000	601.260	100.000	600.650	200.000	600.700	300.000	599.800	342.000
GR	597.200	348.000	597.150	355.000	596.950	362.000	602.850	372.000	600.300	400.000

AEW SECTION "h"

X1	10778.000	15.000	500.000	524.000	370.000	370.000	370.000	.000	.000	.000
GR	602.000	.000	601.700	100.000	600.900	200.000	601.100	300.000	600.600	400.000
GR	601.100	500.000	598.200	507.000	597.400	512.000	598.300	517.000	601.100	524.000
GR	601.000	600.000	601.400	700.000	600.800	800.000	600.900	900.000	600.900	1000.000

AEW SECTION "g"

X1	11078.000	.000	.000	.000	300.000	300.000	300.000	.000	.000	.000
X3	.000	.000	.000	.000	.000	785.000	.000	.000	.000	.000

AEW SECTION "f"

X1	11378.000	.000	.000	.000	300.000	300.000	300.000	.000	.000	.000
X3	.000	.000	.000	.000	.000	900.000	.000	.000	.000	.000

AEW SECTION "e"

X1	11705.000	18.000	500.000	510.300	327.000	327.000	327.000	.000	.000	.000
X3	.000	.000	.000	147.000	.000	864.000	.000	.000	.000	.000
GR	601.900	.000	601.900	100.000	601.800	200.000	601.600	300.000	601.100	400.000
GR	601.400	460.000	601.600	468.000	601.800	475.000	602.200	500.000	598.000	500.000
GR	597.600	505.000	598.200	510.300	601.900	510.300	600.900	600.000	600.800	700.000
GR	601.400	800.000	601.400	900.000	601.100	1000.000	.000	.000	.000	.000

NC	.050	.050	.036	.000	.000	.000	.000	.000	.000	.000
X1	11706.000	.000	.000	.000	1.000	1.000	1.000	.000	.000	.000
X3	.000	.000	.000	147.000	.000	864.000	.000	.000	.000	.000
BT	14.000	147.000	601.900	.000	200.000	601.800	.000	300.000	601.600	.000
BT	400.000	601.100	.000	460.000	601.400	.000	468.000	599.900	.000	475.000
BT	601.800	.000	500.000	602.200	601.400	505.000	602.000	601.300	510.300	601.900
BT	601.300	600.000	600.900	.000	700.000	600.800	.000	800.000	601.400	.000
BT	864.000	601.400	.000	.000	.000	.000	.000	.000	.000	.000

AEW SECTION "d"

X1	11719.000	.000	.000	.000	13.000	13.000	13.000	.000	.000	.000
X2	.000	.000	.000	.000	.000	.000	1.000	.000	.000	.000
X3	.000	.000	.000	147.000	.000	864.000	.000	.000	.000	.000

NC	.060	.060	.040	.000	.000	.000	.000	.000	.000	.000
X1	11720.000	.000	.000	.000	1.000	1.000	1.000	.000	.000	.000
X3	.000	.000	.000	147.000	.000	864.000	.000	.000	.000	.000

AEW SECTION "c"

X1	12193.000	13.000	500.000	529.000	473.000	473.000	473.000	.000	.000	.000
X3	.000	.000	.000	269.000	.000	.000	.000	.000	.000	.000
GR	601.000	.000	601.000	100.000	601.100	200.000	601.900	500.000	598.800	507.000
GR	597.600	513.000	598.200	521.000	601.300	529.000	600.900	600.000	601.600	700.000
GR	602.700	800.000	602.900	900.000	602.400	1000.000	.000	.000	.000	.000

NC	.060	.060	.040	.000	.000	.000	.000	.000	.000	.000

AEW SECTION "b"

X1	12904.000	15.000	500.000	512.000	711.000	711.000	711.000	.000	.000	.000
X3	.000	.000	.000	451.000	.000	561.000	.000	.000	.000	.000
GR	602.900	.000	602.900	100.000	603.100	200.000	601.900	300.000	602.900	400.000
GR	602.400	490.000	599.400	500.000	598.800	506.000	599.700	512.000	603.100	522.000
GR	602.300	600.000	602.600	700.000	602.900	800.000	603.500	900.000	604.100	1000.000

NC	.050	.050	.060	.000	.000	.000	.000	.000	.000	.000
X1	12905.000	.000	.000	.000	1.000	1.000	1.000	.000	.000	.000
X3	.000	.000	.000	451.000	.000	561.000	.000	.000	.000	.000

SB	.000	1.790	2.900	.000	9.700	.000	36.800	.000	598.800	598.800

AEW SECTION "a"

X1	12920.000	.000	.000	.000	15.000	15.000	15.000	.000	.000	.000
X2	.000	.000	1.000	602.600	602.610	.000	.000	.000	.000	.000
X3	.000	.000	.000	451.000	.000	561.000	.000	.000	.000	.000
BT	6.000	451.000	602.700	.000	500.000	602.400	599.400	500.000	602.400	601.900
BT	512.000	603.200	602.600	512.000	603.700	599.700	561.000	603.000	.000	.000

NC	.060	.060	.040	.000	.000	.000	.000	.000	.000	.000
X1	12921.000	.000	.000	.000	1.000	1.000	1.000	.000	.000	.000
X3	.000	.000	.000	451.000	.000	561.000	.000	.000	.000	.000
X1	13078.000	11.000	500.000	527.000	157.000	157.000	157.000	.000	.000	.000
GR	604.100	.000	603.500	500.000	600.100	508.000	599.700	513.000	600.000	521.000
GR	602.500	527.000	602.200	600.000	604.500	700.000	603.300	800.000	605.200	900.000
GR	604.900	1000.000	.000	.000	.000	.000	.000	.000	.000	.000
EJ	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

```
 SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
 Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
 TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
 SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST


*PROF 1

CCHV=    .100 CEHV=    .300
*SECNO 9573.000
  9573.00    4.51   598.81      .00   598.81   598.88      .07      .00      .00   597.50
     230.       9.     217.       4.       15.     101.       8.       0.       0.    597.80
      .00      .59     2.15      .54     .060     .040     .060     .000   594.30   166.56
  .000779       0.       0.       0.        0        0        0      .00    67.54   234.10


*SECNO 10408.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      599.80 ELREA=      602.85

           SOUTH PROPERTY LINE (same location as proposed AEW section "I")
 10408.00    2.99   599.94      .00      .00   600.18      .24     1.25      .05   599.80
     220.      0.     220.       0.       0.      56.       0.       2.       1.    602.85
      .06      .27     3.95      .00     .060     .040     .060     .000   596.95   335.68
  .004179    835.     835.     835.        3        0        0      .00    31.38   367.06


*SECNO 10778.000

3265 DIVIDED FLOW

3280 CROSS SECTION  10778.00 EXTENDED       .26 FEET

                             00073
           AEW SECTION "h"
 10778.00    3.75   601.15      .00      .00   601.23      .08     1.04      .02   601.10
     220.      37.     150.      33.      81.      54.      78.       3.       4.    601.10
      .11      .46     2.77      .43     .060     .040     .060     .000   597.40   168.06
  .002020    370.     370.     370.        3        0        0      .00   730.10  1000.00


*SECNO 11078.000
3280 CROSS SECTION  11078.00 EXTENDED       .62 FEET

                           00168
3470 ENCROACHMENT STATIONS=        .0      785.0  TYPE=     1  TARGET=     784.999
           AEW SECTION "g"
 11078.00    4.11   601.51      .00      .00   601.53      .02      .29      .01   601.10
     220.      87.     102.      31.     209.      63.      99.       5.       9.    601.10
      .20      .41     1.63      .31     .060     .040     .060     .000   597.40   122.81
  .000573    300.     300.     300.        3        0        0      .00   662.19   785.00
```

```
 SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
 Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
 TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
 SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


*SECNO 11378.000
3280 CROSS SECTION  11378.00 EXTENDED       .73 FEET


3470 ENCROACHMENT STATIONS=        .0     900.0  TYPE=     1  TARGET=     899.999
             AEW SECTION "f"
 11378.00     4.24    601.64      .00       .00   601.65      .01       .11       .00   601.10
     220.      80.       75.      64.      254.      66.     220.        8.       14.    601.10
      .34      .32      1.15      .29      .060      .040     .060      .000    597.40   108.19
  .000270     300.      300.     300.         2         0        0       .00    791.81   900.00


*SECNO 11705.000

3265 DIVIDED FLOW

3280 CROSS SECTION  11705.00 EXTENDED       .68 FEET


3470 ENCROACHMENT STATIONS=     147.0     864.0  TYPE=     1  TARGET=     717.000
             AEW SECTION "e"
 11705.00     4.17    601.77      .00       .00   601.79      .02       .14       .00   602.20
     220.      32.       71.     117.       85.      40.     219.       11.       19.    601.90
      .44      .38      1.76      .53      .060      .040     .060      .000    597.60   211.29
  .000744     327.      327.     327.         0         0        0       .00    615.92   864.00


*SECNO 11706.000

3265 DIVIDED FLOW

3280 CROSS SECTION  11706.00 EXTENDED       .67 FEET


3370 NORMAL BRIDGE,NRD= 14 MIN ELTRD=  599.90 MAX ELLC=  601.40


3470 ENCROACHMENT STATIONS=     147.0     864.0  TYPE=     1  TARGET=     717.000
 11706.00     4.18    601.78      .00       .00   601.79      .01       .00       .00   602.20
     220.      37.       48.     136.       83.      36.     217.       11.       19.    601.90
      .44      .44      1.33      .63      .050      .036     .050      .000    597.60   214.71
  .000719       1.        1.       1.         0         0        0     -4.60    611.65   864.00
```

```
 SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
 Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
 TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
 SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


*SECNO 11719.000

3265 DIVIDED FLOW

3280 CROSS SECTION  11719.00 EXTENDED       .69 FEET


3370 NORMAL BRIDGE,NRD= 14 MIN ELTRD=  599.90 MAX ELLC=  601.40


3470 ENCROACHMENT STATIONS=     147.0     864.0  TYPE=     1  TARGET=     717.000
            AEW SECTION "d"
 11719.00     4.19   601.79      .00      .00   601.80      .01      .01      .00   602.20
     220.      38.      46.     136.      88.      36.     223.      11.      19.   601.90
      .44      .43     1.28      .61     .050     .036     .050     .000   597.60   205.43
  .000664      13.      13.      13.        0        0        0    -4.79   623.24   864.00


*SECNO 11720.000

3265 DIVIDED FLOW

3280 CROSS SECTION  11720.00 EXTENDED       .69 FEET


3470 ENCROACHMENT STATIONS=     147.0     864.0  TYPE=     1  TARGET=     717.000
 11720.00     4.18   601.78      .00      .00   601.80      .02      .00      .00   602.20
     220.      33.      70.     117.      88.      41.     224.      11.      19.   601.90
      .44      .37     1.72      .53     .060     .040     .060     .000   597.60   204.91
  .000708       1.       1.       1.        0        0        0      .00   623.89   864.00


*SECNO 12193.000

3470 ENCROACHMENT STATIONS=     269.0    1000.0  TYPE=     1  TARGET=    -269.000
            AEW SECTION "c"
 12193.00     4.43   602.03      .00      .00   602.05      .02      .25      .00   601.90
     220.      28.     127.      65.     100.      86.     152.      15.      25.   601.30
      .57      .28     1.48      .43     .060     .040     .060     .000   597.60   269.00
  .000396     473.     473.     473.        2        0        0      .00   469.80   738.80
```

```
 SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
 Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
 TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN     SSTA
 SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID    ENDST


*SECNO 12904.000

3470 ENCROACHMENT STATIONS=     451.0     561.0  TYPE=     1  TARGET=     110.000
            AEW SECTION "b"
 12904.00      3.67   602.47      .00      .00   602.72      .25      .60      .07   599.40
     220.       28.     174.      18.      16.      40.      11.      19.      30.    599.70
      .62      1.71     4.41     1.60     .060     .040     .060     .000   598.80   477.64
  .002910      711.     711.     711.        2        0        0      .00    42.50   520.14


*SECNO 12905.000

3470 ENCROACHMENT STATIONS=     451.0     561.0  TYPE=     1  TARGET=     110.000
 12905.00      3.77   602.57      .00      .00   602.73      .16      .00      .01   599.40
     220.       45.     147.      29.      19.      41.      12.      19.      30.    599.70
      .62      2.34     3.61     2.36     .050     .060     .050     .000   598.80   460.11
  .004204        1.       1.       1.        2        0        0      .00    60.32   520.43


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
      .00      1.79      2.90       .00      9.70       .00     36.80       .00    598.80    598.80

*SECNO 12920.000

3265 DIVIDED FLOW

PRESSURE AND WEIR FLOW


 EGPRS      EGLWC       H3        QWEIR       QPR       BAREA    TRAPEZOID     ELLC      ELTRD
                                                                   AREA
    603.56    602.73       .00       62.      159.       37.       37.     602.60    602.61


3470 ENCROACHMENT STATIONS=     451.0     561.0  TYPE=     1  TARGET=     110.000
            AEW SECTION "a"
 12920.00      4.20   603.00      .00      .00   603.08      .08      .36      .00   599.40
     220.       62.     127.      31.      40.      46.      20.      19.      30.    599.70
      .62      1.54     2.76     1.52     .050     .060     .050     .000   598.80   451.00
  .002105       15.      15.      15.        2        0        0      .00   100.09   561.00
```

```
 SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
 Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
 TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
 SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


*SECNO 12921.000

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=     451.0     561.0  TYPE=     1  TARGET=     110.000
 12921.00     4.16   602.96      .00      .00   603.10      .14      .00      .02   599.40
     220.      41.     158.      21.      38.      45.      19.      19.      30.    599.70
      .62     1.07     3.47     1.10     .060     .040     .060     .000   598.80   451.00
  .001497       1.       1.       1.        2        0        0      .00    96.31   561.00


*SECNO 13078.000
 13078.00     3.56   603.26      .00      .00   603.32      .06      .21      .01   603.50
     220.       0.     155.      65.       0.      68.      90.      19.      30.    602.50
      .65      .00     2.29      .72     .060     .040     .060     .000   599.70   500.58
  .001152     157.     157.     157.        1        0        0      .00   145.14   645.73
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THIS RUN EXECUTED 05-24-88

****
HEC2 RELEASE DATED NOV 76 UPDATED MAY 1984
ERROR CORR - 01,02,03,04,05,06
MODIFICATION - 50,51,52,53,54,55,56
IBM-PC-XT VERSION AUGUST 1985
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

PLAIN IMPROVEMENTS

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
9573.000	.00	.00	.00	594.30	230.00	598.81	.00	598.88	7.79	2.15	124.13	82.39
10408.000	835.00	.00	.00	596.95	220.00	599.94	.00	600.18	41.79	3.95	56.12	34.03
10778.000	370.00	.00	.00	597.40	220.00	601.15	.00	601.23	20.20	2.77	212.49	48.95
11078.000	300.00	.00	.00	597.40	220.00	601.51	.00	601.53	5.73	1.63	370.76	91.94
11378.000	300.00	.00	.00	597.40	220.00	601.64	.00	601.65	2.70	1.15	539.39	133.94
11705.000	327.00	.00	.00	597.60	220.00	601.77	.00	601.79	7.44	1.76	344.62	80.66
11706.000	1.00	599.90	601.40	597.60	220.00	601.78	.00	601.79	7.19	1.33	335.83	82.07
11719.000	13.00	599.90	601.40	597.60	220.00	601.79	.00	601.80	6.64	1.28	347.09	85.35
11720.000	1.00	.00	.00	597.60	220.00	601.78	.00	601.80	7.08	1.72	352.53	82.67
12193.000	473.00	.00	.00	597.60	220.00	602.03	.00	602.05	3.96	1.48	338.12	110.58
12904.000	711.00	.00	.00	598.80	220.00	602.47	.00	602.72	29.10	4.41	66.91	40.78
12905.000	1.00	.00	.00	598.80	220.00	602.57	.00	602.73	42.04	3.61	71.92	33.93
12920.000	15.00	602.61	602.60	598.80	220.00	603.00	.00	603.08	21.05	2.76	106.61	47.95
12921.000	1.00	.00	.00	598.80	220.00	602.96	.00	603.10	14.97	3.47	102.91	56.87
13078.000	157.00	.00	.00	599.70	220.00	603.26	.00	603.32	11.52	2.29	157.54	64.83

PLAIN IMPROVEMENTS

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
9573.000	230.00	598.81	.00	.00	.00	67.54	.00
10408.000	220.00	599.94	.00	1.13	.00	31.38	835.00
10778.000	220.00	601.15	.00	1.22	.00	730.10	370.00
11078.000	220.00	601.51	.00	.36	.00	662.19	300.00
11378.000	220.00	601.64	.00	.13	.00	791.81	300.00
11705.000	220.00	601.77	.00	.13	.00	615.92	327.00
11706.000	220.00	601.78	.00	.01	.00	611.65	1.00
11719.000	220.00	601.79	.00	.01	.00	623.24	13.00
11720.000	220.00	601.78	.00	.00	.00	623.89	1.00
12193.000	220.00	602.03	.00	.24	.00	469.80	473.00
12904.000	220.00	602.47	.00	.44	.00	42.50	711.00
12905.000	220.00	602.57	.00	.10	.00	60.32	1.00
12920.000	220.00	603.00	.00	.43	.00	100.09	15.00
12921.000	220.00	602.96	.00	-.04	.00	96.31	1.00
13078.000	220.00	603.26	.00	.29	.00	145.14	157.00

SUMMARY OF ERRORS AND SPECIAL NOTES

THIS RUN EXECUTED 05-24-88

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**************************************************
 HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
 ERROR CORR -  01,02,03,04,05,06
 MODIFICATION -  50,51,52,53,54,55,56
 IBM-PC-XT VERSION AUGUST 1985
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**************************************************
* WATER SURFACE PROFILES                         *
* VERSION OF NOVEMBER 1976                       *
* UPDATED MAY 1984                               *
* IBM-PC-XT VERSION AUGUST 1985                  *
* RUN DATE  05-24-88   TIME  14:30:29            *
**************************************************

**************************************
* U.S. ARMY CORPS OF ENGINEERS       *
* THE HYDROLOGIC ENGINEERING CENTER  *
* 609 SECOND STREET, SUITE D         *
* DAVIS, CALIFORNIA 95616            *
* (916) 440-2105 (FTS) 448-2105      *
**************************************


X     X XXXXXXX  XXXXX           XXXXX
X     X X       X     X         X     X
X     X X       X                     X
XXXXXXX XXXX    X         XXXXX  XXXXX
X     X X       X               X
X     X X       X     X         X
X     X XXXXXXX  XXXXX          XXXXXXX
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PROPOSED

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                                                              THIS RUN EXECUTED 05-24-88
*********************************************
 HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
 ERROR CORR -  01,02,03,04,05,06
 MODIFICATION -  50,51,52,53,54,55,56
 IBM-PC-XT VERSION AUGUST 1985
*********************************************


C
T1  BACKWATER ANALYSIS  CRITTER1
T2  CRITTENDON DRAIN  ROUGHNESS COEF. = .06  / .04
T3  FLOOD PLAIN IMPROVEMENTS

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

        0.        2.        0.        0.   .000000       .00        .0        0.   599.940      .000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    -1.000      .000    -1.000      .000      .000      .000      .000      .000      .000      .000


NC       .060      .060      .040      .100      .300      .000      .000      .000      .000      .000
QT      1.000   220.000      .000      .000      .000      .000      .000      .000      .000      .000
           SECTION TAKEN ALONG SOUTH PROPERTY LINE  (AEW "I")
X1  10408.000     9.000   334.000   385.000      .000      .000      .000      .000      .000      .000
GR    601.590      .000   601.260   100.000   600.650   200.000   600.700   300.000   600.100   334.000
GR    595.800   351.000   595.800   359.000   602.100   385.000   600.300   400.000      .000      .000

           AEW PROPOSED SECTION "H"
X1  10598.000     9.000   333.000   380.000   190.000   190.000   190.000      .000      .000      .000
GR    601.100      .000   601.600   100.000   600.800   200.000   601.100   300.000   601.100   333.000
GR    595.930   355.000   595.930   363.000   601.500   380.000   601.500   400.000      .000      .000

           AEW PROPOSED SECTION "G"
X1  10998.000    10.000   236.000   320.000   400.000   400.000   400.000      .000      .000      .000
GR    601.100      .000   601.100   100.000   600.800   200.000   600.900   236.000   599.900   242.000
GR    599.150   278.000   596.220   292.000   596.220   300.000   601.800   320.000   601.700   400.000

           AEW PROPOSED SECTION "F"
X1  11403.000     9.000   237.000   320.000   405.000   405.000   405.000      .000      .000      .000
GR    601.100      .000   601.800   200.000   601.800   237.000   600.150   243.000   599.500   277.000
GR    596.500   290.000   596.500   298.000   601.850   320.000   601.600   400.000      .000      .000

           AEW PROPOSED SECTION "E"
X1  11863.000     8.000   240.000   320.000   460.000   460.000   460.000      .000      .000      .000
GR    602.300      .000   602.000   200.000   602.000   240.000   600.500   247.000   599.800   285.000
GR    596.820   296.000   596.820   304.000   602.000   320.000      .000      .000      .000      .000
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AEW PROPOSED SECTION "D"

X1	12003.000	9.000	241.000	320.000	140.000	140.000	140.000	.000	.000	.000
GR	602.100	.000	601.500	200.000	601.900	241.000	600.600	246.000	599.900	284.000
GR	596.920	296.000	596.920	304.000	601.900	320.000	601.400	400.000	.000	.000

AEW PROPOSED SECTION "C"

X1	12301.000	9.000	240.000	320.000	298.000	298.000	298.000	.000	.000	.000
GR	603.200	.000	602.300	200.000	602.600	240.000	600.800	248.000	600.150	285.000
GR	597.130	296.000	597.130	304.000	602.600	320.000	602.300	400.000	.000	.000

AEW PROPOSED SECTION "B"

X1	12801.000	10.000	237.000	317.000	500.000	500.000	500.000	.000	.000	.000
GR	605.400	.000	602.800	100.000	602.500	200.000	602.700	237.000	601.150	244.000
GR	600.500	281.000	597.480	294.000	597.480	302.000	602.800	317.000	602.600	400.000

AEW PROPOSED SECTION "A"

X1	12907.000	10.000	237.000	317.000	106.000	106.000	106.000	.000	.000	.000
GR	604.900	.000	603.600	100.000	602.700	200.000	602.800	237.000	601.200	244.000
GR	600.500	279.000	597.550	292.000	597.550	300.000	602.600	317.000	602.500	400.000
EJ	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*PROF 1

CCHV= .100 CEHV= .300

*SECNO 10408.000

SECTION TAKEN ALONG SOUTH PROPERTY LINE (AEW "I")

10408.00	4.14	599.94	.00	599.94	600.01	.07	.00	.00	600.10
220.	0.	220.	0.	0.	102.	0.	0.	0.	602.10
.00	.00	2.15	.00	.060	.040	.060	.000	595.80	334.63
.001035	0.	0.	0.	0	0	0	.00	41.45	376.09

*SECNO 10598.000

AEW PROPOSED SECTION "H"

10598.00	4.21	600.14	.00	.00	600.22	.08	.20	.00	601.10
220.	0.	220.	0.	0.	98.	0.	0.	0.	601.50
.02	.00	2.24	.00	.060	.040	.060	.000	595.93	337.10
.001090	190.	190.	190.	0	0	0	.00	38.74	375.84

*SECNO 10998.000

AEW PROPOSED SECTION "G"

10998.00	4.32	600.54	.00	.00	600.57	.04	.35	.00	600.90
220.	0.	220.	0.	0.	145.	0.	2.	1.	601.80
.10	.00	1.51	.00	.060	.040	.060	.000	596.22	238.18
.000725	400.	400.	400.	2	0	0	.00	77.29	315.47

*SECNO 11403.000

AEW PROPOSED SECTION "F"

11403.00	4.33	600.83	.00	.00	600.86	.04	.29	.00	601.80
220.	0.	220.	0.	0.	145.	0.	3.	1.	601.85
.17	.00	1.52	.00	.060	.040	.060	.000	596.50	240.54
.000712	405.	405.	405.	2	0	0	.00	75.25	315.79

*SECNO 11863.000

AEW PROPOSED SECTION "E"

11863.00	4.36	601.18	.00	.00	601.22	.04	.36	.00	602.00
220.	0.	220.	0.	0.	136.	0.	4.	2.	602.00
.25	.00	1.62	.00	.060	.040	.060	.000	596.82	243.82
.000852	460.	460.	460.	2	0	0	.00	73.65	317.47

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 12003.000

AEW PROPOSED SECTION "D"

12003.00	4.38	601.30	.00	.00	601.34	.04	.11	.00	601.90
220.	0.	220.	0.	0.	141.	0.	5.	2.	601.90
.27	.00	1.56	.00	.060	.040	.060	.000	596.92	243.34
.000777	140.	140.	140.	0	0	0	.00	74.70	318.04

*SECNO 12301.000

AEW PROPOSED SECTION "C"

12301.00	4.41	601.54	.00	.00	601.58	.04	.24	.00	602.60
220.	0.	220.	0.	0.	136.	0.	6.	3.	602.60
.33	.00	1.61	.00	.060	.040	.060	.000	597.13	244.71
.000828	298.	298.	298.	0	0	0	.00	72.19	316.90

*SECNO 12801.000

AEW PROPOSED SECTION "B"

12801.00	4.44	601.92	.00	.00	601.96	.04	.38	.00	602.70
220.	0.	220.	0.	0.	144.	0.	7.	4.	602.80
.42	.00	1.53	.00	.060	.040	.060	.000	597.48	240.48
.000714	500.	500.	500.	1	0	0	.00	74.06	314.54

*SECNO 12907.000

AEW PROPOSED SECTION "A"

12907.00	4.45	602.00	.00	.00	602.03	.03	.07	.00	602.80
220.	0.	220.	0.	0.	150.	0.	8.	4.	602.60
.44	.00	1.47	.00	.060	.040	.060	.000	597.55	240.48
.000630	106.	106.	106.	0	0	0	.00	74.52	315.00

THIS RUN EXECUTED 05-24-88

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**************************************************
 HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
 ERROR CORR -  01,02,03,04,05,06
 MODIFICATION -  50,51,52,53,54,55,56
 IBM-PC-XT VERSION AUGUST 1985
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

D PLAIN IMPROVEMENTS

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
10408.000	.00	.00	.00	595.80	220.00	599.94	.00	600.01	10.35	2.15	102.37	68.38
10598.000	190.00	.00	.00	595.93	220.00	600.14	.00	600.22	10.90	2.24	98.31	66.63
10998.000	400.00	.00	.00	596.22	220.00	600.54	.00	600.57	7.25	1.51	145.44	81.68
11403.000	405.00	.00	.00	596.50	220.00	600.83	.00	600.86	7.12	1.52	144.73	82.46
11863.000	460.00	.00	.00	596.82	220.00	601.18	.00	601.22	8.52	1.62	136.11	75.36
12003.000	140.00	.00	.00	596.92	220.00	601.30	.00	601.34	7.77	1.56	140.68	78.91
12301.000	298.00	.00	.00	597.13	220.00	601.54	.00	601.58	8.28	1.61	136.29	76.47
12801.000	500.00	.00	.00	597.48	220.00	601.92	.00	601.96	7.14	1.53	143.90	82.36
12907.000	106.00	.00	.00	597.55	220.00	602.00	.00	602.03	6.30	1.47	149.62	87.63

D PLAIN IMPROVEMENTS

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
10408.000	220.00	599.94	.00	.00	.00	41.45	.00
10598.000	220.00	600.14	.00	.20	.00	38.74	190.00
10998.000	220.00	600.54	.00	.40	.00	77.29	400.00
11403.000	220.00	600.83	.00	.29	.00	75.25	405.00
11863.000	220.00	601.18	.00	.35	.00	73.65	460.00
12003.000	220.00	601.30	.00	.12	.00	74.70	140.00
12301.000	220.00	601.54	.00	.24	.00	72.19	298.00
12801.000	220.00	601.92	.00	.39	.00	74.06	500.00
12907.000	220.00	602.00	.00	.07	.00	74.52	106.00

SUMMARY OF ERRORS AND SPECIAL NOTES

Please submit this information page with your application to assist staff in locating your project site, thereby avoiding delays in processing your permit because staff cannot locate your project site. This page is requested in addition to a site location map. A site location map must also be submitted with the application.

RECEIVED

MAY 2 5 1988

NATURAL RESOURCES
LAND & WATER MGMT

PROJECT SITE LOCATION

DIRECTIONS

Is there an access road to the project? ____YES X NO

Type of road: ____private, ____public, ____gravel, ____paved

Name of roads at closest intersection: 22 mile , GARFIELD

Is there a house or other building visible from the road? X YES ____NO

Color of house or other visible building on site: RED BRICK

Where is address visible on? ____house, ____garage, X mailbox, ____sign

Type/style of house or other building: X ranch, ____2-story,

____cape cod, ____bi-level, ____cottage/cabin, ____pole

other (describe)____________________

House number: 17058 Fire Lane Number: ____________

Street Name: 22 MILE RD.

Color of adjacent property house and/or buildings: WHITE 2 STORY HOUSE 17290 22 MILE Rd w/ UNPAINTED BARN

Describe the best and nearest visible landmark to the project site:

EXISTING SUBDIVISION TO THE SOUTH

Signature: [signature]

Phone number for contact during the day: (313) 286-1234

Date: 5-24-88

APPLICATION FOR PERMIT

FOR OFFICIAL USE

Corps of Engineers Department of the Army	Corps Process No	State of Michigan Department of Natural Resources Land Resource Programs	DNR File No

PLEASE READ INSTRUCTIONS *BEFORE* FILLING OUT THIS APPLICATION — PRINT OR TYPE

1 APPLICANT (individual or corporate name)
Anthony Vittiglio
ADDRESS
48111 Ryan Road
CITY Utica, STATE MI ZIP 48087
TELEPHONE (Work) ~~(Home)~~ ~~XXX~~ 731-3170
SOC SECURITY or FED I D No 362-28-3198

AGENT/CONTRACTOR (firm name if known)
Anderson, Eckstein and Westrick, Inc.
ADDRESS
42800 Garfield Road
CITY Mount Clemens, STATE MI ZIP 48044
TELEPHONE (313) 286-1234

2 If applicant is not owner of the property where the proposed activity will be conducted, provide name and address of owner and include letter of authorization from owner:

OWNER'S NAME	MAILING ADDRESS	CITY	STATE	ZIP
Anthony Vittiglio,	48111 Ryan Road,	Utica,	Michigan	48087

3 **PROJECT LOCATION**

Street/Road	Village/City	BODY OF WATER (Lake stream creek pond or drain)
22 Mile Road	Macomb Township	Crittenden Drain

County	Township	Town	Range	Section(s)	Subdivision or Plat	Lot No	Private Claim
Macomb	Macomb	3 N	13 E	29	Cross Creek Estates (Preliminary Plat		

4 **PROJECT INFORMATION**

(a) Describe proposed activity
Fill in existing floodway areas, on site and creating equal volume within the proposed drain easement.

(b) Attach drawings of the proposed activity prepared in accordance with the *DRAWING REQUIREMENTS* on pages 1 & 2 of Instructions

(c) Check appropriate Project Type (below) — **See Samples of Drawings Required**

1) ☐ Dredging, Filling, Draining or Construction Work in Inland Lakes or Streams, Great Lakes Bottomlands or Wetland Areas . . . . 1, 2, 3, 4, or 5
2) ☒ Work in Riverine Flood Plain . . (See SPECIAL INSTRUCTIONS, Section 1, on back of this form) . . 6
3) ☐ New or Replacement Bridge or Culvert (See SPECIAL INSTRUCTIONS, Section 2, on back of this form) 7, 8, 9 and 10
4) ☐ Dam Construction or Reconstruction (See SPECIAL INSTRUCTIONS, Section 3, on back of this form) . 11

NOTE: If boxes 2, 3 and/or 4 above, are checked provide appropriate additional information on the back under "SPECIAL INSTRUCTIONS"

(d) PROPOSED USE (Check appropriate box) 1 ☐ Public, ☒ Private; ☐ Commercial; ☐ Other (specify) ______
2 Will the project site be served by a new on-site Sewage Disposal System (Septic Tank) ☒ No ☐ Yes

(e) Location of Source of Fill if more the 50 cubic yards are required for other than commercial source

County	Township	Town	Range	Section	¼ Section
On Site					

Further Description (provide vicinity map of Source Site (Sample Drawing 5) if more than 50 cubic yards and source is other than commercial)

RECEIVED

(f) Dredge Spoils Disposal Location Site (if required)

MAY 26 1988

County	Township	Town	Range	Section	¼ Section
On Site					

Further Description (provide vicinity map for Disposal Site (Sample Drawing 3)

NATURAL RESOURCES
LAND & WATER MGMT

(g) Describe any project alternatives considered.

If fill is required, is project water dependent? ☒ No ☐ Yes

(h) Date activity will commence if permit is issued May, 1988, be completed November, 1988

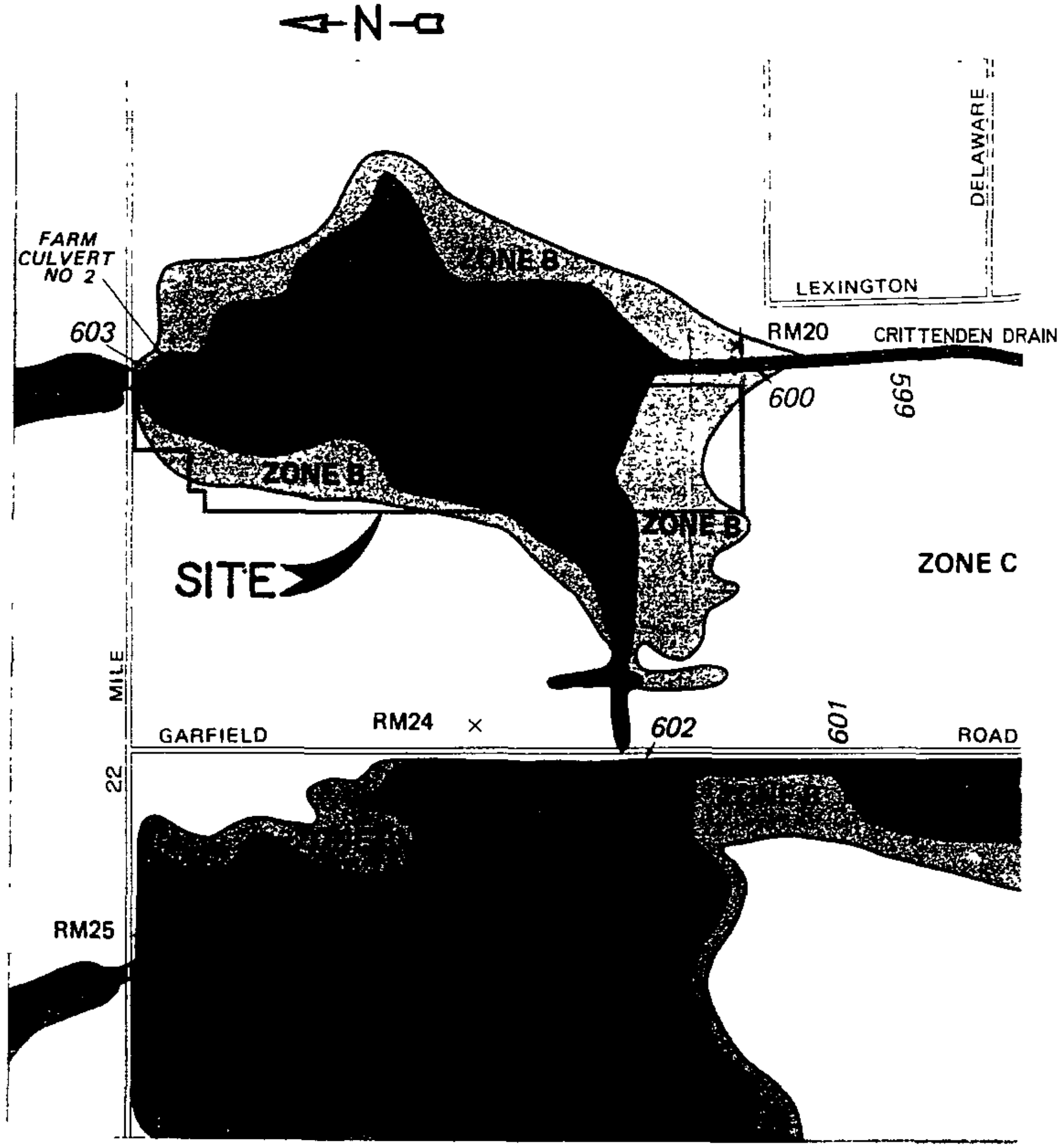
(i) Is any portion of the requested project now complete? ☒ No ☐ Yes, If yes, identify the completed portion on the drawings you submit and give the date activity was completed ______

DO NOT WRITE IN THIS SPACE — FOR CASHIER USE ONLY

APPLICATION CONTINUED ON REVERSE SIDE.

LIST OF ADJOINING RIPARIAN

Name	Address	City State	Zip Code
John Ingrao	17203 White Plains Drive	Utica, MI	48087
Robert and G. Rymal	17249 White Plains DRive	Utica, MI	48087
Wilfred Malburg	20850 - 23 Mile Road	Mount Clemens, MI	48044
John & J. Schwartz	17290 - 22 Mile Road	Utica, MI	48087



COPY OF FIRM MAP

NOT TO SCALE

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Macomb Twp

3) WATERCOURSE: Crittenden Drain

4) DOCUMENT TYPE: Hydraulics Analyses

00BREAK00

LEHNER ASSOCIATES, INC.
CONSULTING ENGINEERS & SURVEYORS
CLINTON TOWNSHIP, MICHIGAN

HYDRAULIC ENGINEERING REPORT
FOR THE CRITTENDEN DRAIN
SECTIONS 20 AND 29, T.3 N., R.13 E.,
MACOMB TOWNSHIP, MACOMB COUNTY, MICHIGAN

APRIL - 1993

TABLE OF CONTENTS

INTRODUCTION

The Crittenden Drain is an established county drain with a drainage area of 1.3 square miles at Twenty Two Mile Road between Sections 20 and 29, T.3 N., R.13 E., Macomb Township, Macomb County, Michigan. The 10%, 2%, 1% and 0.2% chance peak flows are 130, 200, 220 and 320 cfs, respectively. A detailed analysis of flooding on the Crittenden Drain from Hall Road (M-59) to Twenty Two Mile Road was developed for the 1980 FIS. We have used information provided by the 1980 FIS to evaluate impact of channelization using the aforementioned peak flows under existing and proposed conditions. The HEC-2 computer model was first used to simulate the 1980 FIS and to compare results obtained from your agency. Next, the cross section locations and ground surface data were revised to model the results of the existing channelization project. Finally, the cross section locations and ground surface data were revised to model the results of future channelization and the installation of two box culverts.

1980 FIS

The HEC-2 output for the hydraulic simulation of the 1980 FIS is given in Appendix "A". This data models flooding on the Crittenden Drain from the cross-section downstream of Valley Forge Drive (Section Number 7883) to the cross-section downstream of Twenty Two Mile Road (Section Number 13078). The special bridge routine is used to model the 16'x7' box culvert at Valley Forge Drive and Farm Culverts No.1 & 2. The results for the calculated water surface elevation at each cross section varies from 0 to -0.09 ft., depending on flow and drain location, when compared to the original 1980 FIS. Variations of this magnitude may reflect updates on the PC version of HEC-2. Since the first eight cross-sections are in complete agreement and Section Number 13078 is -0.02 ft., no calibrations were attempted for the model.

MATCH EX

EXISTING CHANNELIZATION

Another simulation was performed to evaluate the impact of channelization on the Crittenden Drain. The channelization project included the removal of Farm Culverts No.1 & 2, deepening the channel and construction of the left over bank. Subsequently, cross section locations were revised to model transitions in the cross-sectional area of the drain and ground surface data modifications reflect a lower channel invert with a left over bank. Enclosed are plans for the Crittenden Drain clean-out and relocation which provide information on channel alignment and as-built drain cross-sections. The input data for this analysis models these drain improvements, while anticipating some sedimentation where the channel has been over-excavated. It was also necessary to model the 14'x7' box culvert at White Plains Drive using the Special Culvert routine.

The HEC-2 output for the hydraulic analysis of the existing channelization projected is presented in Appendix "B". The calculated water surface elevation will decrease the BFE of the 1980 FIS by 1.26 ft. at Section Number 13078.

EXISTING CHANNELIZATION CONTINUED

Channel improvements will also decrease the width of the regulatory floodway between Twenty-Two Mile Road and White Plains Drive. The floodway data from the 1980 FIS and the revised floodway data due to the existing channelization project are given in Appendix "C". The results indicate the floodway width will vary from 96 ft. at Section Number 10494 to 14 ft. at White Plains Drive. Encroachment upon the floodplain in the vicinity of the 14'x7' concrete box culvert at White Plains Drive will increase the BFE between .05 ft. to .09 ft.

A LOMR for the existing channelization project will lower the BFE from 602.01 at Twenty Two Mile Road to 599.73 at White Plains Drive and limit the width of the floodway between the channel banks. The revised floodplain boundary is included in Appendix "B". This drawing indicates the revised floodway, the revised 100 year floodplain contour and the revised 500 year floodplain contour.

FUTURE CHANNELIZATION AND BOX CULVERT INSTALLATION

The proposed construction of a right overbank and the installation of two 12'x6' reinforced concrete box culverts with headwalls and wingwalls is anticipated when the property west of the Crittenden drain is developed. Four additional cross-sections are selected for each road crossing to employ the Special Culvert method available in HEC-2. Supplemental ground surface data on the remaining cross-sections model the right overbank.

The HEC-2 input and output for the hydraulic simulation of future channelization and the installation of two box culverts is presented in Appendix "D". The calculated water surface elevation for this case will increase approximately 0.3 to 0.4 ft. from the interpolated values of the LOMR between the road crossings at Tower and Mark Drive. This difference in calculated water surface elevations between the existing channelization and future project conditions decreases to 0.10 ft. at Section Number 12212 and 0 ft. at Section Number 12612. Finally, the calculated water surface elevation will

FUTURE CHANNELIZATION AND BOX CULVERT INSTALLATION CONTINUED

decrease to 601.91 at the upstream limit of Section Number 13078.

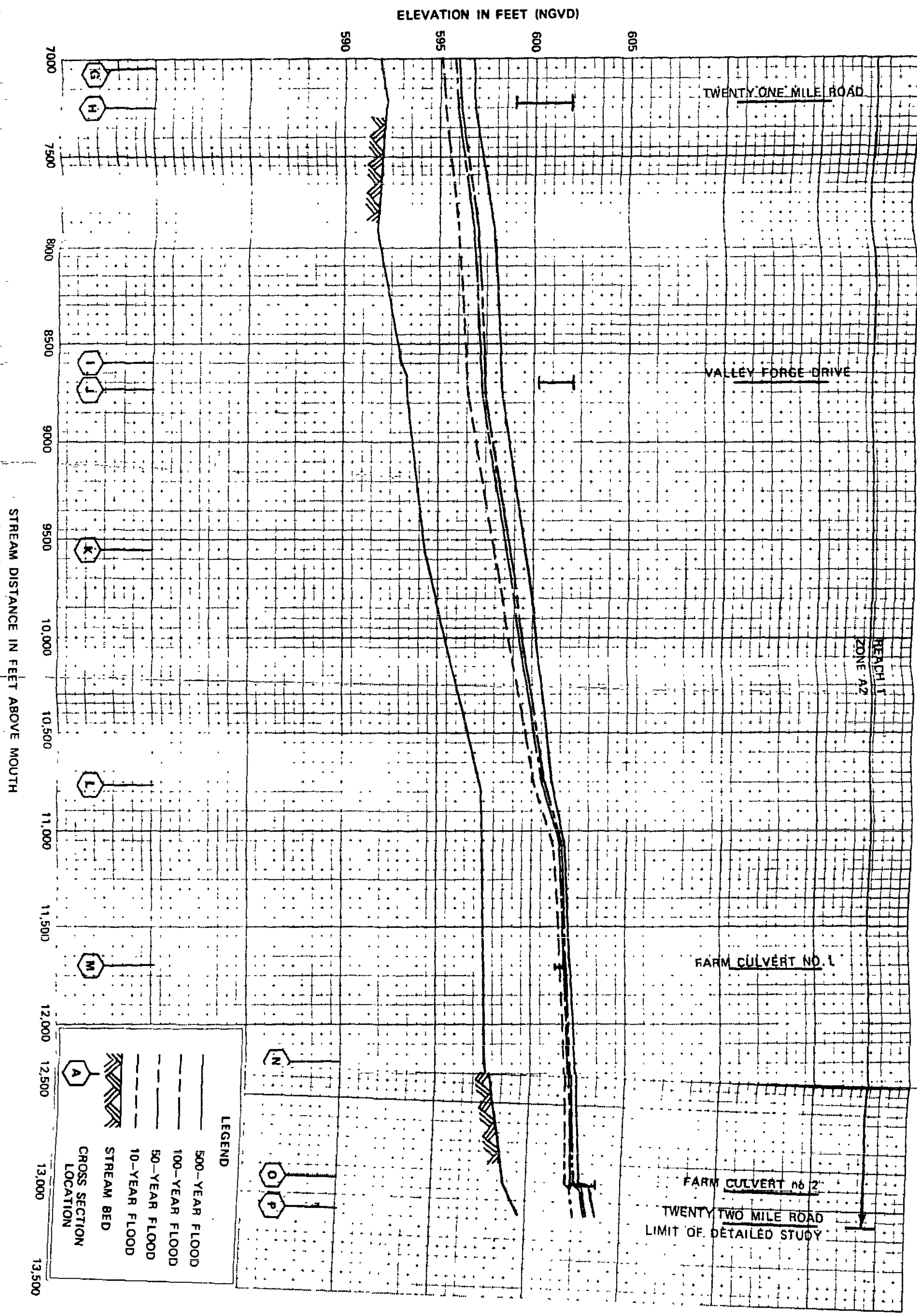
A CLOMR for future channelization and box culvert installation will lower the BFE from 601.91 at Twenty Two Mile Road to 599.72 at White Plains Drive. The net effect of future channelization of the Crittenden Drain will decrease the BFE compared to the existing channelization, while the installation of two 12'x6' box culverts will increase the BFE within the vicinity of Mark and Tower Drive.

CONCLUSION

The results our hydraulic analysis for the Crittenden Drain indicate the need to lower the BFE and decrease the width of the floodway from the 1980 FIS. We must also acknowledge localized surcharge from the proposed installation of two box culverts. Therefore, a LOMR should be adopted based upon the existing channelization to revise the floodway and lower the BFE from 602.01 at Twenty Two Mile Road to 599.73 at White Plain Drive. In addition, a CLOMR should be granted to accommodate the estimated surcharge from the proposed box culvert installations at Mark and Tower Drive.

APPENDIX "A"

* HEC-2 INPUT & OUTPUT FOR 1980 FIS
*FLOOD PROFILE FROM 1980 FIS



FEDERAL EMERGENCY MANAGEMENT AGENCY

Federal Insurance Administration

TOWNSHIP OF MACOMB, MI

(MACOMB CO.)

FLOOD PROFILES

CRITTENDEN DRAIN

07P

APPENDIX "C"

*HEC-2 INPUT & OUTPUT FOR REVISED FLOODWAY
*FLOODWAY DATA FROM 1980 FIS

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (NGVD)	WITHOUT FLOODWAY (NGVD)	WITH FLOODWAY (NGVD)	INCREASE (FEET)
CRITTENDEN DRAIN								
A	1628	31	133	1.9	593.3	593.3	593.3	0.0
B	2708	44	159	1.6	593.6	593.6	593.7	0.1
C	3608	47	143	1.8	593.9	593.9	594.0	0.1
D	4256	16	76	3.3	594.3	594.3	594.3	0.0
E	4376	47	143	1.6	594.6	594.6	594.6	0.0
F	5976	52	123	1.9	595.3	595.3	595.3	0.0
G	7061	47	116	2.0	596.0	596.0	596.0	0.0
H	7259	16	56	4.1	596.1	596.1	596.1	0.0
I	8623	41	111	2.1	597.4	597.4	597.4	0.0
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K	9573	68	124	1.9	598.8	598.8	598.8	0.0
L	10,778	22	44	5.0	600 7	600 7	600.7	0.0
M	11,719	517	374	0.6	601.9	601.9	601.9	0.0
N	12,193	374	331	0.7	602.1	602 1	602.1	0.0
O	12,920	110	113	2.0	603.0	603.0	603.1	0.1
P	13,078	31	72	3.1	603.3	603.3	603.3	0.0

[1]FEET ABOVE MOUTH

TABLE 2

FEDERAL EMERGENCY MANAGEMENT AGENCY
Federal Insurance Administration

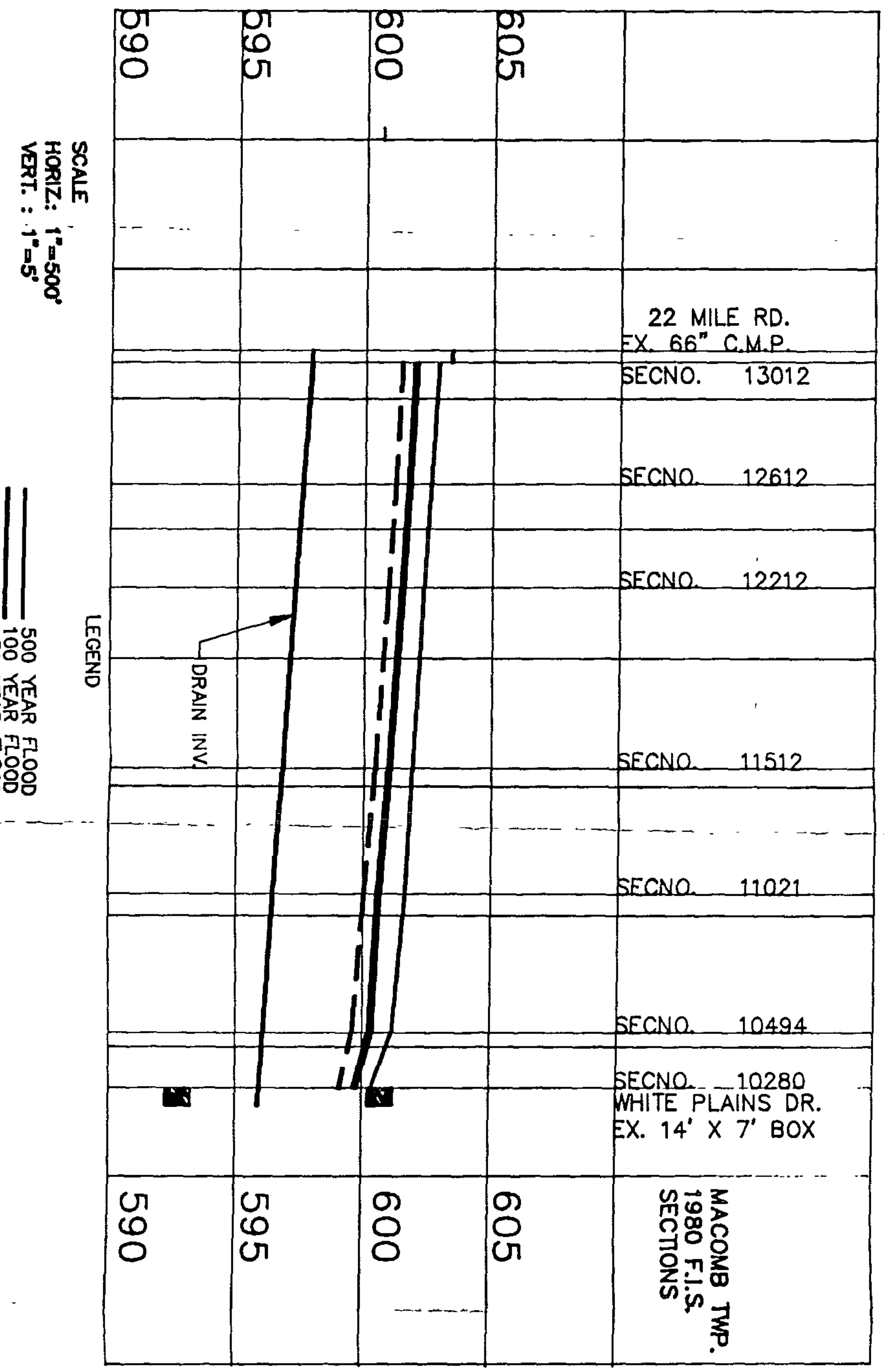
TOWNSHIP OF MACOMB, MI
(MACOMB CO.)

FLOODWAY DATA

CRITTENDEN DRAIN

APPENDIX "B"

*HEC-2 INPUT & OUTPUT FOR EXISTING CHANNELIZATION
*REVISED FLOOD PROFILE
*REVISED FLOODPLAIN BOUNDARY



CRITTENDEN DRAIN

REVISED FLOODPLAIN PROFILE

PART OF THE N.W. 1/4 OF SECTION 29, T.3N., R.13E.,
MACOMB TOWNSHIP, MACOMB COUNTY, MICHIGAN.

LEHNER ASSOCIATES, Inc.
CONSULTING ENGINEERS & SURVEYORS
22900 WELLINGTON CRESCENT
CLINTON TOWNSHIP, MICHIGAN 48036
(313) 463-4594

APPENDIX "D"

*HEC-2 INPUT & OUTPUT FOR FUTURE CHANNELIZATION AND BOX CULVERT INSTALLATION

1) COUNTY: Macomb

2) STUDY NAME: Macomb Twp.

3) WATERCOURSE: Crittenden Drain

4) DOCUMENT TYPE: Hydraulics Analyses

LEHNER ASSOCIATES, INC.
CONSULTING ENGINEERS & SURVEYORS
CLINTON TOWNSHIP, MICHIGAN

HYDRAULIC ENGINEERING REPORT
FOR THE CRITTENDEN DRAIN
SECTIONS 20 AND 29, T.3 N., R.13 E.,
MACOMB TOWNSHIP, MACOMB COUNTY, MICHIGAN

APRIL - 1993

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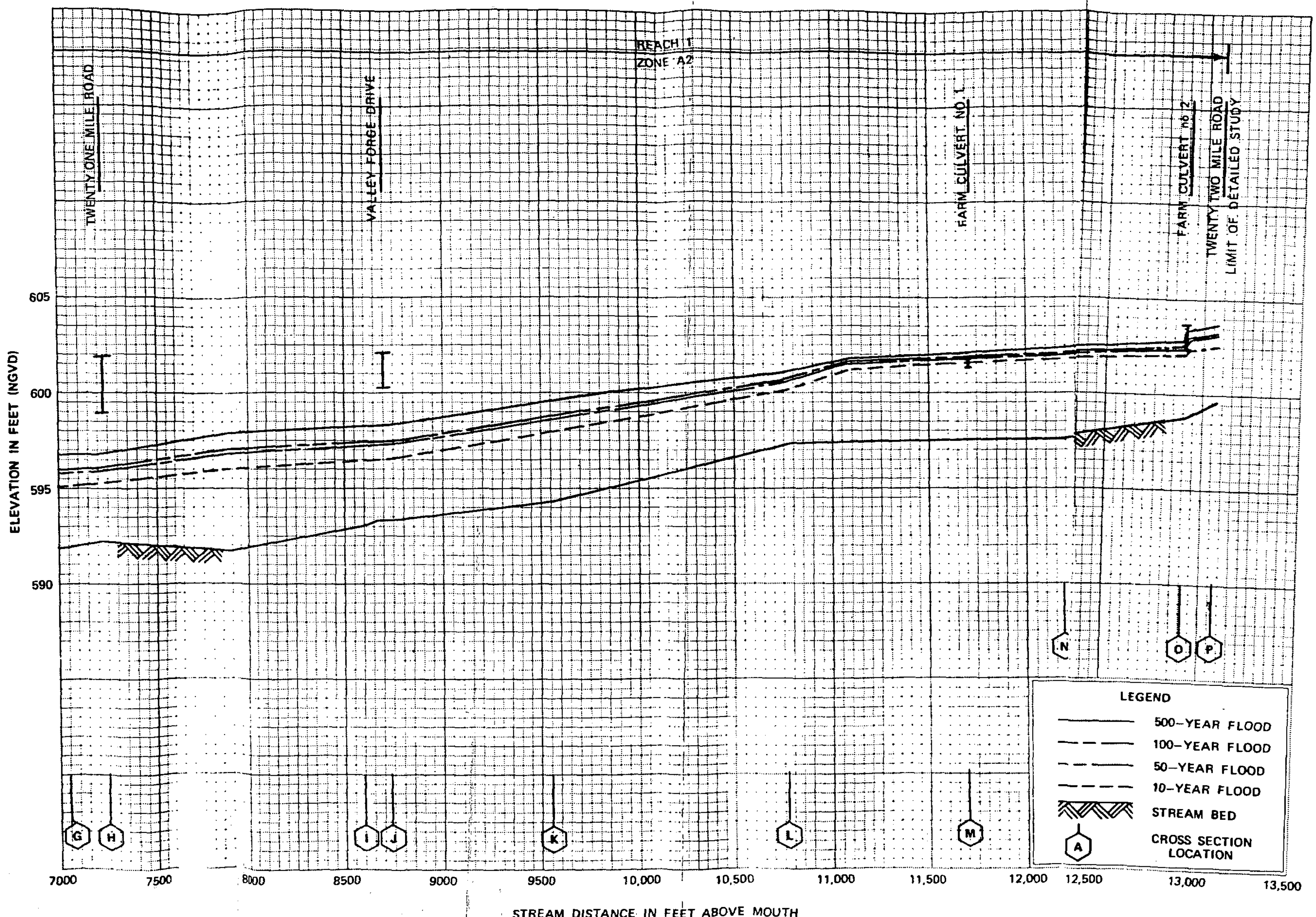

FLOOD PROFILES

CRITTENDEN DRAIN

FEDERAL EMERGENCY MANAGEMENT AGENCY
Federal Insurance Administration
TOWNSHIP OF MACOMB, MI
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07P

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Federal Insurance Administration

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(MACOMB CO.)

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CRITTENDEN DRAIN

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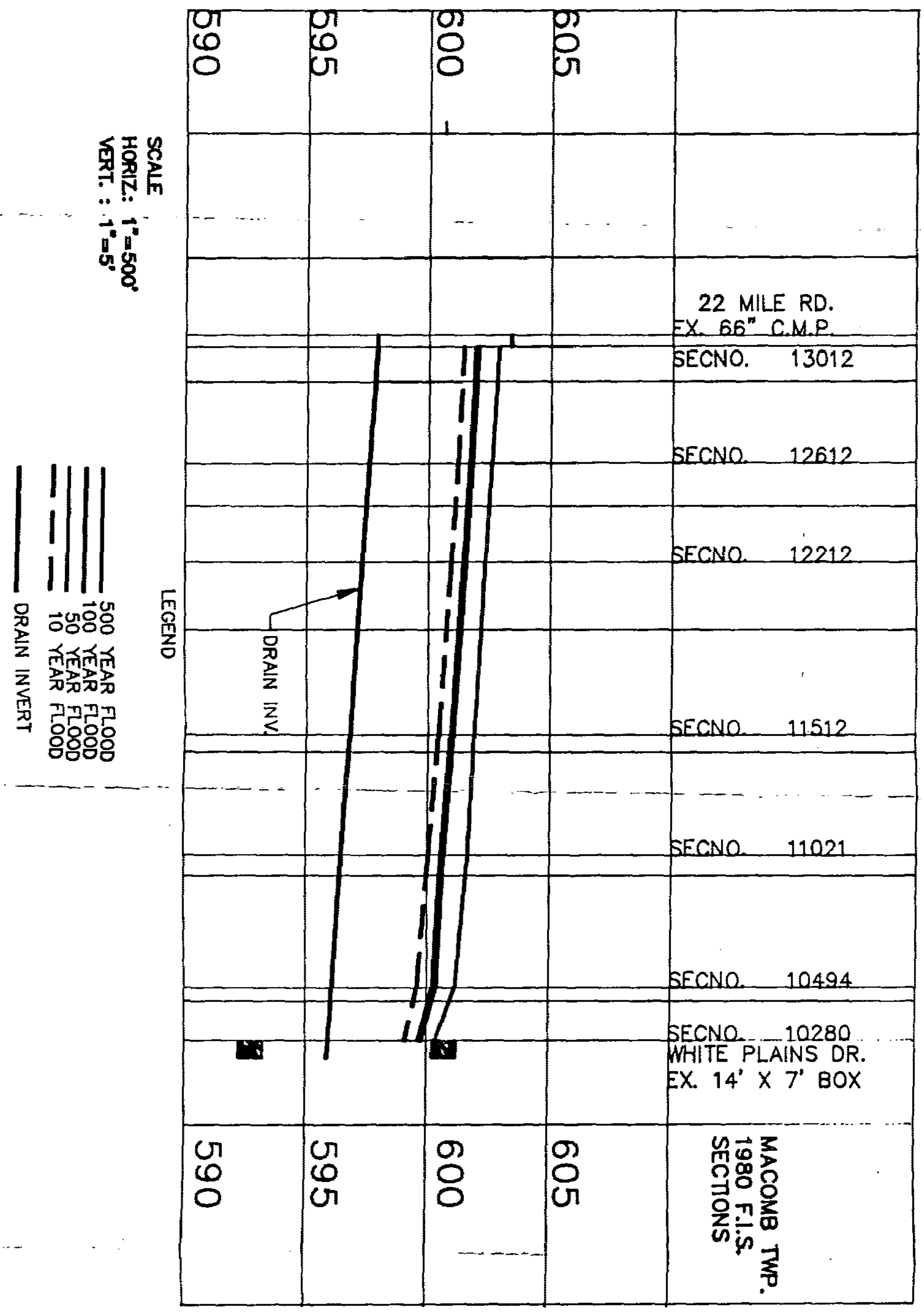
*REVISED FLOOD PROFILE
*REVISED FLOODPLAIN BOUNDARY



CRITTENDEN DRAIN

REVISED FLOODPLAIN PROFILE

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APPENDIX "D"

*HEC-2 INPUT & OUTPUT FOR FUTURE CHANNELIZATION
AND BOX CULVERT INSTALLATION

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Macomb Twp.

3) WATERCOURSE: Dunn Drain

4) DOCUMENT TYPE: 10, 50, 100, 500 year flood

00BREAK00

MACU040 JANDA 04/27/79 08.39.03 7600 JO

DUNN DRAIN
J&A FILE No.5850-03
MACOMB TWP. FIS
10-50-100-500 YR. FLOODS

```
*************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED   AUG1977
  ERROR CORR -   01,02
  MODIFICATION -  50,51,52,53
*************************************************


C
T1        MACOMB TWP. FIS J&A FILE NO. 5350-03
T2        DUNN DRAIN
T3        10 YEAR FLOOD

J1  ICHECK      INQ        NINV       IDIR      STRT       METRIC     HVINS       Q          WSEL       FQ

        0.         2.         0.         0.  0.000000      0.00       0.0        0.      597.710     0.000

J2  NPROF      IPLOT      PREVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

       1.000      0.000     -1.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000

NC       .035       .035       .035       .300       .500      0.000      0.000      0.000      0.000      0.000
QT      4.000    570.000    840.000    925.000   1305.000      0.000      0.000      0.000      0.000      0.000

              AT CONFLUENCE OF LEWIS DRAIN AND DUNN DRAIN (J&A) SECT.A

X1      0.000      4.000      0.000     90.000      0.000      0.000      0.000      0.000      0.000      0.000
GR    596.200      0.000    589.200     33.000    589.200     67.000    596.200     90.000      0.000      0.000

X1    199.000     40.000     73.400    126.900    199.000    199.000    199.000      0.000      0.000      0.000
GR    601.000      0.000    601.000     73.400    591.900     73.400    590.800     73.800    590.200     75.400
GR    589.800     77.400    589.500     79.000    589.400     81.000    589.400     82.200    589.500     84.200
GR    589.800     86.000    590.200     87.800    590.300     89.400    591.900     89.900    591.900     91.900
GR    590.800     92.300    590.200     93.900    589.800     95.900    589.500     97.500    589.400     99.500
GR    589.600    100.700    589.500    102.700    589.800    104.500    590.200    106.300    590.800    107.900
GR    591.900    108.400    591.900    110.400    590.800    110.800    590.200    112.400    589.800    114.400
GR    589.500    116.000    589.400    118.000    589.400    119.200    589.500    121.200    589.800    123.000
GR    590.200    124.800    590.800    126.400    591.900    126.900    601.000    126.900    601.000    200.000
NC       .040       .040       .031      0.000      0.000      0.000      0.000      0.000      0.000      0.000

X1    200.000      0.000      0.000      0.000      1.000      1.000      1.000      0.000      0.000      0.000
BT     38.000      0.000    601.000      0.000     73.400    601.000    591.900     73.800    601.000    593.800
BT     75.400    601.000    596.600     77.400    601.000    598.200     79.000    601.000    599.000     81.000
BT    601.000    599.300     82.200    601.000    599.300     84.200    601.000    599.000     86.000    601.000
BT    598.200     87.800    601.000    596.600     89.400    601.000    593.800     89.900    601.000    591.900
BT     91.900    601.000    591.900     92.300    601.000    593.800     93.900    601.000    596.600     95.900
BT    601.000    598.200     97.500    601.000    599.000     99.500    601.000    599.300    100.700    601.000
BT    599.300    102.700    601.000    599.000    104.500    601.000    598.200    106.300    601.000    596.600
BT    107.900    601.000    593.800    108.400    601.000    591.900    110.400    601.000    591.900    110.800
BT    601.000    593.800    112.400    601.000    596.600    114.400    601.000    598.200    116.000    601.000
BT    599.000    118.000    601.000    599.300    119.200    601.000    599.300    121.200    601.000    599.000
BT    123.000    601.000    598.200    124.800    601.000    596.600    126.400    601.000    593.800    126.900
BT    601.000    591.900    200.000    601.000      0.000      0.000      0.000      0.000      0.000      0.000

              TILCH ROAD CULVERTS (J&A)                     SECT.B

X1    280.000      0.000      0.000      0.000     60.000     60.000     60.000      0.000      0.000      0.000
X2      0.000      0.000      0.000      0.000      0.000      0.000      1.000      0.000      0.000      0.000
NC       .030       .030       .030      0.000      0.000      0.000      0.000      0.000      0.000      0.000
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X1	281.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X5	1.000	0.000	0.000	0.000	600.060	0.000	0.000	0.000	0.000	0.000

DESIGN SECTION (J&A) SECT.C

X1	600.000	10.000	0.000	200.000	319.000	319.000	319.000	0.000	0.000	0.000
GR	601.000	0.000	600.000	15.000	593.700	53.000	592.700	83.000	589.700	95.000
GR	589.700	105.000	592.700	117.000	593.700	147.000	600.300	185.000	601.000	200.000

DESIGN SECTION (J&A) SECT.D

X1	2195.000	10.000	0.000	200.000	1595.000	1595.000	1595.000	0.000	0.000	0.000
GR	601.000	0.000	600.000	15.000	595.000	53.000	594.000	83.000	591.000	95.000
GR	591.000	105.000	594.000	117.000	595.000	147.000	600.000	185.000	601.000	200.000
QT	4.000	495.000	730.000	800.000	1130.000	0.000	0.000	0.000	0.000	0.000

DESIGN SECTION AT CONFLUENCE (J&A) SECT.E

X1	2369.000	4.000	0.000	80.000	50.000	250.000	174.000	0.000	0.000	0.000
GR	601.000	0.000	591.000	28.000	591.000	52.000	601.000	80.000	0.000	0.000

CHECK DAM (J&A) SECT.F

X1	2370.000	4.000	0.000	80.000	1.000	1.000	1.000	0.000	0.000	0.000
GR	601.000	0.000	594.000	28.000	594.000	52.000	601.000	80.000	0.000	0.000

DESIGN SECTION (J&A) SECT.G

X1	2984.000	4.000	0.000	80.000	614.000	614.000	614.000	0.000	0.000	0.000
GR	601.500	0.000	594.400	28.000	594.400	52.000	601.500	80.000	0.000	0.000
NC	.050	.050	.033	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	3518.000	4.000	30.000	49.000	560.000	90.000	534.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	599.000	599.000	0.000
GR	602.000	0.000	594.800	30.000	594.800	49.000	602.000	80.000	0.000	0.000
NC	.070	.070	.032	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	3519.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	599.000	599.000	0.000
NC	.100	.100	.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	2.150	3.020	0.000	11.430	0.000	70.000	0.000	594.900	594.800

HAYES ROAD (MCS) SECT.H

X1	3559.000	26.000	390.500	409.500	40.000	40.000	40.000	0.000	.100	0.000
X2	0.000	0.000	1.000	601.000	602.200	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	350.000	0.000	0.000	0.000	602.100	602.100	0.000
BT	21.000	350.000	603.000	0.000	390.500	603.100	597.300	390.900	603.100	598.700
BT	392.000	603.100	600.200	393.700	603.100	600.900	394.300	603.100	600.900	394.900
BT	603.100	600.900	396.500	603.100	600.200	397.600	603.100	598.700	398.000	603.100
BT	597.300	402.000	603.100	597.400	402.400	603.100	598.800	403.500	603.100	600.300
BT	405.200	603.100	601.000	405.800	603.100	601.000	406.400	603.100	601.000	408.000
BT	603.100	600.300	409.100	603.100	598.800	409.500	603.100	597.400	600.000	602.200
BT	0.000	800.000	602.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	602.000	0.000	602.500	200.000	612.800	300.000	599.700	350.000	597.200	390.500
GR	596.000	390.900	595.200	392.000	594.300	393.700	594.800	394.300	594.800	394.900
GR	595.200	396.500	596.000	397.600	597.200	398.000	597.300	402.000	596.100	402.400

GR	595.300	403.500	594.900	405.200	594.900	405.300	594.900	405.600	595.300	408.000
GR	595.100	409.100	597.300	409.500	599.700	450.000	602.600	500.000	602.100	600.000
GR	602.300	800.000	0.000	1.000	0.000	0.000	0.000	0.000	0.000	0.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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*************************************************
 HEC2 RELEASE DATED NOV 76 UPDATED   AUG1977
 ERROR CORR -  01,02
 MODIFICATION -  50,51,52,53
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T1      MACOMB TWP. FIS J&A FILE NO. 5850-03
T2      DUNN DRAIN
T3      100 YEAR FLOOD

J1  ICHECK    INQ     NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

       0.       4.      0.       0.   0.000000   0.00     0.0      0.     598.650   0.000

J2  NPROF    IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

     3.000    0.000   -1.000    0.000    0.000    0.000    0.000    0.000    0.000    0.000
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*PROF 3

CCHV=     .300 CEHV=     .500
*SECNO .000
3280 CROSS SECTION      0.00 EXTENDED      2.45 FEET

    SECNO     DEPTH     CWSEL     CRIWS     WSELK      EG        HV        HL       OLOSS   BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


                  AT CONFLUENCE OF LEWIS DRAIN AND DUNN DRAIN (J8A) SECT.A
                       from Lewis Drain
      0.00      9.45    598.65  599.43 0.00    598.65    598.68       .03      0.00      0.00    596.20     Breckenridge report started @ 599.48
      925.        0.      925.        0.        0.      555.         0.        0.        0.    596.20      Q = 1440 cfs
      0.00      0.00      1.41      0.00      .035      .035      .035     0.000    589.20      0.00
   .000087        0.        0.        0.         0         0         0      0.00     90.00     90.00


*SECNO 199.000
    199.00      9.26    598.66      0.00      0.00    598.72       .06       .02       .02    601.00
      925.        0.      925.        0.        0.      460.        0.        3.        0.    601.00
       .03      0.00      2.01      0.00      .035      .035      .035      .035    589.40     73.40
   .000191      199.      199.      199.         0         0         0      0.00     53.50    126.90


*SECNO 200.000

3370 NORMAL BRIDGE,NRD= 38 MIN ELTRD=   601.00 MAX ELLC=   599.30

    200.00      9.24    598.64      0.00      0.00    598.74       .10       .00       .02    601.00
      925.        0.      925.        0.        0.      367.        0.        3.        0.    601.00
       .03      0.00      2.52      0.00      .040      .031      .040      .035    589.40     73.40
   .000490        1.        1.        1.         1         0         0    -92.32     53.50    126.90


*SECNO 280.000               3 - 16'5" x 5'11" Pipe Arches

3370 NORMAL BRIDGE,NRD= 38 MIN ELTRD=   601.00 MAX ELLC=   599.30

                  TILCH ROAD CULVERTS (J8A)                         SECT.B

    280.00      9.28    598.68      0.00      0.00    598.73       .10       .04       .00    601.00
      925.        0.      925.        0.        0.      367.        0.        3.        0.    601.00
       .04      0.00      2.52      0.00      .040      .031      .040      .033    589.40     73.40
   .000488       80.       80.       80.         1         0         0    -93.12     53.50    126.90


*SECNO 281.000
    SECNO     DEPTH     CWSEL     CRIWS     WSELK      EG        HV        HL       OLOSS   BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


    281.00      9.33    598.73      0.00      0.00    598.79       .06       .00       .01    601.00
      925.        0.      925.        0.        0.      463.        0.        3.        0.    601.00
       .04      0.00      2.00      0.00      .030      .030      .030      .033    589.40     73.40
   .000137        1.        1.        1.         2         0         0      0.00     53.50    126.90
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*SECNO 600.000

DESIGN SECTION (J&A) SECT.C

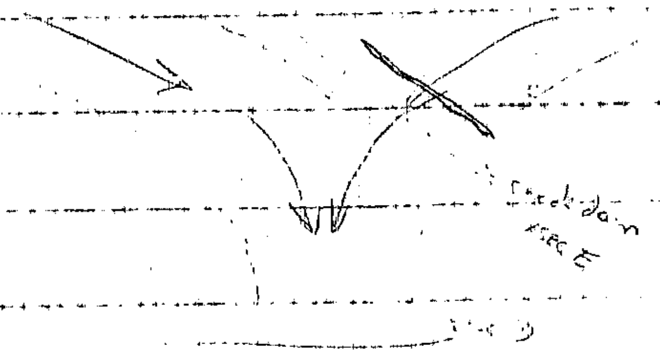
600.00	9.11	598.81	0.00	0.00	598.83	.02	.03	.01	601.00
925.	0.	925.	0.	0.	769.	0.	8.	1.	601.00
.11	0.00	1.20	0.00	.030	.030	.030	.032	589.70	22.12
.000071	319.	319.	319.	1	0	0	0.00	155.76	177.88

Dunn

*SECNO 2195.000

DESIGN SECTION (J&A) SECT.D

2195.00	7.96	598.96	0.00	0.00	598.99	.03	.16	.01	601.00
925.	0.	925.	0.	0.	623.	0.	33.	7.	601.00
.41	0.00	1.49	0.00	.030	.030	.030	.030	591.00	22.84
.000142	1595.	1595.	1595.	1	0	0	0.00	154.31	177.16



*SECNO 2369.000

DESIGN SECTION AT CONFLUENCE (J&A) SECT.E

2369.00	7.97	598.97	0.00	0.00	599.04	.07	.03	.02	601.00
800.	0.	800.	0.	0.	370.	0.	35.	7.	601.00
.43	0.00	2.16	0.00	.030	.030	.030	.030	591.00	5.67
.000213	50.	174.	250.	0	0	0	0.00	68.67	74.53

Low velocity @ confluence

*SECNO 2370.000

CHECK DAM (J&A) SECT.F

2370.00	4.90	598.90	0.00	0.00	599.12	.22	.00	.07	601.00
800.	0.	800.	0.	0.	213.	0.	35.	7.	601.00
.43	0.00	3.75	0.00	.030	.030	.030	.030	594.00	8.41
.001157	1.	1.	1.	2	0	0	0.00	63.18	71.59

*SECNO 2984.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

DESIGN SECTION (J&A) SECT.G

2984.00	5.17	599.57	0.00	0.00	599.76	.19	.64	.01	601.50
800.	0.	800.	0.	0.	230.	0.	38.	8.	601.50
.48	0.00	3.48	0.00	.030	.030	.030	.030	594.40	7.59
.000938	614.	614.	614.	2	0	0	0.00	64.81	72.41

*SECNO 3518.000

3518.00	5.30	600.10	0.00	0.00	600.43	.32	.60	.07	594.80
800.	128.	539.	132.	59.	101.	61.	41.	9.	594.80
.51	2.18	5.35	2.19	.050	.033	.050	.031	594.80	7.90
.001527	660.	534.	90.	2	0	0	0.00	63.94	71.84

No weir flow in LOB,
Changed to 1957 weir

*SECNO 3519.000

3519.00	5.29	600.09	0.00	0.00	600.44	.35	.00	.01	594.80
800.	120.	556.	124.	59.	101.	60.	41.	9.	594.80

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      .51       2.05       5.52       2.05       .070       .042       .070       .031     594.80      7.91
   .002635        1.         1.         1.         1          0          0       0.00      63.91      71.82

SPECIAL BRIDGE

SB  XK          XKOR        COFQ        RDLEN       BWC         BWP         BAREA       SS          ELCHU       ELCHD
    0.00        2.15        3.02        0.30        11.48       0.00        70.00       0.00        594.90      594.80

*SECNO 3559.000

3265 DIVIDED FLOW

3280 CROSS SECTION    3559.00 EXTENDED         .23 FEET

PRESSURE AND WEIR FLOW

  EGPRS        EGLWC          H3         QWEIR         QPR         BAREA    TRAPEZOID      ELLC        ELTRD
                                                                              AREA
   604.45      601.66        0.00        185.         617.          70.        70.        601.00      602.20

                                    Sta 390
3470 ENCROACHMENT STATIONS=      350.0       800.0   TYPE=       1   TARGET=     -350.000

                   HAYES ROAD (MCS)                                         SECT.H

   3559.00      7.63     602.53      0.00      0.00     602.69       .16      2.25       0.00     597.30
      800.      127.      510.      163.      161.      127.      279.       41.         9.     597.40
       .52       .79      4.03       .53      .100      .025      .100      .031     594.90     350.00
   .000491       40.       40.       40.         2         0         5      0.00     412.30     800.00
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All weir flow
in ROB

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**************************************************
HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
ERROR CORR -  01,02
MODIFICATION -  50,51,52,53
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

10 YEAR FLOOD

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
0.000	0.00	0.00	0.00	589.20	570.00	597.71	0.00	597.73	.51	1.00	569.90	800.05
0.000	0.00	0.00	0.00	589.20	840.00	598.45	0.00	598.48	.78	1.32	636.50	951.99
0.000	0.00	0.00	0.00	589.20	925.00	598.65	0.00	598.68	.87	1.41	654.50	994.53
0.000	0.00	0.00	0.00	589.20	1305.00	599.66	0.00	599.71	1.15	1.75	745.40	1218.33
199.000	199.00	0.00	0.00	589.40	570.00	597.72	0.00	597.75	1.03	1.39	409.31	560.59
199.000	199.00	0.00	0.00	589.40	840.00	598.46	0.00	598.51	1.69	1.87	449.19	645.50
199.000	199.00	0.00	0.00	589.40	925.00	598.65	0.00	598.72	1.91	2.01	459.98	669.06
199.000	199.00	0.00	0.00	589.40	1305.00	599.67	0.00	599.77	2.73	2.54	513.90	790.25
200.000	1.00	601.00	599.30	589.40	570.00	597.71	0.00	597.75	1.94	1.67	342.20	409.23
200.000	1.00	601.00	599.30	589.40	840.00	598.44	0.00	598.53	4.18	2.32	362.62	411.08
200.000	1.00	601.00	599.30	589.40	925.00	598.64	0.00	598.74	4.90	2.52	366.73	417.77
200.000	1.00	601.00	599.30	589.40	1305.00	599.62	0.00	599.81	11.66	3.46	376.86	382.21
280.000	80.00	601.00	599.30	589.40	570.00	597.73	0.00	597.77	1.94	1.66	342.37	409.54
280.000	80.00	601.00	599.30	589.40	840.00	598.48	0.00	598.56	4.16	2.31	363.06	411.80
280.000	80.00	601.00	599.30	589.40	925.00	598.68	0.00	598.78	4.88	2.52	367.24	418.59
280.000	80.00	601.00	599.30	589.40	1305.00	599.72	0.00	599.90	11.68	3.46	376.86	381.82
281.000	1.00	0.00	0.00	589.40	570.00	597.74	0.00	597.77	.76	1.39	410.08	655.89
281.000	1.00	0.00	0.00	589.40	840.00	598.52	0.00	598.57	1.22	1.86	451.90	759.97
281.000	1.00	0.00	0.00	589.40	925.00	598.73	0.00	598.79	1.37	2.00	463.25	788.95
* 281.000	1.00	0.00	0.00	589.40	1305.00	600.06	0.00	600.15	1.78	2.44	534.50	977.63
600.000	319.00	0.00	0.00	589.70	570.00	597.78	0.00	597.80	.51	.93	614.77	798.72
600.000	319.00	0.00	0.00	589.70	840.00	598.59	0.00	598.61	.67	1.14	734.65	1028.47
600.000	319.00	0.00	0.00	589.70	925.00	598.81	0.00	598.83	.71	1.20	769.28	1097.60
600.000	319.00	0.00	0.00	589.70	1305.00	600.18	0.00	600.21	.71	1.31	992.59	1550.79
2195.000	1595.00	0.00	0.00	591.00	570.00	597.90	0.00	597.92	1.22	1.22	465.44	515.76
2195.000	1595.00	0.00	0.00	591.00	840.00	598.73	0.00	598.76	1.37	1.43	587.62	716.73
2195.000	1595.00	0.00	0.00	591.00	925.00	598.96	0.00	598.99	1.42	1.49	622.65	777.39
2195.000	1595.00	0.00	0.00	591.00	1305.00	600.32	0.00	600.36	1.24	1.54	846.12	1171.45
2369.000	174.00	0.00	0.00	591.00	495.00	597.91	0.00	597.96	1.45	1.65	299.71	410.85
2369.000	174.00	0.00	0.00	591.00	730.00	598.74	0.00	598.81	2.00	2.06	353.90	516.11
2369.000	174.00	0.00	0.00	591.00	800.00	598.97	0.00	599.04	2.13	2.16	369.58	547.66
2369.000	174.00	0.00	0.00	591.00	1130.00	600.32	0.00	600.41	2.24	2.42	467.60	754.89

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	2370.000	1.00	0.00	0.00	594.00	495.00	597.85	0.00	598.02	11.41	3.26	151.78	146.57
	2370.000	1.00	0.00	0.00	594.00	730.00	598.67	0.00	598.88	11.65	3.66	199.33	213.91
	2370.000	1.00	0.00	0.00	594.00	800.00	598.90	0.00	599.12	11.57	3.75	213.50	235.16
	2370.000	1.00	0.00	0.00	594.00	1130.00	600.26	0.00	600.47	8.51	3.68	307.19	387.32
	2984.000	614.00	0.00	0.00	594.40	495.00	598.50	0.00	598.64	9.00	3.00	164.83	164.99
	2984.000	614.00	0.00	0.00	594.40	730.00	599.35	0.00	599.53	9.35	3.39	215.27	238.75
	2984.000	614.00	0.00	0.00	594.40	800.00	599.57	0.00	599.76	9.38	3.48	229.78	261.19
	2984.000	614.00	0.00	0.00	594.40	1130.00	600.78	0.00	600.98	8.01	3.61	313.17	399.20
	3518.000	534.00	0.00	0.00	594.80	495.00	599.03	0.00	599.27	14.36	4.46	155.72	130.63
	3518.000	534.00	0.00	0.00	594.80	730.00	599.88	0.00	600.19	15.11	5.17	205.79	187.79
	3518.000	534.00	0.00	0.00	594.80	800.00	600.10	0.00	600.43	15.27	5.35	220.00	204.73
	3518.000	534.00	0.00	0.00	594.80	1130.00	601.22	0.00	601.59	14.11	5.84	296.75	300.87
	3519.000	1.00	0.00	0.00	594.80	495.00	599.02	0.00	599.27	24.30	4.56	156.18	100.42
	3519.000	1.00	0.00	0.00	594.80	733.00	599.37	0.00	600.20	26.03	5.33	205.55	143.09
	3519.000	1.00	0.00	0.00	594.80	800.00	600.09	0.00	600.44	26.35	5.52	219.72	155.85
	3519.000	1.00	0.00	0.00	594.80	1130.00	601.21	0.00	601.61	24.56	6.05	296.30	228.03
*	3559.000	40.00	602.20	601.00	594.90	495.00	598.59	598.59	600.38	143.02	10.72	46.19	41.39
	3559.000	40.00	602.20	601.00	594.90	730.00	602.43	0.00	602.57	4.40	3.78	527.60	347.85
	3559.000	40.00	602.20	601.00	594.90	800.00	602.53	0.00	602.69	4.91	4.03	566.74	360.98
	3559.000	40.00	602.20	601.00	594.90	1130.00	602.84	0.00	603.10	7.56	5.15	707.49	411.01

10 YEAR FLOOD

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
0.000	570.00	597.71	0.00	0.00	0.00	90.00	0.00
0.000	840.00	598.45	.74	0.00	0.00	90.00	0.00
0.000	925.00	598.65	.20	0.00	0.00	90.00	0.00
0.000	1305.00	599.66	1.01	0.00	0.00	90.00	0.00
199.000	570.00	597.72	0.00	.01	0.00	53.50	199.00
199.000	840.00	598.46	.74	.01	0.00	53.50	199.00
199.000	925.00	598.66	.20	.01	0.00	53.50	199.00
199.000	1305.00	599.67	1.01	.01	0.00	53.50	199.00
200.000	570.00	597.71	0.00	-.01	0.00	53.50	1.00
200.000	840.00	598.44	.73	-.01	0.00	53.50	1.00
200.000	925.00	598.64	.20	-.02	0.00	53.50	1.00
200.000	1305.00	599.62	.98	-.04	0.00	53.50	1.00
280.000	570.00	597.73	0.00	.02	0.00	53.50	80.00
280.000	840.00	598.48	.75	.03	0.00	53.50	80.00
280.000	925.00	598.68	.20	.04	0.00	53.50	80.00
280.000	1305.00	599.72	1.04	.09	0.00	53.50	80.00
281.000	570.00	597.74	0.00	.02	0.00	53.50	1.00
281.000	840.00	598.52	.77	.04	0.00	53.50	1.00
281.000	925.00	598.73	.21	.05	0.00	53.50	1.00
* 281.000	1305.00	600.06	1.33	.34	0.00	53.50	1.00
600.000	570.00	597.78	0.00	.04	0.00	143.29	319.00
600.000	840.00	598.59	.80	.07	0.00	153.05	319.00
600.000	925.00	598.81	.22	.08	0.00	155.76	319.00
600.000	1305.00	600.18	1.37	.12	0.00	175.38	319.00
2195.000	570.00	597.90	0.00	.11	0.00	137.96	1595.00
2195.000	840.00	598.73	.83	.14	0.00	150.82	1595.00
2195.000	925.00	598.96	.23	.15	0.00	154.31	1595.00
2195.000	1305.00	600.32	1.36	.14	0.00	179.63	1595.00
2369.000	495.00	597.91	0.00	.01	0.00	62.71	174.00
2369.000	730.00	598.74	.83	.01	0.00	67.38	174.00
2369.000	800.00	598.97	.23	.01	0.00	68.67	174.00
2369.000	1130.00	600.32	1.35	.00	0.00	76.24	174.00
2370.000	495.00	597.85	0.00	-.06	0.00	54.81	1.00
2370.000	730.00	598.67	.82	-.07	0.00	61.36	1.00
2370.000	800.00	598.90	.23	-.07	0.00	63.18	1.00
2370.000	1130.00	600.26	1.36	-.06	0.00	74.10	1.00
2984.000	495.00	598.50	0.00	.65	0.00	56.36	614.00
2984.000	730.00	599.35	.84	.68	0.00	63.02	614.00
2984.000	800.00	599.57	.23	.68	0.00	64.81	614.00
2984.000	1130.00	600.78	1.21	.52	0.00	74.27	614.00
3518.000	495.00	599.03	0.00	.52	0.00	54.77	534.00
3518.000	730.00	599.88	.85	.53	0.00	62.03	534.00
3518.000	800.00	600.10	.23	.53	0.00	63.94	534.00
3518.000	1130.00	601.22	1.12	.44	0.00	73.41	534.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
3519.000	495.00	599.02	0.00	-.01	0.00	54.84	1.00
3519.000	730.00	599.87	.85	-.01	0.00	62.00	1.00
3519.000	800.00	600.09	.22	-.01	0.00	63.91	1.00
3519.000	1130.00	601.21	1.11	-.01	0.00	73.36	1.00
* 3559.000	495.00	598.59	0.00	-.43	0.00	19.00	40.00
3559.000	730.00	602.43	3.84	2.56	0.00	391.14	40.00
3559.000	800.00	602.53	.10	2.43	0.00	412.30	40.00
3559.000	1130.00	602.84	.32	1.64	0.00	450.00	40.00

SUMMARY OF ERRORS

NOTE SECNO= 281.000 PROFILE= 4 WSEL BASED ON X5 CARD

CAUTION SECNO= 3559.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 3559.000 PROFILE= 1 MINIMUM SPECIFIC ENERGY

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Macomb Twp.

3) WATERCOURSE: Dunn Drain

4) DOCUMENT TYPE: 10, 50, 100, 500 year flood

00BREAK00

MACJ040 JANDA 04/27/79 08.39.03 7600 J0

DUNN DRAIN
J&A FILE No. 5850-03
MACOMB TWP. FIS
10-50-100-500 YR. FLOODS

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*************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
*************************************************

C
T1        MACOMB TWP. FIS J&A FILE NO. 5350-03
T2        DUNN DRAIN
T3        10 YEAR FLOOD

J1  ICHECK     INQ       NINV       IDIR      STRT      METRIC     HVINS      Q         WSEL       FQ

        0.         2.        0.         0.  0.000000     0.00       0.0        0.     597.710    0.000

J2  NPROF      IPLOT     PREVS      XSECV     XSECH      FN         ALLDC     IBW       CHNIM      ITRACE

       1.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

NC      .035      .035      .035      .300      .500     0.000     0.000     0.000     0.000     0.000
QT     4.000   570.000   840.000   925.000  1305.000     0.000     0.000     0.000     0.000     0.000

                  AT CONFLUENCE OF LEWIS DRAIN AND DUNN DRAIN (J&A) SECT.A

X1     0.000     4.000     0.000    90.000     0.000     0.000     0.000     0.000     0.000     0.000
GR   596.200     0.000   589.200    53.000   589.200    67.000   596.200    90.000     0.000     0.000

X1   199.000    40.000    73.400   126.900   199.000   199.000   199.000     0.000     0.000     0.000
GR   601.000     0.000   601.000    73.400   591.900    73.400   590.800    73.800   590.200    75.400
GR   589.800    77.400   589.500    79.000   589.400    81.000   589.400    82.200   589.500    84.200
GR   589.300    86.000   590.200    87.800   590.300    89.400   591.900    89.900   591.900    91.900
GR   590.800    92.300   590.200    93.900   589.800    95.900   589.500    97.500   589.400    99.500
GR   589.400   100.700   589.500   102.700   589.800   104.500   590.200   106.300   590.800   107.900
GR   591.900   108.400   591.900   110.400   590.800   110.800   590.200   112.400   589.800   114.400
GR   589.500   116.000   589.400   118.000   589.400   119.200   589.500   121.200   589.800   123.000
GR   590.200   124.800   590.800   126.400   591.900   126.900   601.000   126.900   601.000   200.000
NC      .047      .040      .031     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1   200.000     0.000     0.000     0.000     1.000     1.000     1.000     0.000     0.000     0.000
BT    38.000     0.000   601.000     0.000    73.400   601.000   591.900    73.800   601.000   593.800
BT    75.400   601.000   596.600    77.400   601.000   598.200    79.000   601.000   599.000    81.000
BT   601.000   599.300    82.200   601.000   599.300    84.200   601.000   599.000    86.000   601.000
BT   598.200    37.800   601.000   596.600    89.400   601.000   593.800    89.900   601.000   591.900
BT    91.900   601.000   591.900    92.300   601.000   593.500    93.900   601.000   596.600    95.900
BT   601.000   598.200    97.500   601.000   599.000   599.500   601.000   599.300   100.700   601.000
BT   599.300   102.700   601.000   599.000   104.500   601.000   598.200   106.300   601.000   596.600
BT   107.900   601.000   593.800   108.400   601.000   591.900   110.400   601.000   591.900   110.800
BT   601.000   593.800   112.400   601.000   596.600   114.400   601.000   598.200   116.000   601.000
BT   599.000   118.000   601.000   599.300   119.200   601.000   599.300   121.200   601.000   599.000
BT   123.000   601.000   598.200   124.800   601.000   596.500   126.400   601.000   593.800   126.900
BT   601.000   591.900   200.000   601.000     0.000     0.000     0.000     0.000     0.000     0.000

                  TILCH ROAD CULVERTS (J&A)                SECT.B

X1   280.000     0.000     0.000     0.000    50.000    50.000     0.000     0.000     0.000     0.000
X2     0.000     0.000     0.000     0.000     1.000     0.300     1.000     0.000     0.000     0.000
NC      .030      .030      .030     0.000     0.000     0.000     0.000     0.000     0.000     0.000
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X1	281.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X5	1.000	0.000	0.000	0.000	600.060	0.000	0.000	0.000	0.000	0.000
DESIGN SECTION (J&A) SECT.C										
X1	600.000	10.000	0.000	200.000	319.000	319.000	319.000	0.000	0.000	0.000
GR	601.000	0.000	600.000	15.000	593.700	53.000	592.700	83.000	589.700	95.000
GR	589.700	105.000	592.700	117.000	593.700	147.000	600.000	185.000	601.000	200.000
DESIGN SECTION (J&A) SECT.D										
X1	2195.000	10.000	0.000	200.000	1595.000	1595.000	1595.000	0.000	0.000	0.000
GR	601.000	0.000	600.000	15.000	595.000	53.000	594.000	83.000	591.000	95.000
GR	591.000	105.000	594.000	117.000	595.000	147.000	600.000	185.000	601.000	200.000
QT	4.000	495.000	730.000	800.000	1130.000	0.000	0.000	0.000	0.000	0.000
DESIGN SECTION AT CONFLUENCE (J&A) SECT.E										
X1	2369.000	4.000	0.000	80.000	50.000	250.000	174.000	0.000	0.000	0.000
GR	601.000	0.000	591.000	28.000	591.000	52.000	601.000	80.000	0.000	0.000
CHECK DAY (J&A) SECT.F										
X1	2370.000	4.000	0.000	80.000	1.000	1.000	1.000	0.000	0.000	0.000
GR	601.000	0.000	594.000	28.000	594.000	52.000	601.000	80.000	0.000	0.000
DESIGN SECTION (J&A) SECT.G										
X1	2984.000	4.000	0.000	80.000	614.000	614.000	614.000	0.000	0.000	0.000
GR	601.500	0.000	594.400	28.000	594.400	52.000	601.500	80.000	0.000	0.000
NC	.050	.050	.033	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	3518.000	4.000	30.000	49.000	560.000	90.000	534.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	599.000	599.000	0.000
GR	602.000	0.000	594.800	30.000	594.800	49.000	602.000	80.000	0.000	0.000
NC	.070	.070	.012	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	3519.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	599.000	599.000	0.000
NC	.100	.100	.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	2.150	3.020	0.000	11.430	0.000	70.000	0.000	594.900	594.800
HAYES ROAD (MCS) SECT.H										
X1	3559.000	26.000	390.500	409.500	40.000	40.000	40.000	0.000	.100	0.000
X2	0.000	0.000	1.000	601.000	602.200	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	350.000	0.000	0.000	0.000	602.100	602.100	0.000
BT	21.000	350.000	603.000	0.000	390.500	603.100	597.300	390.900	603.100	598.700
BT	392.000	603.100	600.200	393.700	603.100	600.900	394.300	603.100	600.900	394.900
BT	603.100	600.900	396.500	603.100	600.200	397.600	603.100	598.700	398.000	603.100
BT	597.300	402.000	603.100	597.400	402.400	603.100	598.800	403.500	603.100	600.300
BT	405.200	503.100	601.000	405.800	603.100	601.000	406.400	603.100	601.000	408.000
BT	603.100	600.300	409.100	603.100	598.800	409.500	603.100	597.400	600.000	602.200
BT	0.000	800.000	602.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	602.000	0.000	602.500	200.000	612.800	300.000	599.700	350.000	597.200	390.500
GR	596.000	390.900	595.200	392.000	594.300	393.700	594.800	394.300	594.800	394.900
GR	595.200	396.500	596.000	397.600	597.200	393.000	597.300	402.000	596.100	402.400

GR	59[illegible].500	405.500	594.910	40[illegible].[illegible]00	594.900	405.300	594.900	405.[illegible]0[illegible]	59[illegible].5[illegible]0	4[illegible]5.000
GR	596.100	409.100	597.300	409.500	599.700	450.000	602.600	500.000	602.100	600.000
GR	602.300	800.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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*************************************************
 HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
 ERROR CORR -  01,02
 MODIFICATION -  50,51,52,53
*************************************************

T1       MACOMB TWP. FIS J&A FILE NO. 5850-03
T2       DUNN DRAIN
T3       100 YEAR FLOOD

J1  ICHECK     INQ       NINV      IDIR       STRT     METRIC    HVINS      Q        WSEL       FQ

        0.        4.        0.        0.  0.000000     0.00      0.0       0.   598.550     0.000

J2  NPROF     IPLOT     PREVS     XSECV     XSECH       FN     ALLDC      IBW      CHNIM    ITRACE

     3.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
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*PROF 3

CCHV=     .300 CEHV=     .500
*SECNO .000
3280 CROSS SECTION       0.00 EXTENDED       2.45 FEET

 SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
 Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
 TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
 SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


                    AT CONFLUENCE OF LEWIS DRAIN AND DUNN DRAIN (J&A) SECT.A
                          from Lewis Drain
    0.00      9.45    598.65  59943 0.00    598.65    598.68       .03      0.00      0.00    596.20
    925.        0.       925.        0.        0.      655.        0.        0.        0.    596.20
    0.00      0.00      1.41      0.00      .035      .035      .035     0.000    589.20      0.00
 .000087        0.        0.        0.         0         0         0      0.00     90.00     90.00

Breckenridge report started @ 599.48
Q = 1440 cfs

*SECNO 199.000
  199.00      9.26    598.66      0.00      0.00    598.72       .06       .02       .02    601.00
    925.        0.      925.        0.        0.      460.        0.        3.        0.    601.00
     .03      0.00      2.01      0.00      .035      .035      .035      .035    589.40     73.40
 .000191      199.      199.      199.         0         0         0      0.00     53.50    126.90

*SECNO 200.000

3370 NORMAL BRIDGE,NRD= 38 MIN ELTRD=  601.00 MAX ELLC=  599.30

  200.00      9.24    598.64      0.00      0.00    598.74       .10       .00       .02    601.00
    925.        0.      925.        0.        0.      367.        0.        3.        0.    601.00
     .03      0.00      2.52      0.00      .040      .031      .040      .035    589.40     73.40
 .000490        1.        1.        1.         1         0         0    -92.32     53.50    126.90

*SECNO 280.000                  3 - 16'5" x 5'11" Pipe Arches

3370 NORMAL BRIDGE,NRD= 38 MIN ELTRD=  601.00 MAX ELLC=  599.30

                   TILCH ROAD CULVERTS (J&A)                           SECT.B

  280.00      9.28    598.68      0.00      0.00    598.78       .10       .04       .00    601.00
    925.        0.      925.        0.        0.      367.        0.        3.        0.    601.00
     .04      0.00      2.52      0.00      .040      .031      .040      .033    589.40     73.40
 .000488       80.       80.       80.         1         0         0    -93.12     53.50    126.90

*SECNO 281.000
 SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
 Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
 TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
 SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

  281.00      9.33    598.73      0.00      0.00    598.79       .06       .00       .01    601.00
    925.        0.      925.        0.        0.      463.        0.        3.        0.    601.00
     .04      0.00      2.00      0.00      .030      .030      .030      .033    589.40     73.40
 .000137        1.        1.        1.         2         0         0      0.00     53.50    126.90
```

*SECNO 600.000

DESIGN SECTION (J&A) SECT.C

600.00	9.11	598.81	0.00	0.00	598.83	.02	.03	.01	601.00
925.	0.	925.	0.	0.	769.	0.	8.	1.	601.00
.11	0.00	1.20	0.00	.030	.030	.030	.032	589.70	22.12
.000071	319.	319.	319.	1	0	0	0.00	135.76	177.88

Dunn

*SECNO 2195.000

DESIGN SECTION (J&A) SECT.D

2195.00	7.96	598.96	0.00	0.00	598.99	.03	.16	.01	601.00
925.	0.	925.	0.	0.	623.	0.	33.	7.	601.00
.41	0.00	1.49	0.00	.030	.030	.030	.030	591.00	22.84
.000142	1595.	1595.	1595.	1	0	0	0.00	154.31	177.16

*SECNO 2369.000

DESIGN SECTION AT CONFLUENCE (J&A) SECT.E

2369.00	7.97	598.97	0.00	0.00	599.04	.07	.03	.02	601.00
800.	0.	800.	0.	0.	370.	0.	35.	7.	601.00
.43	0.00	2.16	0.00	.030	.030	.030	.030	591.00	5.67
.000213	50.	174.	250.	0	0	0	0.00	68.67	74.53

Max velocity @ confluence

*SECNO 2370.000

CHECK DAM (J&A) SECT.F

2370.00	4.90	598.90	0.00	0.00	599.12	.22	.00	.07	601.00
800.	0.	800.	0.	0.	213.	0.	35.	7.	601.00
.43	0.00	3.75	0.00	.030	.030	.030	.030	594.00	8.41
.001157	1.	1.	1.	2	0	0	0.00	63.18	71.59

*SECNO 2984.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

DESIGN SECTION (J&A) SECT.G

2984.00	5.17	599.57	0.00	0.00	599.76	.19	.64	.01	601.50
800.	0.	800.	0.	0.	230.	0.	38.	8.	601.50
.48	0.00	3.48	0.00	.030	.030	.030	.030	594.40	7.59
.000938	614.	614.	614.	2	0	0	0.00	64.81	72.41

*SECNO 3518.000

3518.00	5.30	600.10	0.00	0.00	600.43	.32	.60	.07	594.80
800.	128.	539.	132.	59.	101.	61.	41.	9.	594.80
.51	2.18	5.35	2.19	.050	.033	.050	.031	594.80	7.90
.001527	660.	534.	90.	2	0	0	0.00	63.94	71.84

We want flow in LOB,
Chan. is 19 ft wide

*SECNO 3519.000

3519.00	5.29	600.09	0.00	0.00	600.44	.35	.00	.01	594.80
800.	120.	556.	124.	59.	101.	60.	41.	9.	594.80

.51	2.05	5.52	4.5	.070	.42	.07	.031	594.80	6.91
.002635	1.	1.	1.	1	0	0	0.00	53.91	71.82

SPECIAL BRIDGE

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
0.00	2.15	3.02	0.30	11.48	0.00	70.00	0.00	594.90	594.80

*SECNO 3559.000

3265 DIVIDED FLOW

3280 CROSS SECTION 3555.00 EXTENDED .23 FEET

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
604.45	601.66	0.00	185.	617.	70.	70.	601.00	602.20

sta 300

3470 ENCROACHMENT STATIONS= 350.0 800.0 TYPE= 1 TARGET= -350.000

HAYES ROAD (MCS) SECT.4

3559.07	7.63	602.53	0.00	0.00	602.69	.16	2.25	0.00	597.30
800.	127.	510.	163.	161.	127.	279.	41.	9.	597.40
.52	.79	4.03	.53	.100	.025	.100	.031	594.90	350.00
.000491	40.	40.	40.	2	0	5	0.00	412.30	800.00

all weir flow in ROB

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*********************************************
HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
ERROR CORR -  01,02
MODIFICATION -  50,51,52,53
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

10 YEAR FLOOD

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	0.000	0.00	0.00	0.00	589.20	570.00	597.71	0.00	597.73	.51	1.00	569.90	800.05
	0.000	0.00	0.00	0.00	589.20	840.00	598.45	0.00	598.48	.78	1.32	636.50	951.99
	0.000	0.00	0.00	0.00	589.20	925.00	598.65	0.00	598.68	.87	1.41	654.50	994.53
	0.000	0.00	0.00	0.00	589.20	1305.00	599.66	0.00	599.71	1.15	1.75	745.40	1218.33
	199.000	199.00	0.00	0.00	589.40	570.00	597.72	0.00	597.75	1.03	1.39	409.31	560.59
	199.000	199.00	0.00	0.00	589.40	840.00	598.46	0.00	598.51	1.69	1.87	449.19	645.50
	199.000	199.00	0.00	0.00	589.40	925.00	598.65	0.00	598.72	1.91	2.01	459.98	669.06
	199.000	199.00	0.00	0.00	589.40	1305.00	599.67	0.00	599.77	2.73	2.54	513.90	790.25
	200.000	1.00	601.00	599.30	589.40	570.00	597.71	0.00	597.75	1.94	1.67	342.20	409.23
	200.000	1.00	601.00	599.30	589.40	840.00	598.44	0.00	598.53	4.18	2.32	362.62	411.08
	200.000	1.00	601.00	599.30	589.40	925.00	598.64	0.00	598.74	4.90	2.52	366.73	417.77
	200.000	1.00	601.00	599.30	589.40	1305.00	599.62	0.00	599.81	11.66	3.46	376.86	382.21
	280.000	80.00	601.00	599.30	589.40	570.00	597.73	0.00	597.77	1.94	1.66	342.37	409.54
	280.000	80.00	601.00	599.30	589.40	840.00	598.48	0.00	598.56	4.16	2.31	363.06	411.80
	280.000	80.00	601.00	599.30	589.40	925.00	598.68	0.00	598.78	4.88	2.52	367.24	418.59
	280.000	80.00	601.00	599.30	589.40	1305.00	599.72	0.00	599.90	11.68	3.46	376.86	381.82
	281.000	1.00	0.00	0.00	589.40	570.00	597.74	0.00	597.77	.76	1.39	410.08	655.89
	281.000	1.00	0.00	0.00	589.40	840.00	598.52	0.00	598.57	1.22	1.86	451.90	759.97
	281.000	1.00	0.00	0.00	589.40	925.00	598.73	0.00	598.79	1.37	2.00	463.25	788.95
*	281.000	1.00	0.00	0.00	589.40	1305.00	600.06	0.00	600.15	1.78	2.44	534.50	977.63
	600.000	319.00	0.00	0.00	589.70	570.00	597.78	0.00	597.80	.51	.93	614.77	798.72
	600.000	319.00	0.00	0.00	589.70	840.00	598.59	0.00	598.61	.67	1.14	734.65	1028.47
	600.000	319.00	0.00	0.00	589.70	925.00	598.81	0.00	598.83	.71	1.20	769.28	1097.60
	600.000	319.00	0.00	0.00	589.70	1305.00	600.18	0.00	600.21	.71	1.31	992.59	1550.79
	2195.000	1595.00	0.00	0.00	591.00	570.00	597.90	0.00	597.92	1.22	1.22	465.44	515.76
	2195.000	1595.00	0.00	0.00	591.00	840.00	598.73	0.00	598.76	1.37	1.43	587.62	716.73
	2195.000	1595.00	0.00	0.00	591.00	925.00	598.96	0.00	598.99	1.42	1.49	622.65	777.39
	2195.000	1595.00	0.00	0.00	591.00	1305.00	600.32	0.00	600.36	1.24	1.54	846.12	1171.45
	2369.000	174.00	0.00	0.00	591.00	495.00	597.91	0.00	597.96	1.45	1.65	299.71	410.85
	2369.000	174.00	0.00	0.00	591.00	730.00	598.74	0.00	598.81	2.00	2.06	353.90	516.11
	2369.000	174.00	0.00	0.00	591.00	800.00	598.97	0.00	599.04	2.13	2.16	369.58	547.66
	2369.000	174.00	0.00	0.00	591.00	1130.00	600.32	0.00	600.41	2.24	2.42	467.60	754.89

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	2370.000	1.00	0.00	0.00	594.00	495.00	597.85	0.00	598.02	11.41	3.26	151.78	146.57
	2370.000	1.00	0.00	0.00	594.00	730.00	598.67	0.00	598.38	11.65	3.66	199.33	213.91
	2370.000	1.00	0.00	0.00	594.00	800.00	598.90	0.00	599.12	11.57	3.75	213.50	235.16
	2370.000	1.00	0.00	0.00	594.00	1130.00	600.26	0.00	600.47	8.51	3.68	307.19	387.32
	2984.000	614.00	0.00	0.00	594.40	495.00	598.50	0.00	598.64	9.00	3.00	164.83	164.99
	2984.000	614.00	0.00	0.00	594.40	730.00	599.35	0.00	599.53	9.35	3.39	215.27	238.75
	2984.000	614.00	0.00	0.00	594.40	800.00	599.57	0.00	599.76	9.38	3.48	229.78	261.19
	2984.000	614.00	0.00	0.00	594.40	1130.00	600.78	0.00	600.98	8.01	3.61	313.17	399.20
	3518.000	534.00	0.00	0.00	594.80	495.00	599.03	0.00	599.27	14.36	4.46	155.72	130.63
	3518.000	534.00	0.00	0.00	594.80	730.00	599.88	0.00	600.19	15.11	5.17	205.79	187.79
	3518.000	534.00	0.00	0.00	594.80	800.00	600.10	0.00	600.43	15.27	5.35	220.00	204.73
	3518.000	534.00	0.00	0.00	594.80	1130.00	601.22	0.00	601.59	14.11	5.84	296.75	300.87
	3519.000	1.00	0.00	0.00	594.80	495.00	599.02	0.00	599.27	24.30	4.56	156.18	100.42
	3519.000	1.00	0.00	0.00	594.80	733.00	599.37	0.00	600.20	26.03	5.33	205.55	143.09
	3519.000	1.00	0.00	0.00	594.80	800.00	600.09	0.00	600.44	26.35	5.52	219.72	155.85
	3519.000	1.00	0.00	0.00	594.80	1130.00	601.21	0.00	601.61	24.56	6.05	296.30	228.03
*	3559.000	40.00	602.20	601.00	594.90	495.00	598.59	598.59	600.38	143.02	10.72	46.19	41.39
	3559.000	40.00	602.20	601.00	594.90	730.00	602.43	0.00	602.57	4.40	3.78	527.60	347.85
	3559.000	40.00	602.20	601.00	594.90	800.00	602.53	0.00	602.69	4.91	4.03	566.74	360.98
	3559.000	40.00	602.20	601.00	594.90	1130.00	602.84	0.00	603.10	7.56	5.15	707.49	411.01

10 YEAR FLOOD

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	0.000	570.00	597.71	0.00	0.00	0.00	90.00	0.00
	0.000	840.00	598.45	.74	0.00	0.00	90.00	0.00
	0.000	925.00	598.65	.20	0.00	0.00	90.00	0.00
	0.000	1305.00	599.66	1.01	0.00	0.00	90.00	0.00
	199.000	570.00	597.72	0.00	.01	0.00	53.50	199.00
	199.000	840.00	598.46	.74	.01	0.00	53.50	199.00
	199.000	925.00	598.66	.20	.01	0.00	53.50	199.00
	199.000	1305.00	599.67	1.01	.01	0.00	53.50	199.00
	200.000	570.00	597.71	0.00	-.01	0.00	53.50	1.00
	200.000	840.00	598.44	.73	-.01	0.00	53.50	1.00
	200.000	925.00	598.64	.20	-.02	0.00	53.50	1.00
	200.000	1305.00	599.62	.98	-.04	0.00	53.50	1.00
	280.000	570.00	597.73	0.00	.02	0.00	53.50	80.00
	280.000	840.00	598.48	.75	.03	0.00	53.50	80.00
	280.000	925.00	598.68	.20	.04	0.00	53.50	80.00
	280.000	1305.00	599.72	1.04	.09	0.00	53.50	80.00
	281.000	570.00	597.74	0.00	.02	0.00	53.50	1.00
	281.000	840.00	598.52	.77	.04	0.00	53.50	1.00
	281.000	925.00	598.73	.21	.05	0.00	53.50	1.00
*	281.000	1305.00	600.06	1.33	.34	0.00	53.50	1.00
	600.000	570.00	597.78	0.00	.04	0.00	143.29	319.00
	600.000	840.00	598.59	.80	.07	0.00	153.05	319.00
	600.000	925.00	598.81	.22	.08	0.00	155.76	319.00
	600.000	1305.00	600.18	1.37	.12	0.00	175.38	319.00
	2195.000	570.00	597.90	0.00	.11	0.00	137.96	1595.00
	2195.000	840.00	598.73	.83	.14	0.00	150.82	1595.00
	2195.000	925.00	598.96	.23	.15	0.00	154.31	1595.00
	2195.000	1305.00	600.32	1.36	.14	0.00	179.63	1595.00
	2369.000	495.00	597.91	0.00	.01	0.00	62.71	174.00
	2369.000	730.00	598.74	.83	.01	0.00	67.38	174.00
	2369.000	800.00	598.97	.23	.01	0.00	68.67	174.00
	2369.000	1130.00	600.32	1.35	.00	0.00	76.24	174.00
	2370.000	495.00	597.85	0.00	-.06	0.00	54.81	1.00
	2370.000	730.00	598.67	.82	-.07	0.00	61.36	1.00
	2370.000	800.00	598.90	.23	-.07	0.00	63.18	1.00
	2370.000	1130.00	600.26	1.36	-.06	0.00	74.10	1.00
	2984.000	495.00	598.50	0.00	.65	0.00	56.36	614.00
	2984.000	730.00	599.35	.84	.68	0.00	63.02	614.00
	2984.000	800.00	599.57	.23	.68	0.00	64.81	614.00
	2984.000	1130.00	600.78	1.21	.52	0.00	74.27	614.00
	3518.000	495.00	599.03	0.00	.52	0.00	54.77	534.00
	3518.000	730.00	599.88	.85	.53	0.00	62.03	534.00
	3518.000	800.00	600.10	.23	.53	0.00	63.94	534.00
	3518.000	1130.00	601.22	1.12	.44	0.00	73.41	534.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
3519.000	495.00	599.02	0.00	-.01	0.00	54.34	1.00
3519.000	730.00	599.87	.85	-.01	0.00	62.00	1.00
3519.000	800.00	600.09	.22	-.01	0.00	63.91	1.00
3519.000	1130.00	601.21	1.11	-.01	0.00	73.36	1.00
* 3559.000	495.00	598.59	0.00	-.43	0.00	19.00	40.00
3559.000	730.00	602.43	3.84	2.56	0.00	391.14	40.00
3559.000	800.00	602.53	.10	2.43	0.00	412.30	40.00
3559.000	1130.00	602.84	.32	1.64	0.00	450.00	40.00

SUMMARY OF ERRORS

NOTE SECNO= 281.000 PROFILE= 4 WSEL BASED ON X5 CARD

CAUTION SECNO= 3559.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 3559.000 PROFILE= 1 MINIMUM SPECIFIC ENERGY

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Macomb Twp

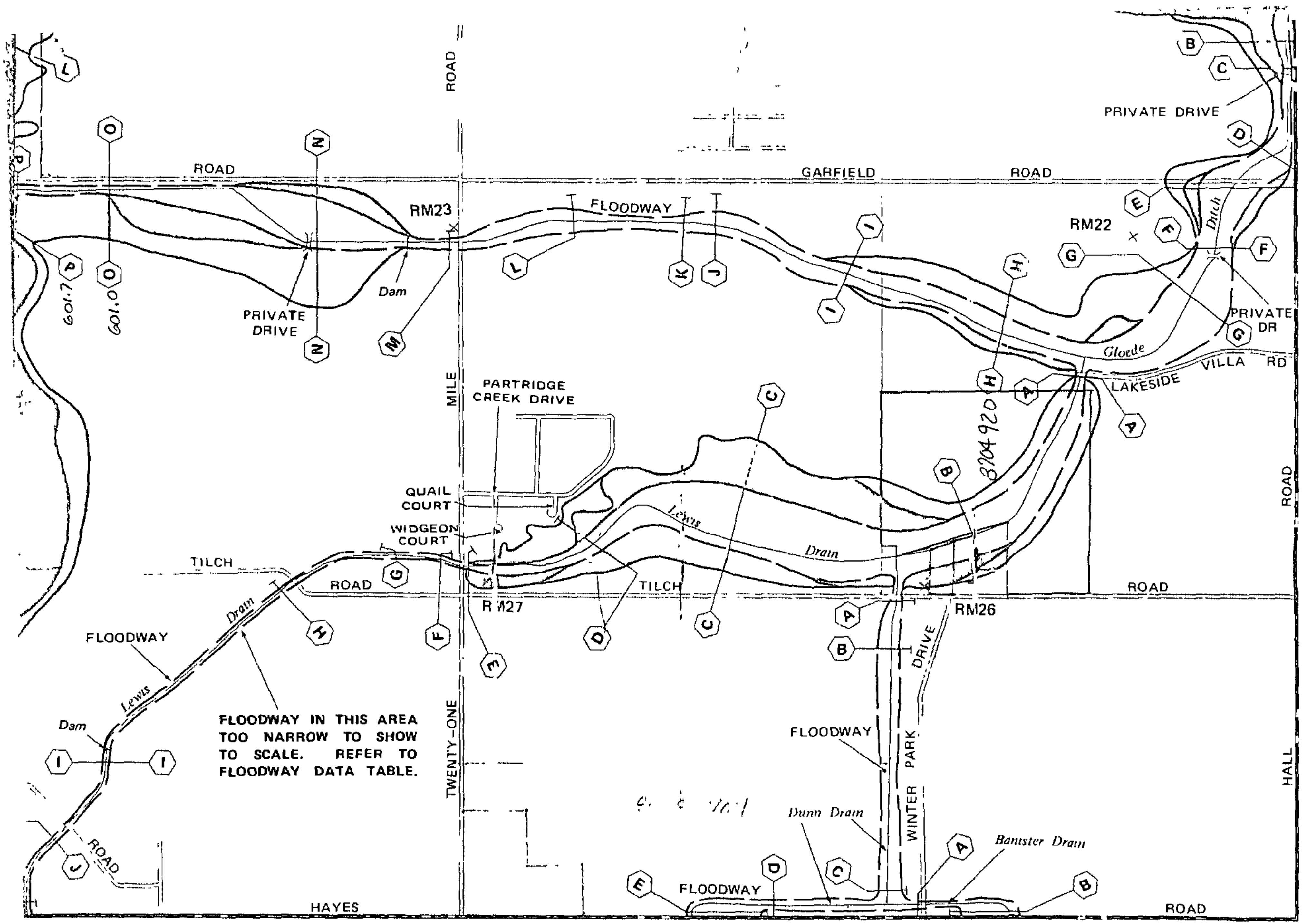
3) WATERCOURSE: Globe Ditch
Lewis Drain
Dunn Drain
Banister Drain

4) DOCUMENT TYPE: Analysis

00BREAK00

TABLE 1 - SUMMARY OF DISCHARGES (cont.)

FLOODING SOURCE AND LOCATION	DRAINAGE AREA SQ MILES	PEAK DISCHARGES (CFS)			
		10-YEAR	50-YEAR	100-YEAR	500-YEAR
GLOEDE DITCH					
At Feiblecorn Drain	16.2	850	1,250	1,370	1,935
Above Feiblecorn Drain	15.7	835	1,230	1,345	1,905
Above Lewis Drain	7.2	475	700	765	1,085
At Twenty One Mile Road	7.0	465	690	755	1,070
At Twenty Two Mile Road	6.4	445	655	720	1,015
LEWIS DRAIN					
At mouth	8.3	605	895	980	1,385
Above Dunn Drain	0.6	100	150	170	240
At Hayes Road	0.3	70	100	110	155
DUNN DRAIN					
At mouth	7.4	570	840	925	1,305
Above Banister Drain	5.7	495	730	800	1,130
BANISTER DRAIN					
At mouth	1.5	205	295	335	470



'8

REFERENCE ELEV. TION DESCRIPTIC I OF LOC TIC I

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (NGVD)	WITHOUT FLOODWAY (NGVD)	WITH FLOODWAY (NGVD)	INCREASE (FEET)
MILLER DRAIN								
A	10,591	14	97	3.4	594.0	594.0	594.0	0.0
B	11,006	14	90	3.6	594.4	594.4	594.4	0.0
C	12,655	58	225	1.4	595.3	595.3	595.3	0.0
D	13,672	13	79	4.1	595.9	595.9	595.9	0.0
E	14,950	412	333	1.0	597.4	597.4	597.4	0.0
F	17,320	700	546	0.6	598.4	598.4	598.4	0.0
G	17,952	700	282	1.1	598.9	598.9	599.0	0.1
H	19,405	800	588	0.5	599.5	599.5	599.6	0.1
I	20,831	474	193	1.7	600.5	600.5	600.6	0.1
J	22,583	800	847	0.4	600.8	600.8	600.9	0.1
K	23,542	727	519	0.6	601.1	601.1	601.2	0.1
L	24,745	800	711	0.4	601.4	601.4	601.5	0.1
LEWIS DRAIN								
A	120	31	198	4.9	597.8	597.0[2]	597.0	0.0
B	1400	306	570	1.7	598.5	598.5	598.5	0.0
C	2855	406	693	0.2	598.7	598.7	598.7	0.0
D	3965	124	209	0.8	598.7	598.7	598.7	0.0
E	4770	33	135	1.3	598.8	598.8	598.8	0.0
F	4950	58	239	0.7	598.8	598.8	598.8	0.0
G	5281	60	238	0.7	598.8	598.8	598.8	0.0
H	6071	40	193	0.9	600.0	600.0	600.0	0.0
I	7608	34	60	1.8	600.1	600.1	600.1	0.0
J	8234	39	82	1.3	601.3	601.3	601.3	0.0
K	8810	12	21	5.2	601.4	601.4	601.4	0.0

[1] FEET ABOVE MOUTH
[2] ELEVATIONS WITHOUT CONSIDERING BACKWATER EFFECT FROM GLOEDE DITCH

TABLE 2

FEDERAL EMERGENCY MANAGEMENT AGENCY
Federal Insurance Administration

TOWNSHIP OF MACOMB, MI
(MACOMB CO.)

FLOODWAY DATA

MILLER DRAIN - LEWIS DRAIN

ABLE 2

Federal Insurance Administration

TOWNSHIP OF MACOMB, MI

(MACOMB CO.)

FLOODWAY DATA

MIDDLE BRANCH CLINTON RIVER

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (NGVD)	WITHOUT FLOODWAY (NGVD)	WITH FLOODWAY (NGVD)	INCREASE (FEET)
NORTH BRANCH CLINTON RIVER								
A	19,401	227	2422	4.0	597.4	597.4	597.4	0.0
B	23,221	1910	11,739	0.9	597.9	597.9	597.9	0.0
C	26,721	1500	13,228	0.8	598.2	598.2	598.2	0.0
D	29,421	500	3496	3.1	598.3	598.3	598.3	0.0
E	31,221	800	5568	1.9	598.8	598.8	598.9	0.1
F	32,611	610	5828	1.8	599.1	599.1	599 1	0.0
G	34,506	600	3018	3.5	599.4	599.4	599.4	0 0
H	36,107	575	5227	2.0	599 8	599.8	599 9	0.1
I	38,802	1140	9665	1.1	600 3	600.3	600 3	0.0
J	41,282	676	6312	1.7	600.5	600 5	600.6	0.1
K	43,007	1470	6051	1.7	600.8	600.8	600.9	0.1
L	46,107	2179	12,362	0.8	601.2	601.2	601.3	0.1
DUNN DRAIN								
A	280	54	367	2.5	598.7	598.7	598.7	0.0
B	600	156	769	1.2	598 8	598.8	598.8	0 0
C	2195	154	623	1 5	599.0	599.0	599 0	0.0
D	2984	65	230	3.5	599.6	599.6	599.6	0.0
E	3519	450	567	1 4	600.1	600 1	600.1	0.0
BANISTER DRAIN								
A	208	19	62	5 4	599.0	598.7[2]	598.7	0.0
B	725	368	114	2 9	600.3	600.3	600.3	0 0

[1] FEET ABOVE MOUTH

[2] ELEVATIONS WITHOUT CONSIDERING BACKWATER EFFECT FROM DUNN DRAIN

TABLE

FEDERAL EMERGENCY MANAGEMENT AGENCY

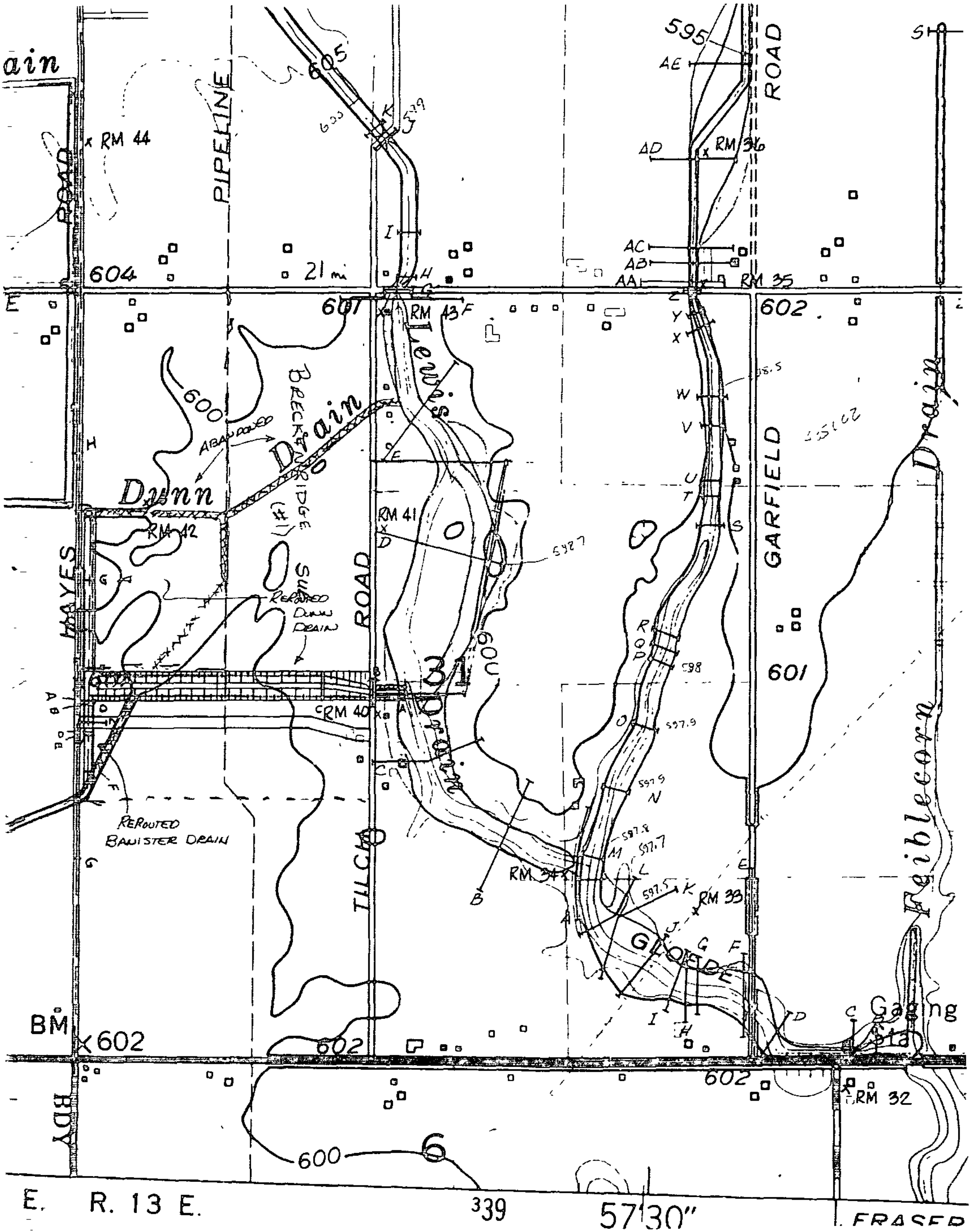
Federal Insurance Administration

TOWNSHIP OF MACOMB, MI

(MACOMB CO.)

FLOODWAY DATA

NORTH BRANCH CLINTON RIVER - DUNN DRAIN - BANISTER DRAIN



Drain
ROAD
PIPELINE
RM 44
605
604
21 mi
601
RM 43
Lewis
BRECKRIDGE
Drain
ABANDONED
Dunn
RM 42
RM 41
HAYES
ROAD
REROUTED DUNN DRAIN
600
31
RM 40
REROUTED BANISTER DRAIN
TILCH ROAD
RM 34
595
ROAD
RM 36
RM 35
602
GARFIELD
598
597.9
597.5
597.8
597.7
RM 33
GLORDE
601
Drain
Feiblecorn
Gaging Sta
BM 602
602
RM 32
BDY
600
6
E.
R. 13 E.
339
57'30"
FRASER

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Macomb Twp

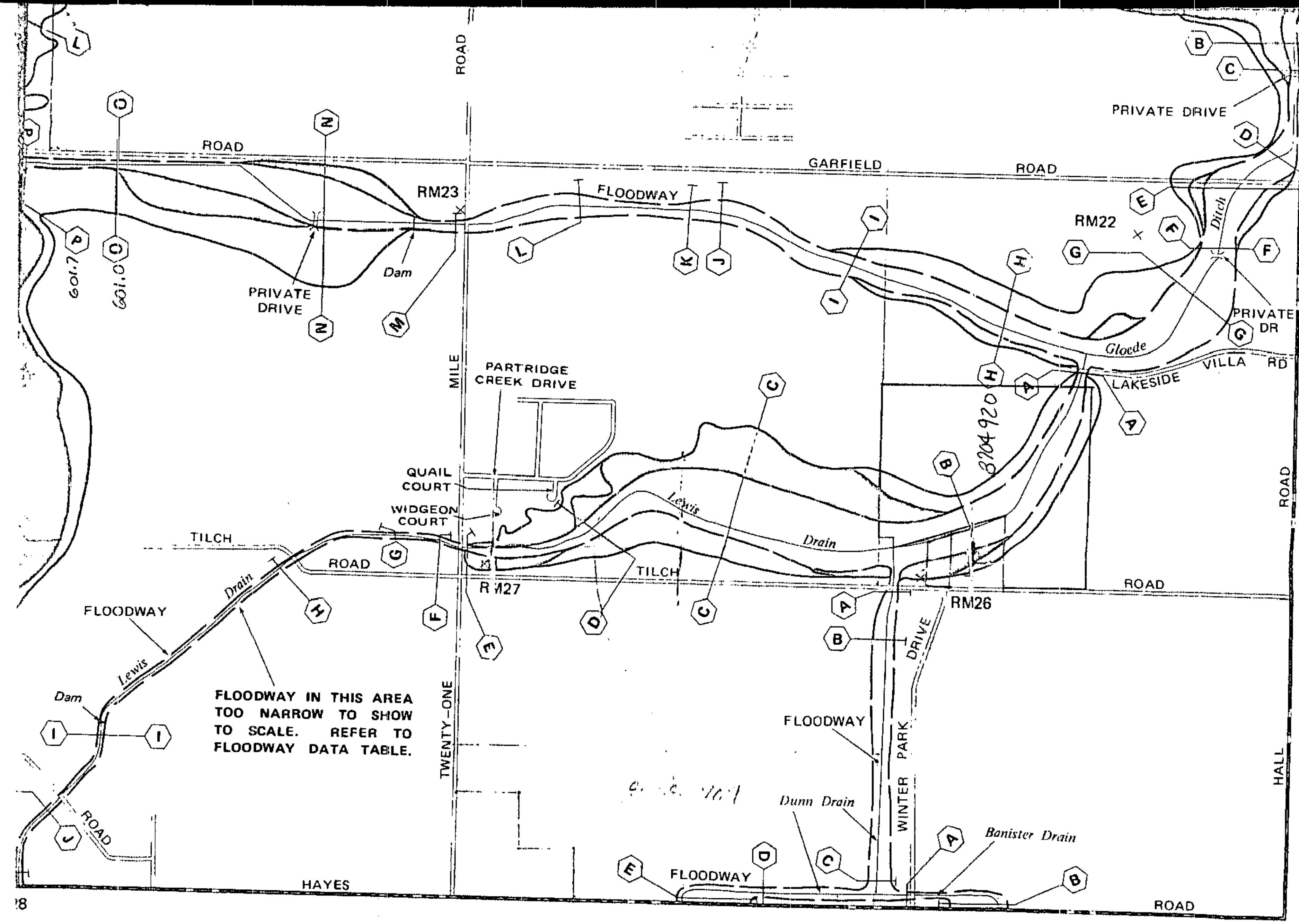
3) WATERCOURSE: Glode Ditch
Lewis Drain
Dunn Drain
Banister Drain

4) DOCUMENT TYPE: Analysis

00BREAK00

TABLE 1 - SUMMARY OF DISCHARGES (cont.)

FLOODING SOURCE AND LOCATION	DRAINAGE AREA SQ MILES	PEAK DISCHARGES (CFS)			
		10-YEAR	50-YEAR	100-YEAR	500-YEAR
GLOEDE DITCH					
At Feiblecorn Drain	16.2	850	1,250	1,370	1,935
Above Feiblecorn Drain	15.7	835	1,230	1,345	1,905
Above Lewis Drain	7.2	475	700	765	1,085
At Twenty One Mile Road	7.0	465	690	755	1,070
At Twenty Two Mile Road	6.4	445	655	720	1,015
LEWIS DRAIN					
At mouth	8.3	605	895	980	1,385
Above Dunn Drain	0.6	100	150	170	240
At Hayes Road	0.3	70	100	110	155
DUNN DRAIN					
At mouth	7.4	570	840	925	1,305
Above Banister Drain	5.7	495	730	800	1,130
BANISTER DRAIN					
At mouth	1.5	205	295	335	470



REFERENCE ELEVATION

DESCRIPTION OF LOCATION

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (NGVD)	WITHOUT FLOODWAY (NGVD)	WITH FLOODWAY (NGVD)	INCREASE (FEET)
MILLER DRAIN								
A	10,591	14	97	3.4	594.0	594.0	594.0	0.0
B	11,006	14	90	3.6	594.4	594.4	594.4	0.0
C	12,655	58	225	1.4	595.3	595.3	595.3	0.0
D	13,672	13	79	4.1	595.9	595.9	595.9	0.0
E	14,950	412	333	1.0	597.4	597.4	597.4	0.0
F	17,320	700	546	0.6	598.4	598.4	598.4	0.0
G	17,952	700	282	1.1	598.9	598.9	599.0	0.1
H	19,405	800	588	0.5	599.5	599.5	599.6	0.1
I	20,831	474	193	1.7	600.5	600.5	600.6	0.1
J	22,583	800	847	0.4	600.8	600.8	600.9	0.1
K	23,542	727	519	0.6	601.1	601.1	601.2	0.1
L	24,745	800	711	0.4	601.4	601.4	601.5	0.1
LEWIS DRAIN								
A	120	31	198	4.9	597.8	597.0[2]	597.0	0.0
B	1400	306	570	1.7	598.5	598.5	598.5	0.0
C	2855	406	693	0.2	598.7	598.7	598.7	0.0
D	3965	124	209	0.8	598.7	598.7	598.7	0.0
E	4770	33	135	1.3	598.8	598.8	598.8	0.0
F	4950	58	239	0.7	598.8	598.8	598.8	0.0
G	5281	60	238	0.7	598.8	598.8	598.8	0.0
H	6071	40	193	0.9	600.0	600.0	600.0	0.0
I	7608	34	60	1.8	600.1	600.1	600.1	0.0
J	8234	39	82	1.3	601.3	601.3	601.3	0.0
K	8810	12	21	5.2	601.4	601.4	601.4	0.0

[1]FEET ABOVE MOUTH
[2]ELEVATIONS WITHOUT CONSIDERING BACKWATER EFFECT FROM GLOEDE DITCH

TABLE 2

FEDERAL EMERGENCY MANAGEMENT AGENCY
Federal Insurance Administration

TOWNSHIP OF MACOMB, MI
(MACOMB CO.)

FLOODWAY DATA

MILLER DRAIN - LEWIS DRAIN

TABLE

FEDERAL EMERGENCY MANAGEMENT AGENCY
Federal Insurance Administration
TOWNSHIP OF MACOMB, MI
(MACOMB CO.)

FLOODWAY DATA

MIDDLE BRANCH CLINTON RIVER

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (NGVD)	WITHOUT FLOODWAY (NGVD)	WITH FLOODWAY (NGVD)	INCREASE (FEET)
NORTH BRANCH CLINTON RIVER								
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B	23,221	1910	11,739	0.9	597.9	597.9	597.9	0.0
C	26,721	1500	13,228	0.8	598.2	598.2	598.2	0.0
D	29,421	500	3496	3.1	598.3	598.3	598.3	0.0
E	31,221	800	5568	1.9	598.8	598.8	598.9	0.1
F	32,611	610	5828	1.8	599.1	599.1	599.1	0.0
G	34,506	600	3018	3.5	599.4	599.4	599.4	0.0
H	36,107	575	5227	2.0	599.8	599.8	599.9	0.1
I	38,802	1140	9665	1.1	600.3	600.3	600.3	0.0
J	41,282	676	6312	1.7	600.5	600.5	600.6	0.1
K	43,007	1470	6051	1.7	600.8	600.8	600.9	0.1
L	46,107	2179	12,362	0.8	601.2	601.2	601.3	0.1
DUNN DRAIN								
A	280	54	367	2.5	598.7	598.7	598.7	0.0
B	600	156	769	1.2	598.8	598.8	598.8	0.0
C	2195	154	623	1.5	599.0	599.0	599.0	0.0
D	2984	65	230	3.5	599.6	599.6	599.6	0.0
E	3519	450	567	1.4	600.1	600.1	600.1	0.0
BANISTER DRAIN								
A	208	19	62	5.4	599.0	598.7[2]	598.7	0.0
B	725	368	114	2.9	600.3	600.3	600.3	0.0

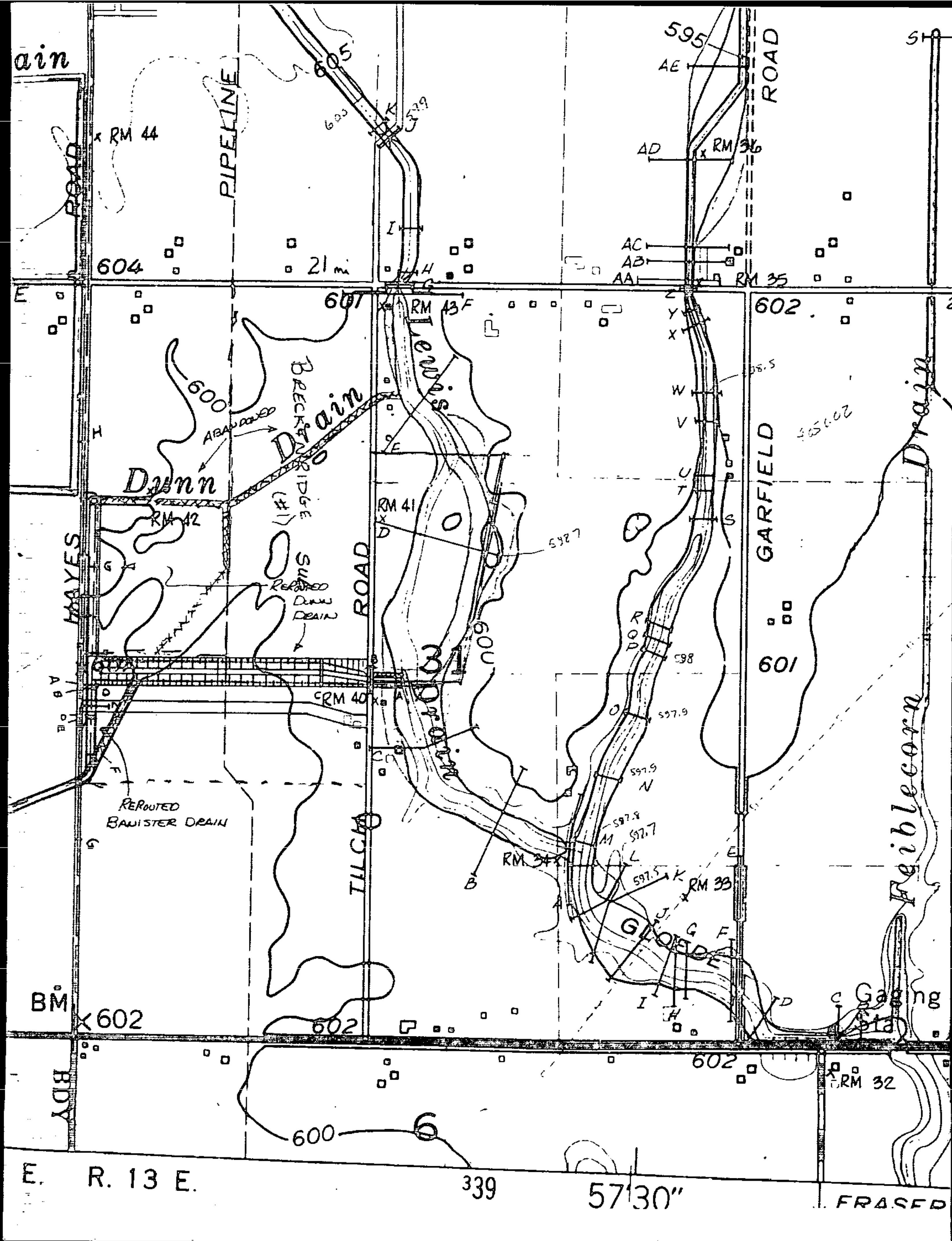
[1]FEET ABOVE MOUTH
[2]ELEVATIONS WITHOUT CONSIDERING BACKWATER EFFECT FROM DUNN DRAIN

TABLE

FEDERAL EMERGENCY MANAGEMENT AGENCY
Federal Insurance Administration
TOWNSHIP OF MACOMB, MI
(MACOMB CO.)

FLOODWAY DATA

NORTH BRANCH CLINTON RIVER - DUNN DRAIN - BANISTER DRAIN



Drain
PIPELINE
ROAD
RM 44
605
595
AE
AD
RM 36
AC
AB
AA
RM 35
604
21 mi
601
RM 43
602
Lewis
Brecker Ridge (#1)
Dunn Drain
ABANDONED
RM 42
RM 41
HAYES
ROAD
TILCH
GARFIELD
Feiblecorn Drain
REROUTED DUNN DRAIN
REROUTED BANISTER DRAIN
RM 40
31
600
601
598
597.9
597.5
597.8
597.7
RM 34
RM 33
GLOEDE
Gaging Sta
BM
602
RM 32
6
BDY
E.
R. 13 E.
339
57'30"
FRASER

00BREAK00

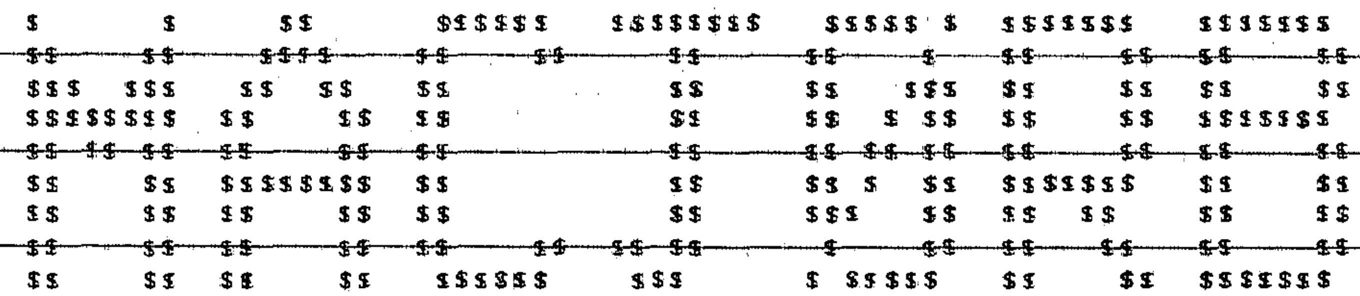
1) COUNTY: Macomb

2) STUDY NAME: Macomb Twp

3) WATERCOURSE: Gloede Ditch

4) DOCUMENT TYPE: 100 year flood
&
100 year flood
encroached

00BREAK00



GLOEDE DITCH
J&A FILE No. 5850-03
MACOMB TWP. FIS
10-50-100-500 YR. FLOODS
"ENCROACHED FLOODWAY"

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*********************************************
 HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
 ERROR CORR -   01,02
 MODIFICATION -  50,51,52,53
*********************************************

C
T1                MACOMB TWP. FIS J&A FILE NO. 5850-03
T2                10 YEAR FLOOD
T3                GLOEDE DITCH

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC    HVINS    Q        WSEL     FQ
        0.       2.       0.       0.  0.000000     0.00     0.0       0.   593.890    0.000

J2  NPROF    IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE
     1.000    0.000   -1.000    0.000    0.000    0.000    0.000    0.000    0.000    0.000

NC      .035      .035      .030      .300      .500     0.000     0.000     0.000     0.000     0.000
QT     4.000   850.000  1250.000  1370.000  1935.000     0.000     0.000     0.000     0.000     0.000

X1  7786.000    23.000   440.000   517.000     0.000     0.000     0.000      .520     0.000     0.000
GR   600.900     0.000   600.900    40.000   601.000   140.000   601.100   240.000   601.100   340.000
GR   601.000   440.000   596.200   440.000   586.700   463.000   586.300   463.600   586.300   466.400
GR   585.000   475.000   587.100   483.000   588.500   487.000   588.400   490.600   588.400   493.400
GR   596.300   517.000   601.100   517.000   601.200   540.000   601.300   640.000   601.400   740.000
GR   601.400   840.000   601.500   940.000   601.500   980.000     0.000     0.000     0.000     0.000
NC      .040      .040      .020     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1  7787.000    29.000   440.000   517.000     1.000     1.000     1.000      .520     0.000     0.000
X2     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000      .520     0.000
BT    15.000     0.000   600.900     0.000    40.000   600.900     0.000   140.000   601.000     0.000
BT   240.000   601.100     0.000   340.000   601.100     0.000   440.000   601.000   598.800   440.000
BT   601.600   598.800   517.000   601.600   598.800   517.000   601.100   598.800   540.000   601.200
BT     0.000   640.000   601.300     0.000   740.000   601.400     0.000   840.000   601.400     0.000
BT   940.000   601.500     0.000   980.000   601.500     0.000     0.000     0.000     0.000     0.000
GR   600.900     0.000   600.900    40.000   601.000   140.000   601.100   240.000   601.100   340.000
GR   601.000   440.000   601.600   440.000   596.200   440.000   586.700   463.000   586.300   463.600
GR   598.800   463.600   598.800   466.400   586.300   466.400   585.000   475.000   587.100   483.000
GR   588.500   487.000   588.400   490.600   598.800   490.600   598.800   493.400   588.400   493.400
GR   596.300   517.000   601.600   517.000   601.100   517.000   601.200   540.000   601.300   640.000
GR   601.400   740.000   601.400   840.000   601.500   940.000   601.500   980.000     0.000     0.000

                  BRIDGE SECTION NO.1 HALL ROAD (M-59)   (J&A)      SECT. A
X1  7860.000     0.000     0.000     0.000    73.000    73.000    73.000     0.000     0.000     0.000
X2     0.000     0.000     0.000     0.000     0.000     0.000     1.000     0.000     0.000     0.000
NC      .050      .050      .040     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1  7861.000    23.000   440.000   517.000     1.000     1.000     1.000      .520     0.000     0.000
GR   600.900     0.000   600.900    40.000   601.000   140.000   601.100   240.000   601.100   340.000
GR   601.000   440.000   596.200   440.000   586.700   463.000   586.300   463.600   586.300   466.400
GR   585.000   475.000   587.100   483.000   588.500   487.000   588.400   490.600   588.400   493.400
GR   596.300   517.000   601.100   517.000   601.200   540.000   601.300   640.000   601.400   740.000
```

GR	601.400	840.000	601.500	940.000	601.500	980.000	0.000	0.000	0.000	0.000
BT	4.000	835.000	1230.000	1345.000	1905.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION NO.2 (J&A) SECT. B

X1	8050.000	10.000	150.000	199.000	275.000	190.000	190.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	93.000	0.000	0.000	0.000	0.000	0.000	0.000
~~GR~~	~~593.100~~	~~0.000~~	~~592.700~~	~~50.000~~	~~592.900~~	~~150.000~~	~~586.100~~	~~164.000~~	~~585.600~~	~~170.000~~
GR	586.200	175.000	586.700	182.000	594.600	199.000	601.800	220.000	601.400	245.000
X1	8198.000	11.000	200.000	234.000	148.000	148.000	148.000	0.000	0.000	0.000
GR	597.200	0.000	596.600	100.000	598.800	200.000	589.700	200.000	586.400	209.000
~~GR~~	~~585.600~~	~~215.000~~	~~586.100~~	~~220.000~~	~~585.800~~	~~224.000~~	~~589.800~~	~~234.000~~	~~598.800~~	~~234.000~~
GR	601.400	292.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.035	.035	.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	8199.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
~~BT~~	~~5.000~~	~~0.000~~	~~597.200~~	~~0.000~~	~~100.000~~	~~596.600~~	~~0.000~~	~~200.000~~	~~598.800~~	~~596.600~~
BT	234.000	598.800	596.600	292.000	601.400	0.000	0.000	0.000	0.000	0.000

BRIDGE SECTION NO.3 PRIVATE BRIDGE (J&A) SECT. C

~~X1~~	~~8215.000~~	~~0.000~~	~~0.000~~	~~0.000~~	~~16.000~~	~~16.000~~	~~16.000~~	~~0.000~~	~~0.000~~	~~0.000~~
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NC	.050	.050	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	8216.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
~~NC~~	~~.060~~	~~.060~~	~~.042~~	~~0.000~~	~~0.000~~	~~0.000~~	~~0.000~~	~~0.000~~	~~0.000~~	~~0.000~~

~~VALLEY SECTION NO.4 (J&A) SECT. D~~

X1	8885.000	11.000	200.000	250.000	669.000	669.000	669.000	0.000	0.000	0.000
~~GR~~	~~599.700~~	~~0.000~~	~~599.900~~	~~100.000~~	~~596.200~~	~~200.000~~	~~586.500~~	~~222.000~~	~~586.500~~	~~225.000~~
GR	586.900	230.000	587.000	237.000	593.600	250.000	593.000	300.000	595.200	400.000
GR	601.800	467.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	9086.000	21.000	1000.000	1019.000	350.000	201.000	201.000	.860	0.000	0.000
~~X3~~	~~0.000~~	~~0.000~~	~~0.000~~	~~0.000~~	~~0.000~~	~~1150.000~~	~~0.000~~	~~0.000~~	~~0.000~~	~~0.000~~
GR	601.200	0.000	600.400	100.000	600.100	200.000	600.000	300.000	600.600	400.000
GR	599.700	500.000	599.000	600.000	597.000	700.000	594.900	800.000	594.500	900.000
~~GR~~	~~595.700~~	~~975.000~~	~~586.700~~	~~1000.000~~	~~586.700~~	~~1005.000~~	~~586.600~~	~~1010.000~~	~~586.800~~	~~1015.000~~
GR	586.500	1019.000	595.800	1044.000	595.400	1100.000	596.500	1200.000	597.200	1300.000
GR	601.800	1380.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
~~NC~~	~~.035~~	~~.035~~	~~.080~~	~~0.000~~	~~0.000~~	~~0.000~~	~~0.000~~	~~0.000~~	~~0.000~~	~~0.000~~
~~X1~~	~~9091.000~~	~~21.000~~	~~1000.000~~	~~1019.000~~	~~5.000~~	~~5.000~~	~~5.000~~	~~.860~~	~~0.000~~	~~0.000~~
X3	0.000	0.000	0.000	0.000	0.000	1150.000	0.000	0.000	0.000	0.000
GR	601.200	0.000	600.400	100.000	600.100	200.000	600.000	300.000	600.600	400.000
~~GR~~	~~599.700~~	~~500.000~~	~~599.000~~	~~600.000~~	~~597.000~~	~~700.000~~	~~594.900~~	~~800.000~~	~~594.500~~	~~900.000~~
GR	595.700	975.000	586.700	1000.000	586.700	1005.000	586.600	1010.000	586.800	1015.000
GR	586.500	1019.000	595.300	1044.000	595.400	1100.000	596.500	1200.000	597.200	1300.000
~~GR~~	~~601.800~~	~~1380.000~~	~~0.000~~	~~0.000~~	~~0.000~~	~~0.000~~	~~0.000~~	~~0.000~~	~~0.000~~	~~0.000~~
SB	0.000	1.750	2.980	0.000	16.500	0.000	130.200	0.000	586.500	586.500

BRIDGE SECT. NO.5 GARFIELD ROAD(ABANDONED) (J&A) SECT.E

X1	9107.000	21.000	1000.000	1019.000	16.000	16.000	16.000	.860	0.000	0.000

X2	0.000	0.000	1.000	594.400	594.500	0.000	0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	1150.000	0.000	0.000	0.000	0.000
BT	16.000	0.000	601.200	0.000	100.000	600.400	0.000	200.000	600.100	0.000
BT	300.000	600.000	0.000	400.000	600.600	0.000	500.000	599.700	0.000	600.000
BT	599.000	0.000	700.000	597.000	0.000	800.000	594.900	0.000	900.000	594.500
BT	0.000	1000.000	596.000	586.700	1000.000	596.000	594.800	1019.000	596.000	594.500
BT	1019.000	596.000	586.500	1100.000	595.400	0.000	1150.000	596.000	0.000	0.000
GR	601.200	0.000	600.400	100.000	600.100	200.000	600.000	300.000	600.600	400.000
GR	599.700	500.000	599.000	600.000	597.000	700.000	594.900	800.000	594.500	900.000
GR	595.700	975.000	586.700	1000.000	586.700	1005.000	586.600	1010.000	586.800	1015.000
GR	586.500	1019.000	595.800	1044.000	595.400	1100.000	596.500	1200.000	597.200	1300.000
GR	601.800	1380.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.060	.060	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	9110.000	21.000	1000.000	1019.000	3.000	3.000	3.000	.360	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	1150.000	0.000	0.000	0.000	0.000
GR	601.200	0.000	600.400	100.000	600.100	200.000	600.000	300.000	600.600	400.000
GR	599.700	500.000	599.000	600.000	597.000	700.000	594.900	800.000	594.500	900.000
GR	595.700	975.000	586.700	1000.000	586.700	1005.000	586.600	1010.000	586.800	1015.000
GR	586.500	1019.000	595.800	1044.000	595.400	1100.000	596.500	1200.000	597.200	1300.000
GR	601.800	1380.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION NO.1 (AE&W) SECT. F

X1	9155.000	10.000	337.000	392.000	45.000	45.000	45.000	0.000	.080	0.000
X3	0.000	0.000	0.000	100.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	597.600	0.000	594.900	92.000	592.300	202.000	592.000	295.000	592.000	337.000
GR	585.600	363.000	593.600	392.000	595.400	442.000	596.100	492.000	599.500	602.000

VALLEY SECTION NO.4 (AE&W) SECT. G

X1	9550.000	9.000	240.000	275.000	395.000	395.000	395.000	0.000	.080	0.000
GR	599.800	0.000	598.500	70.000	596.800	90.000	594.000	200.000	594.500	240.000
GR	586.300	260.000	594.500	275.000	595.000	300.000	599.300	400.000	0.000	0.000

X1	9609.000	25.000	260.000	274.000	59.000	59.000	59.000	0.000	.080	0.000
GR	599.800	0.000	599.000	82.000	595.200	105.000	594.500	120.000	593.500	260.000
GR	589.600	260.000	588.600	260.000	587.100	261.000	586.600	262.000	586.600	264.000
GR	587.100	265.000	588.600	266.000	589.600	266.000	589.600	268.000	588.600	268.000
GR	587.100	269.000	586.600	270.000	586.600	272.000	587.100	273.000	588.600	274.000
GR	589.600	274.000	593.500	274.000	595.500	310.000	599.400	410.000	600.400	510.000
NC	.050	.050	.038	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	9610.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	19.000	0.000	599.880	0.000	82.000	599.080	0.000	105.000	595.280	0.000
BT	120.000	594.580	0.000	260.000	593.580	589.680	261.000	593.580	592.180	262.000
BT	593.580	592.680	264.000	593.580	592.680	265.000	593.580	592.180	266.000	593.580
BT	589.680	268.000	593.580	589.680	269.000	593.580	592.180	270.000	593.580	592.680
BT	272.000	593.580	592.680	273.000	593.580	592.180	274.000	593.580	589.680	310.000
BT	595.580	0.000	410.000	599.480	0.000	510.000	600.480	0.000	0.000	0.000

BRIDGE SECTION NO.5 PRIVATE BRIDGE (AE&W) SECT. H

X1	9625.000	0.000	0.000	0.000	15.000	15.000	15.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000

X1	9626.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
NC	.060	.035	.046	0.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION NO.6 (AE&W) SECT. I

X1	9700.000	10.000	260.000	280.000	50.000	100.000	74.000	0.000	.080	0.000
GR	599.800	0.000	599.000	82.000	595.200	105.000	594.500	120.000	594.200	260.000
GR	586.500	275.000	594.200	280.000	595.200	320.000	595.800	350.000	600.200	455.000

VALLEY SECTION NO.8 (AE&W) SECT. J

X1	9965.000	10.000	295.000	320.000	265.000	265.000	265.000	0.000	.080	0.000
GR	598.400	0.000	597.200	75.000	593.300	185.000	594.400	220.000	595.300	295.000
GR	587.300	305.000	595.300	320.000	594.400	370.000	593.200	435.000	598.800	550.000
NH	4.000	.080	620.000	.035	698.000	.033	733.000	.035	930.000	0.000

VALLEY SECTION NO.9 (AE&W) SECT. K

X1	10245.000	13.000	693.000	733.000	320.000	220.000	280.000	0.000	.080	0.000
GR	599.200	0.000	597.000	520.000	595.200	620.000	594.800	693.000	589.900	709.000
GR	589.100	713.000	586.900	716.000	586.900	722.000	591.500	727.000	595.900	733.000
GR	596.900	820.000	597.000	920.000	598.200	930.000	0.000	0.000	0.000	0.000
NH	4.000	.080	450.000	.035	541.000	.033	557.000	.035	666.000	0.000

VALLEY SECTION NO.11 (AE&W) SECT. L

X1	10445.000	11.000	541.000	557.000	200.000	200.000	200.000	0.000	.080	0.000
X3	0.000	0.000	0.000	260.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	599.100	0.000	594.400	450.000	594.400	470.000	589.600	530.000	589.400	541.000
GR	587.500	545.000	587.500	555.000	589.300	557.000	589.400	567.000	597.300	650.000
GR	598.500	660.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.035	.035	.033	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	10845.000	9.000	90.000	105.000	400.000	400.000	400.000	0.000	-.200	0.000
GR	597.600	0.000	591.300	80.000	591.200	90.000	590.100	95.000	587.900	97.000
GR	587.900	104.000	591.100	105.000	591.200	113.000	598.900	183.000	0.000	0.000
QT	4.000	475.000	790.000	765.000	1035.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION NO.12 (AE&W) SECT. M

X1	10945.000	9.000	90.000	105.000	100.000	100.000	100.000	0.000	.080	0.000
GR	597.600	0.000	591.300	80.000	591.200	90.000	590.100	95.000	587.900	97.000
GR	587.900	104.000	591.100	105.000	591.200	113.000	598.900	183.000	0.000	0.000

VALLEY SECTION NO.13 (AE&W) SECT. N

X1	11445.000	8.000	91.000	110.000	500.000	500.000	500.000	0.000	.080	0.000
GR	597.800	0.000	592.100	76.000	592.000	91.000	589.100	96.000	589.100	105.000
GR	592.000	110.000	592.100	119.000	599.100	182.000	0.000	0.000	0.000	0.000

VALLEY SECTION NO.14 (AE&W) SECT. O

X1	11945.000	8.000	92.000	110.000	500.000	500.000	500.000	0.000	.080	0.000
GR	598.800	0.000	592.400	78.000	592.200	92.000	589.200	96.000	589.200	106.000
GR	592.200	110.000	592.300	118.000	599.500	182.000	0.000	0.000	0.000	0.000

VALLEY SECTION NO.15 (AE&W) SECT. P

X1	12445.000	8.000	91.000	110.000	500.000	500.000	500.000	0.000	.080	0.000
GR	598.800	0.000	592.600	78.000	592.500	91.000	589.700	96.000	589.700	104.000

GR	592.500	110.000	592.600	123.000	598.500	200.000	0.000	0.000	0.000	0.000

VALLEY SECTION NO.16 (AE&W) SECT. O

~~X1~~	~~12545.000~~	~~8.000~~	~~96.000~~	~~110.000~~	~~100.000~~	~~100.000~~	~~100.000~~	~~0.000~~	~~.080~~	~~0.000~~
GR	598.900	0.000	592.500	82.000	592.400	96.000	589.600	97.000	589.600	104.000
GR	592.400	110.000	592.500	120.000	599.100	200.000	0.000	0.000	0.000	0.000

VALLEY SECTION 1+00 (AE&W) SECT. R

X1	12645.000	8.000	79.000	121.000	100.000	100.000	100.000	0.000	-.240	0.000
GR	600.000	0.000	594.700	49.000	593.700	79.000	589.700	95.000	589.700	105.000
~~GR~~	~~593.700~~	~~121.000~~	~~594.700~~	~~151.000~~	~~600.000~~	~~200.000~~	~~0.000~~	~~0.000~~	~~0.000~~	~~0.000~~
NC	.050	.050	.042	0.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION 9+08 (AE&W) SECT. S

~~X1~~	~~13453.000~~	~~8.000~~	~~79.000~~	~~121.000~~	~~808.000~~	~~808.000~~	~~808.000~~	~~0.000~~	~~-.240~~	~~0.000~~
GR	601.200	0.000	595.500	49.000	594.500	79.000	590.500	95.000	590.500	105.000
GR	594.500	121.000	595.500	151.000	600.800	200.000	0.000	0.000	0.000	0.000

VALLEY SECTION 11+08 (AE&W) SECT. T

X1	13653.000	7.000	38.000	80.000	200.000	200.000	200.000	0.000	-.240	0.000
GR	600.900	0.000	594.700	38.000	590.700	54.000	590.700	64.000	594.700	80.000
~~GR~~	~~595.700~~	~~110.000~~	~~600.800~~	~~129.000~~	~~0.000~~	~~0.000~~	~~0.000~~	~~0.000~~	~~0.000~~	~~0.000~~

~~VALLEY SECTION 12+08 (AE&W) SECT. U~~

X1	13753.000	7.000	38.000	80.000	100.000	100.000	100.000	0.000	-.240	0.000
~~GR~~	~~600.900~~	~~0.000~~	~~594.800~~	~~38.000~~	~~590.800~~	~~54.000~~	~~590.800~~	~~64.000~~	~~594.800~~	~~80.000~~
GR	595.800	110.000	600.800	149.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION 15+83 (AE&W) SECT. V

~~X1~~	~~14128.000~~	~~7.000~~	~~38.000~~	~~80.000~~	~~375.000~~	~~375.000~~	~~375.000~~	~~0.000~~	~~-.240~~	~~0.000~~
GR	605.100	0.000	595.200	38.000	591.200	54.000	591.200	64.000	595.200	80.000
GR	596.200	110.000	600.500	149.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION 17+83 (AE&W) SECT. W

X1	14328.000	8.000	79.000	121.000	200.000	200.000	200.000	0.000	-.240	0.000
GR	600.500	0.000	596.400	49.000	595.400	79.000	591.400	95.000	591.400	105.000
~~GR~~	~~595.400~~	~~121.000~~	~~596.400~~	~~151.000~~	~~600.500~~	~~200.000~~	~~0.000~~	~~0.000~~	~~0.000~~	~~0.000~~

~~VALLEY SECTION 22+56 (AE&W) SECT. X~~

X1	14801.000	8.000	79.000	121.000	473.000	473.000	473.000	0.000	-.240	0.000
~~X3~~	~~0.000~~	~~0.000~~	~~0.000~~	~~38.000~~	~~0.000~~	~~163.000~~	~~0.000~~	~~0.000~~	~~0.000~~	~~0.000~~
GR	600.500	0.000	596.900	49.000	595.900	79.000	591.900	95.000	591.900	105.000
GR	595.900	121.000	596.900	151.000	600.500	200.000	0.000	0.000	0.000	0.000

VALLEY SECTION 23+41 (AE&W) SECT. Y

X1	14886.000	8.000	44.000	86.000	85.000	85.000	85.000	0.000	-.240	0.000
X3	0.000	0.000	0.000	41.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	600.500	0.000	597.000	14.000	596.000	44.000	592.000	60.000	592.000	70.000

GR	596.000	86.000	597.000	116.000	600.500	130.000	0.000	0.000	0.000	0.000
X1	14981.000	8.000	83.000	117.000	95.000	95.000	95.000	0.000	-.240	0.000
GR	604.600	0.000	604.600	83.000	597.600	83.000	592.100	95.000	592.100	105.000
~~GR~~	~~597.600~~	~~117.000~~	~~604.600~~	~~117.000~~	~~604.600~~	~~200.000~~	~~0.000~~	~~0.000~~	~~0.000~~	~~0.000~~
NC	.040	.040	.021	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	14982.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	4.000	0.000	604.360	0.000	83.000	604.360	600.760	117.000	604.360	600.760
~~BT~~	~~200.000~~	~~604.360~~	~~0.000~~	~~0.000~~	~~0.000~~	~~0.000~~	~~0.000~~	~~0.000~~	~~0.000~~	~~0.000~~

~~BRIDGE SECTION 24+56 21 MILE ROAD (AE&W) SECT. Z~~

X1	15054.000	0.000	0.000	0.000	72.000	72.000	72.000	0.000	0.000	0.000
~~X2~~	~~0.000~~	~~0.000~~	~~0.000~~	~~0.000~~	~~0.000~~	~~0.000~~	~~1.000~~	~~0.000~~	~~0.000~~	~~0.000~~
NC	.035	.035	.033	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	15055.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
NC	.040	.040	.037	0.000	0.000	0.000	0.000	0.000	0.000	0.000
~~QT~~	~~4.000~~	~~465.000~~	~~690.000~~	~~755.000~~	~~1070.000~~	~~0.000~~	~~0.000~~	~~0.000~~	~~0.000~~	~~0.000~~

~~VALLEY SECTION 25+33 (AE&W) SECT. AA~~

X1	15097.000	10.000	191.000	257.000	42.000	42.000	42.000	0.000	-.240	0.000
~~GR~~	~~601.900~~	~~0.000~~	~~600.900~~	~~100.000~~	~~600.900~~	~~191.000~~	~~592.100~~	~~217.000~~	~~592.100~~	~~232.000~~
GR	600.400	257.000	600.600	300.000	600.800	400.000	601.200	500.000	601.400	600.000

VALLEY SECTION 26+83 (AE&W) SECT. AB

~~X1~~	~~15228.000~~	~~8.000~~	~~267.000~~	~~333.000~~	~~131.000~~	~~131.000~~	~~131.000~~	~~0.000~~	~~-.240~~	~~0.000~~
GR	600.900	0.000	600.900	267.000	592.200	293.000	592.200	308.000	600.600	333.000
GR	600.800	400.000	600.900	500.000	601.100	600.000	0.000	0.000	0.000	0.000
X1	15303.000	12.000	282.000	322.000	75.000	75.000	75.000	0.000	-.240	0.000
~~GR~~	~~600.900~~	~~0.000~~	~~600.900~~	~~267.000~~	~~599.500~~	~~271.000~~	~~596.800~~	~~290.000~~	~~592.300~~	~~293.000~~
GR	592.300	309.000	596.800	316.000	598.300	326.000	600.600	333.000	600.800	400.000
GR	600.900	500.000	601.100	600.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	15325.000	0.000	0.000	0.000	22.000	22.000	22.000	0.000	.700	0.000
~~NC~~	~~.050~~	~~.050~~	~~.030~~	~~0.000~~	~~0.000~~	~~0.000~~	~~0.000~~	~~0.000~~	~~0.000~~	~~0.000~~
~~X1~~	~~15328.000~~	~~14.000~~	~~267.000~~	~~333.000~~	~~3.000~~	~~3.000~~	~~3.000~~	~~0.000~~	~~-.240~~	~~0.000~~
GR	600.900	0.000	600.900	267.000	599.500	271.000	596.800	290.000	596.800	296.000
GR	595.300	296.000	595.300	308.000	596.800	308.000	596.800	316.000	598.300	326.000
~~GR~~	~~600.600~~	~~333.000~~	~~600.800~~	~~400.000~~	~~600.900~~	~~500.000~~	~~601.100~~	~~600.000~~	~~0.000~~	~~0.000~~

~~DAM SECTION 27+83 (AE&W) SECT. AC~~

X1	15329.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X1	15332.000	12.000	282.000	322.000	3.000	3.000	3.000	0.000	.460	0.000
~~GR~~	~~600.900~~	~~0.000~~	~~600.900~~	~~267.000~~	~~599.500~~	~~271.000~~	~~596.800~~	~~290.000~~	~~592.300~~	~~293.000~~
GR	592.300	309.000	596.800	316.000	598.300	326.000	600.600	333.000	600.800	400.000
GR	600.900	500.000	601.100	600.000	0.000	0.000	0.000	0.000	0.000	0.000
~~NC~~	~~.040~~	~~.040~~	~~.037~~	~~0.000~~	~~0.000~~	~~0.000~~	~~0.000~~	~~0.000~~	~~0.000~~	~~0.000~~

X1	15354.000	0.000	0.000	0.000	22.000	22.000	22.000	0.000	-.700	0.000
X1	15778.000	9.000	267.000	332.000	424.000	424.000	424.000	0.000	-.240	0.000
GR	600.900	0.000	600.900	100.000	600.900	267.000	592.500	292.000	592.200	307.000
GR	600.900	332.000	600.900	400.000	600.900	500.000	601.100	600.000	0.000	0.000
X1	15946.000	14.000	281.000	327.000	168.000	168.000	168.000	0.000	-.240	0.000
GR	600.300	0.000	600.100	100.000	600.100	200.000	600.300	281.000	598.300	284.000
GR	596.600	288.000	592.600	296.000	592.600	311.000	596.600	319.000	598.800	323.000
GR	600.600	327.000	600.600	400.000	600.800	500.000	601.200	600.000	0.000	0.000
NC	.035	.035	.080	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	15947.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
SB	0.000	1.550	2.980	0.000	25.840	0.000	160.200	0.000	592.360	592.360
	BRIDGE SECTION 34+02 PRIVATE BRIDGE (AE&W)					SECT. AD				
X1	15957.000	0.000	0.000	0.000	10.000	10.000	10.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	598.560	599.860	0.000	0.000	0.000	0.000	0.000
BT	10.000	0.000	600.060	0.000	100.000	599.860	0.000	200.000	599.860	0.000
BT	281.000	600.060	0.000	284.000	600.160	598.060	323.000	600.260	598.560	327.000
BT	600.360	0.000	400.000	600.360	0.000	500.000	600.560	0.000	600.000	600.960
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.058	.060	.033	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	15958.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
	VALLEY SECTION 42+07 (AE&W)					SECT. AE				
X1	16752.000	7.000	0.000	67.000	794.000	794.000	794.000	0.000	-.240	0.000
X3	0.000	0.000	0.000	0.000	0.000	225.000	0.000	0.000	0.000	0.000
GR	601.200	0.000	593.000	26.000	593.000	41.000	600.900	67.000	600.900	122.000
GR	600.900	322.000	601.100	422.000	0.000	0.000	0.000	0.000	0.000	0.000
	VALLEY SECTION 43+56 (AE&W)					SECT. AF				
X1	17401.000	7.000	0.000	59.000	649.000	649.000	649.000	0.000	-.240	0.000
GR	601.500	0.000	593.000	25.000	593.000	45.000	602.100	69.000	601.900	138.000
GR	602.200	230.000	602.300	338.000	0.000	0.000	0.000	0.000	0.000	0.000
	VALLEY SECTION 52+66 (AE&W)					SECT. AG				
X1	17811.000	7.000	0.000	78.000	410.000	410.000	410.000	0.000	-.240	0.000
GR	601.800	0.000	593.500	30.000	593.500	45.000	604.700	78.000	602.000	130.000
GR	602.100	230.000	602.200	330.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.060	.060	.044	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	VALLEY SECTION 53+66 (AE&W)					SECT. AH				
X1	17911.000	10.000	283.000	333.000	100.000	100.000	100.000	0.000	-.240	0.000
GR	602.200	0.000	602.400	100.000	602.000	217.000	603.400	283.000	595.900	300.000
GR	595.900	314.000	604.700	333.000	602.000	400.000	602.100	500.000	602.200	600.000
	VALLEY SECTION 54+66 (AE&W)					SECT. AI				

X1	18011.000	10.000	283.000	333.000	100.000	100.000	100.000	0.000	-.240	0.000
GR	602.200	0.000	602.400	100.000	602.000	217.000	602.400	283.000	595.900	300.000
GR	595.900	314.000	602.400	333.000	602.000	400.000	602.100	500.000	602.200	600.000

VALLEY SECTION 57+66 (AE&W) SECT.AJ

X1	18311.000	10.000	283.000	333.000	350.000	250.000	300.000	0.000	-.240	0.000
X3	0.000	0.000	0.000	173.000	0.000	443.000	0.000	0.000	0.000	0.000
GR	602.200	0.000	602.400	100.000	602.000	217.000	603.300	283.000	595.900	300.000
GR	595.900	314.000	603.300	333.000	602.000	400.000	602.100	500.000	602.200	600.000

VALLEY SECTION NO. 2 (J&A) SECT.AK

X1	19536.000	17.000	500.000	542.000	1050.000	1350.000	1225.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	174.000	0.000	869.000	0.000	0.000	0.000	0.000
GR	603.600	0.000	603.200	100.000	603.400	200.000	603.500	300.000	603.600	400.000
GR	604.700	500.000	596.700	515.000	595.800	520.000	595.900	523.000	596.600	527.000
GR	597.100	530.000	605.400	542.000	604.400	600.000	604.100	700.000	602.900	800.000
GR	603.000	900.000	603.000	1000.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION NO. 1 (J&A) SECT.AL

X1	20836.000	17.000	500.000	532.000	1300.000	1300.000	1300.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	494.000	0.000	539.000	0.000	0.000	0.000	0.000
GR	603.300	0.000	604.300	100.000	604.300	200.000	604.500	300.000	604.600	400.000
GR	604.700	500.000	598.100	508.000	597.000	511.000	596.800	516.000	596.900	520.000
GR	597.900	524.000	604.900	532.000	604.600	600.000	605.400	700.000	604.800	800.000
GR	604.600	900.000	605.200	1000.000	0.000	0.000	0.000	0.000	0.000	0.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

GLOEDE DITCH
J&A FILE NO. 5850-03
MACOMB TWP. FIS
100 YEAR FLOOD
"NATURAL FLOODWAY"

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 *********************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR  -  01,02
  MODIFICATION -  50,51,52,53
 *********************************************

 C
 T1            MACOMB TWP. FIS J&A FILE NO. 5850-03
 T2            100 YEAR FLOOD
 T3            GLOEDE DITCH
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Run from Clinton to Hall to get this elev; see hydraulic booklet

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 J1  ICHECK    INQ     NINV     IDIR     STRT     METRIC    HVINS     Q      WSEL      FQ

       0.       4.       0.       0.  0.000000     0.00      0.0      0.   594.740    0.000

 J2  NPROF    IPLOT    PRFVS    XSECV    XSECH      FN      ALLDC     IBW     CHNIM    ITRACE

      1.000    0.000   -1.000    0.000    0.000    0.000    0.000    0.000    0.000    0.000

 NC     .035      .035      .080      .300      .500     0.000     0.000     0.000     0.000     0.000
 QT    4.000   850.000  1250.000  1370.000  1935.000     0.000     0.000     0.000     0.000     0.000

 X1 7786.000    23.000   440.000   517.000     0.000     0.000     0.000      .520     0.000     0.000
 GR  600.900     0.000   600.900    40.000   601.000   140.000   601.100   240.000   601.100   340.000
 GR  601.000   440.000   596.200   440.000   586.700   463.000   586.300   463.600   586.300   466.400
 GR  585.000   475.000   587.100   483.000   588.500   487.000   588.400   490.600   588.400   493.400
 GR  596.300   517.000   601.100   517.000   601.200   540.000   601.300   640.000   601.400   740.000
 GR  601.400   840.000   601.500   940.000   601.500   980.000     0.000     0.000     0.000     0.000
 NC     .040      .040      .020     0.000     0.000     0.000     0.000     0.000     0.000     0.000

 X1 7787.000    29.000   440.000   517.000     1.000     1.000     1.000      .520     0.000     0.000
 X2    0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000      .520     0.000
 BT   15.000     0.000   600.900     0.000    40.000   600.900     0.000   140.000   601.000     0.000
 BT  240.000   601.100     0.000   340.000   601.100     0.000   440.000   601.000   598.800   440.000
 BT  601.600   598.800   517.000   601.600   598.800   517.000   601.100   598.800   540.000   601.200
 BT    0.000   640.000   601.300     0.000   740.000   601.400     0.000   840.000   601.400     0.000
 BT  940.000   601.500     0.000   980.000   601.500     0.000     0.000     0.000     0.000     0.000
 GR  600.900     0.000   600.900    40.000   601.000   140.000   601.100   240.000   601.100   340.000
 GR  601.000   440.000   601.600   440.000   596.200   440.000   586.700   463.000   586.300   463.600
 GR  598.800   463.600   598.800   466.400   586.300   466.400   585.000   475.000   587.100   483.000
 GR  588.500   487.000   588.400   490.600   598.800   490.600   598.800   493.400   588.400   493.400
 GR  596.300   517.000   601.600   517.000   601.100   517.000   601.200   540.000   601.300   640.000
 GR  601.400   740.000   601.400   840.000   601.500   940.000   601.500   980.000     0.000     0.000

           BRIDGE SECTION NO.1 HALL ROAD (M-59)  (J&A)     SECT. A

 X1 7860.000     0.000     0.000     0.000    73.000    73.000    73.000     0.000     0.000     0.000
 X2    0.000     0.000     0.000     0.000     0.000     0.000     1.000     0.000     0.000     0.000
 NC     .050      .050      .040     0.000     0.000     0.000     0.000     0.000     0.000     0.000

 X1 7861.000    23.000   440.000   517.000     1.000     1.000     1.000      .520     0.000     0.000
 GR  600.900     0.000   600.900    40.000   601.000   140.000   601.100   240.000   601.100   340.000
 GR  601.000   440.000   596.200   440.000   586.700   463.000   586.300   463.600   586.300   466.400
 GR  585.000   475.000   587.100   483.000   588.500   487.000   588.400   490.600   588.400   493.400
 GR  596.300   517.000   601.100   517.000   601.200   540.000   601.300   640.000   601.400   740.000
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GR	601.400	840.000	601.500	940.000	601.500	980.000	0.000	0.000	0.000	0.000
QT	4.000	835.000	1230.000	1345.000	1905.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION NO.2 (J&A) SECT. B

X1	8050.000	10.000	150.000	199.000	275.000	190.000	190.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	93.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	593.100	0.000	592.700	50.000	592.900	150.000	586.100	164.000	585.600	170.000
GR	586.200	175.000	586.700	182.000	594.600	199.000	601.800	220.000	601.400	245.000
X1	8198.000	11.000	200.000	234.000	148.000	148.000	148.000	0.000	0.000	0.000
GR	597.200	0.000	596.600	100.000	598.800	200.000	589.700	200.000	586.400	209.000
GR	585.600	215.000	586.100	220.000	585.800	224.000	589.800	234.000	598.800	234.000
GR	601.400	292.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.035	.035	.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	8199.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	5.000	0.000	597.200	0.000	100.000	596.600	0.000	200.000	598.800	596.600
BT	234.000	598.800	596.600	292.000	601.400	0.000	0.000	0.000	0.000	0.000

BRIDGE SECTION NO.3 PRIVATE BRIDGE (J&A) SECT. C

X1	8215.000	0.000	0.000	0.000	16.000	16.000	16.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NC	.050	.050	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	8216.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
NC	.060	.060	.042	0.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION NO.4 (J&A) SECT. D

X1	8885.000	11.000	200.000	250.000	669.000	669.000	669.000	0.000	0.000	0.000
GR	599.700	0.000	599.900	100.000	596.200	200.000	586.500	222.000	586.500	225.000
GR	586.900	230.000	587.000	237.000	593.600	250.000	593.000	300.000	595.200	400.000
GR	601.800	467.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	9086.000	21.000	1000.000	1019.000	350.000	201.000	201.000	.860	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	1150.000	0.000	0.000	0.000	0.000
GR	601.200	0.000	600.400	100.000	600.100	200.000	600.000	300.000	600.600	400.000
GR	599.700	500.000	599.000	600.000	597.000	700.000	594.900	800.000	594.500	900.000
GR	595.700	975.000	586.700	1000.000	586.700	1005.000	586.600	1010.000	586.800	1015.000
GR	586.500	1019.000	595.800	1044.000	595.400	1100.000	596.500	1200.000	597.200	1300.000
GR	601.800	1380.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.035	.035	.080	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	9091.000	21.000	1000.000	1019.000	5.000	5.000	5.000	.860	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	1150.000	0.000	0.000	0.000	0.000
GR	601.200	0.000	600.400	100.000	600.100	200.000	600.000	300.000	600.600	400.000
GR	599.700	500.000	599.000	600.000	597.000	700.000	594.900	800.000	594.500	900.000
GR	595.700	975.000	586.700	1000.000	586.700	1005.000	586.600	1010.000	586.800	1015.000
GR	586.500	1019.000	595.800	1044.000	595.400	1100.000	596.500	1200.000	597.200	1300.000
GR	601.800	1380.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	1.750	2.980	0.000	16.500	0.000	130.200	0.000	586.500	586.500

BRIDGE SECT. NO.5 GARFIELD ROAD(ABANDONED) (J&A) SECT.E

X1	9107.000	21.000	1000.000	1019.000	16.000	16.000	16.000	.860	0.000	0.000

X2	0.000	0.000	1.000	594.400	594.500	0.000	0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	1150.000	0.000	0.000	0.000	0.000
BT	16.000	0.000	601.200	0.000	100.000	600.400	0.000	200.000	600.100	0.000
BT	300.000	600.000	0.000	400.000	600.600	0.000	500.000	599.700	0.000	600.000
BT	599.000	0.000	700.000	597.000	0.000	800.000	594.900	0.000	900.000	594.500
~~BT~~	~~0.000~~	~~1000.000~~	~~596.000~~	~~586.700~~	~~1000.000~~	~~596.000~~	~~594.800~~	~~1019.000~~	~~596.000~~	~~594.500~~
BT	1019.000	596.000	586.500	1100.000	595.400	0.000	1150.000	596.000	0.000	0.000
GR	601.200	0.000	600.400	100.000	600.100	200.000	600.000	300.000	600.600	400.000
~~GR~~	~~599.700~~	~~500.000~~	~~599.000~~	~~600.000~~	~~597.000~~	~~700.000~~	~~594.900~~	~~800.000~~	~~594.500~~	~~900.000~~
GR	595.700	975.000	586.700	1000.000	586.700	1005.000	586.600	1010.000	586.800	1015.000
GR	586.500	1019.000	595.800	1044.000	595.400	1100.000	596.500	1200.000	597.200	1300.000
~~GR~~	~~601.800~~	~~1380.000~~	~~0.000~~	~~0.000~~	~~0.000~~	~~0.000~~	~~0.000~~	~~0.000~~	~~0.000~~	~~0.000~~
NC	.060	.060	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	9110.000	21.000	1000.000	1019.000	3.000	3.000	3.000	.860	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	1150.000	0.000	0.000	0.000	0.000
~~GR~~	~~601.200~~	~~0.000~~	~~600.400~~	~~100.000~~	~~600.100~~	~~200.000~~	~~600.000~~	~~300.000~~	~~600.600~~	~~400.000~~
GR	599.700	500.000	599.000	600.000	597.000	700.000	594.900	800.000	594.500	900.000
GR	595.700	975.000	586.700	1000.000	586.700	1005.000	586.600	1010.000	586.800	1015.000
~~GR~~	~~586.500~~	~~1019.000~~	~~595.800~~	~~1044.000~~	~~595.400~~	~~1100.000~~	~~596.500~~	~~1200.000~~	~~597.200~~	~~1300.000~~
GR	601.800	1380.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Triangle

VALLEY SECTION NO.1 (AE&W) SECT. F

~~X1~~	~~9155.000~~	~~10.000~~	~~337.000~~	~~392.000~~	~~45.000~~	~~45.000~~	~~45.000~~	~~0.000~~	~~.080~~	~~0.000~~
X3	0.000	0.000	0.000	100.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	597.600	0.000	594.900	92.000	592.300	202.000	592.000	295.000	592.000	337.000
~~GR~~	~~585.600~~	~~363.000~~	~~593.600~~	~~392.000~~	~~595.400~~	~~442.000~~	~~596.100~~	~~492.000~~	~~599.500~~	~~602.000~~

~~VALLEY SECTION NO.4 (AE&W) SECT. G~~

Tri

X1	9550.000	9.000	240.000	275.000	395.000	395.000	395.000	0.000	.080	0.000
~~GR~~	~~599.800~~	~~0.000~~	~~598.900~~	~~70.000~~	~~596.800~~	~~90.000~~	~~594.000~~	~~200.000~~	~~594.500~~	~~240.000~~
GR	586.300	260.000	594.500	275.000	595.000	300.000	599.300	400.000	0.000	0.000

X1	9609.000	25.000	260.000	274.000	59.000	59.000	59.000	0.000	.080	0.000
GR	599.800	0.000	599.000	82.000	595.200	105.000	594.500	120.000	593.500	260.000
~~GR~~	~~589.600~~	~~260.000~~	~~588.600~~	~~260.000~~	~~587.100~~	~~261.000~~	~~586.600~~	~~262.000~~	~~586.600~~	~~264.000~~
GR	587.100	265.000	588.600	266.000	589.600	266.000	589.600	268.000	588.600	268.000
GR	587.100	269.000	586.600	270.000	586.600	272.000	587.100	273.000	588.600	274.000
~~GR~~	~~589.600~~	~~274.000~~	~~593.500~~	~~274.000~~	~~595.500~~	~~310.000~~	~~599.400~~	~~410.000~~	~~600.400~~	~~510.000~~
NC	.050	.050	.038	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	9610.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	19.000	0.000	599.880	0.000	82.000	599.080	0.000	105.000	595.280	0.000
~~BT~~	~~120.000~~	~~594.580~~	~~0.000~~	~~260.000~~	~~593.580~~	~~589.680~~	~~261.000~~	~~593.580~~	~~592.180~~	~~262.000~~
BT	593.580	592.680	264.000	593.580	592.680	265.000	593.580	592.180	266.000	593.580
BT	589.680	268.000	593.580	589.680	269.000	593.580	592.180	270.000	593.580	592.680
~~BT~~	~~272.000~~	~~593.580~~	~~592.680~~	~~273.000~~	~~593.580~~	~~592.180~~	~~274.000~~	~~593.580~~	~~589.680~~	~~310.000~~
BT	595.580	0.000	410.000	599.480	0.000	510.000	600.480	0.000	0.000	0.000

BRIDGE SECTION NO.5 PRIVATE BRIDGE (AE&W) SECT. H

~~X1~~	~~9625.000~~	~~0.000~~	~~0.000~~	~~0.000~~	~~15.000~~	~~15.000~~	~~15.000~~	~~0.000~~	~~0.000~~	~~0.000~~
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000

X1	9626.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
NC	.060	.035	.046	0.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION NO.6 (AE&W) SECT. I

X1	9700.000	10.000	260.000	280.000	50.000	100.000	74.000	0.000	.080	0.000
GR	599.800	0.000	599.000	82.000	595.200	105.000	594.500	120.000	594.200	260.000
GR	586.500	275.000	594.200	280.000	595.200	320.000	595.800	350.000	600.200	455.000

VALLEY SECTION NO.8 (AE&W) SECT. J

X1	9965.000	10.000	295.000	320.000	265.000	265.000	265.000	0.000	.080	0.000
GR	598.400	0.000	597.200	75.000	593.300	185.000	594.400	220.000	595.300	295.000
GR	587.300	305.000	595.300	320.000	594.400	370.000	593.200	435.000	598.800	550.000
NH	4.000	.080	620.000	.035	698.000	.033	733.000	.035	930.000	0.000

VALLEY SECTION NO.9 (AE&W) SECT. K

X1	10245.000	13.000	698.000	733.000	320.000	220.000	280.000	0.000	.080	0.000
GR	599.200	0.000	597.000	520.000	595.200	620.000	594.300	698.000	589.900	709.000
GR	589.100	713.000	586.900	716.000	586.900	722.000	591.500	727.000	595.900	733.000
GR	596.900	820.000	597.000	920.000	598.200	930.000	0.000	0.000	0.000	0.000
NH	4.000	.080	450.000	.035	541.000	.033	557.000	.035	666.000	0.000

VALLEY SECTION NO.11 (AE&W) SECT. L

X1	10445.000	11.000	541.000	557.000	200.000	200.000	200.000	0.000	.080	0.000
X3	0.000	0.000	0.000	260.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	599.100	0.000	594.400	450.000	594.400	470.000	589.600	530.000	589.400	541.000
GR	587.500	545.000	587.500	555.000	589.300	557.000	589.400	567.000	597.300	650.000
GR	598.500	660.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.035	.035	.033	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	10845.000	9.000	90.000	105.000	400.000	400.000	400.000	0.000	-.200	0.000
GR	597.600	0.000	591.300	80.000	591.200	90.000	590.100	95.000	587.900	97.000
GR	587.900	104.000	591.100	105.000	591.200	113.000	598.900	183.000	0.000	0.000
QT	4.000	475.000	700.000	765.000	1085.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION NO.12 (AE&W) SECT. M

X1	10945.000	9.000	90.000	105.000	100.000	100.000	100.000	0.000	.080	0.000
GR	597.600	0.000	591.300	80.000	591.200	90.000	590.100	95.000	587.900	97.000
GR	587.900	104.000	591.100	105.000	591.200	113.000	598.900	183.000	0.000	0.000

VALLEY SECTION NO.13 (AE&W) SECT. N

X1	11445.000	8.000	91.000	110.000	500.000	500.000	500.000	0.000	.080	0.000
GR	597.800	0.000	592.100	76.000	592.000	91.000	589.100	96.000	589.100	105.000
GR	592.000	110.000	592.100	119.000	599.100	182.000	0.000	0.000	0.000	0.000

VALLEY SECTION NO.14 (AE&W) SECT. O

X1	11945.000	8.000	92.000	110.000	500.000	500.000	500.000	0.000	.080	0.000
GR	598.800	0.000	592.400	78.000	592.200	92.000	589.200	96.000	589.200	106.000
GR	592.200	110.000	592.300	118.000	599.500	182.000	0.000	0.000	0.000	0.000

VALLEY SECTION NO.15 (AE&W) SECT. P

X1	12445.000	8.000	91.000	110.000	500.000	500.000	500.000	0.000	.080	0.000
GR	598.800	0.000	592.600	78.000	592.500	91.000	589.700	96.000	589.700	104.000

GR	592.500	110.000	592.600	123.000	598.500	200.000	0.000	0.000	0.000	0.000

VALLEY SECTION NO.16 (AE&W) SECT. Q

X1	12545.000	8.000	96.000	110.000	100.000	100.000	100.000	0.000	.080	0.000
GR	598.900	0.000	592.500	82.000	592.400	96.000	589.600	97.000	589.600	104.000
GR	592.400	110.000	592.500	120.000	599.100	200.000	0.000	0.000	0.000	0.000

VALLEY SECTION 1+00 (AE&W) SECT. R

X1	12645.000	8.000	79.000	121.000	100.000	100.000	100.000	0.000	-.240	0.000
GR	600.000	0.000	594.700	49.000	593.700	79.000	589.700	95.000	589.700	105.000
GR	593.700	121.000	594.700	151.000	600.000	200.000	0.000	0.000	0.000	0.000
NC	.050	.050	.042	0.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION 9+08 (AE&W) SECT. S

X1	13453.000	8.000	79.000	121.000	808.000	808.000	808.000	0.000	-.240	0.000
GR	601.200	0.000	595.500	49.000	594.500	79.000	590.500	95.000	590.500	105.000
GR	594.500	121.000	595.500	151.000	600.800	200.000	0.000	0.000	0.000	0.000

VALLEY SECTION 11+08 (AE&W) SECT. T

X1	13653.000	7.000	38.000	80.000	200.000	200.000	200.000	0.000	-.240	0.000
GR	600.900	0.000	594.700	38.000	590.700	54.000	590.700	64.000	594.700	80.000
GR	595.700	110.000	600.800	129.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION 12+08 (AE&W) SECT. U

X1	13753.000	7.000	38.000	80.000	100.000	100.000	100.000	0.000	-.240	0.000
GR	600.900	0.000	594.800	38.000	590.800	54.000	590.800	64.000	594.800	80.000
GR	595.800	110.000	600.800	149.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION 15+83 (AE&W) SECT. V

X1	14128.000	7.000	38.000	80.000	375.000	375.000	375.000	0.000	-.240	0.000
GR	605.100	0.000	595.200	38.000	591.200	54.000	591.200	64.000	595.200	80.000
GR	596.200	110.000	600.500	149.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION 17+83 (AE&W) SECT. W

X1	14328.000	8.000	79.000	121.000	200.000	200.000	200.000	0.000	-.240	0.000
GR	600.500	0.000	596.400	49.000	595.400	79.000	591.400	95.000	591.400	105.000
GR	595.400	121.000	596.400	151.000	600.500	200.000	0.000	0.000	0.000	0.000

VALLEY SECTION 22+56 (AE&W) SECT. X

X1	14801.000	8.000	79.000	121.000	473.000	473.000	473.000	0.000	-.240	0.000
X3	0.000	0.000	0.000	38.000	0.000	163.000	0.000	0.000	0.000	0.000
GR	600.500	0.000	596.900	49.000	595.900	79.000	591.900	95.000	591.900	105.000
GR	595.900	121.000	596.900	151.000	600.500	200.000	0.000	0.000	0.000	0.000

VALLEY SECTION 23+41 (AE&W) SECT. Y

X1	14886.000	8.000	44.000	86.000	85.000	85.000	85.000	0.000	-.240	0.000
X3	0.000	0.000	0.000	41.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	600.500	0.000	597.000	14.000	596.000	44.000	592.000	60.000	592.000	70.000

GR	596.000	86.000	597.000	116.000	600.500	130.000	0.000	0.000	0.000	0.000
X1	14981.000	8.000	83.000	117.000	95.000	95.000	95.000	0.000	-.240	0.000
GR	604.600	0.000	604.600	83.000	597.600	83.000	592.100	95.000	592.100	105.000
~~GR~~	~~597.600~~	~~117.000~~	~~604.600~~	~~117.000~~	~~604.600~~	~~200.000~~	~~0.000~~	~~0.000~~	~~0.000~~	~~0.000~~
NC	.040	.040	.021	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	14982.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	4.000	0.000	604.360	0.000	83.000	604.360	600.760	117.000	604.360	600.760
~~BT~~	~~200.000~~	~~604.360~~	~~0.000~~	~~0.000~~	~~0.000~~	~~0.000~~	~~0.000~~	~~0.000~~	~~0.000~~	~~0.000~~
		~~BRIDGE SECTION 24+56 21 MILE ROAD~~		~~(AE&W)~~		~~SECT. Z~~				
X1	15054.000	0.000	0.000	0.000	72.000	72.000	72.000	0.000	0.000	0.000
~~X2~~	~~0.000~~	~~0.000~~	~~0.000~~	~~0.000~~	~~0.000~~	~~0.000~~	~~1.000~~	~~0.000~~	~~0.000~~	~~0.000~~
NC	.035	.035	.033	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	15055.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
NC	.040	.040	.037	0.000	0.000	0.000	0.000	0.000	0.000	0.000
~~QT~~	~~4.000~~	~~465.000~~	~~690.000~~	~~755.000~~	~~1070.000~~	~~0.000~~	~~0.000~~	~~0.000~~	~~0.000~~	~~0.000~~
		~~VALLEY SECTION 25+33~~		~~(AE&W)~~		~~SECT. AA~~				
X1	15097.000	10.000	191.000	257.000	42.000	42.000	42.000	0.000	-.240	0.000
~~GR~~	~~601.900~~	~~0.000~~	~~600.900~~	~~100.000~~	~~600.900~~	~~191.000~~	~~592.100~~	~~217.000~~	~~592.100~~	~~232.000~~
GR	600.400	257.000	600.600	300.000	600.800	400.000	601.200	500.000	601.400	600.000
		VALLEY SECTION 26+83		(AE&W)		SECT. AB				
~~X1~~	~~15228.000~~	~~8.000~~	~~267.000~~	~~333.000~~	~~131.000~~	~~131.000~~	~~131.000~~	~~0.000~~	~~-.240~~	~~0.000~~
GR	600.900	0.000	600.900	267.000	592.200	293.000	592.200	308.000	600.600	333.000
GR	600.800	400.000	600.900	500.000	601.100	600.000	0.000	0.000	0.000	0.000
X1	15303.000	12.000	282.000	322.000	75.000	75.000	75.000	0.000	-.240	0.000
~~GR~~	~~600.900~~	~~0.000~~	~~600.900~~	~~267.000~~	~~599.500~~	~~271.000~~	~~596.800~~	~~290.000~~	~~592.300~~	~~293.000~~
GR	592.300	309.000	596.800	316.000	598.300	326.000	600.600	333.000	600.800	400.000
GR	600.900	500.000	601.100	600.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	15325.000	0.000	0.000	0.000	22.000	22.000	22.000	0.000	.700	0.000
~~NC~~	~~.050~~	~~.050~~	~~.030~~	~~0.000~~	~~0.000~~	~~0.000~~	~~0.000~~	~~0.000~~	~~0.000~~	~~0.000~~
~~X1~~	~~15328.000~~	~~14.000~~	~~267.000~~	~~333.000~~	~~3.000~~	~~3.000~~	~~3.000~~	~~0.000~~	~~-.240~~	~~0.000~~
GR	600.900	0.000	600.900	267.000	599.500	271.000	596.800	290.000	596.800	296.000
GR	595.300	296.000	595.300	308.000	596.800	308.000	596.800	316.000	598.300	326.000
~~GR~~	~~600.600~~	~~333.000~~	~~600.800~~	~~400.000~~	~~600.900~~	~~500.000~~	~~601.100~~	~~600.000~~	~~0.000~~	~~0.000~~
		~~DAM SECTION 27+83~~		~~(AE&W)~~		~~SECT. AC~~				
X1	15329.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X1	15332.000	12.000	282.000	322.000	3.000	3.000	3.000	0.000	.460	0.000
~~GR~~	~~600.900~~	~~0.000~~	~~600.900~~	~~267.000~~	~~599.500~~	~~271.000~~	~~596.800~~	~~290.000~~	~~592.300~~	~~293.000~~
GR	592.300	309.000	596.800	316.000	598.300	326.000	600.600	333.000	600.800	400.000
GR	600.900	500.000	601.100	600.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.040	.040	.037	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	15354.000	0.000	0.000	0.000	22.000	22.000	22.000	0.000	-.700	0.000
X1	15778.000	9.000	267.000	332.000	424.000	424.000	424.000	0.000	-.240	0.000
GR	600.900	0.000	600.900	100.000	600.900	267.000	592.500	292.000	592.200	307.000
GR	600.900	332.000	600.900	400.000	600.900	500.000	601.100	600.000	0.000	0.000
X1	15946.000	14.000	281.000	327.000	168.000	168.000	168.000	0.000	-.240	0.000
GR	600.300	0.000	600.100	100.000	600.100	200.000	600.300	281.000	598.300	284.000
GR	596.600	288.000	592.600	296.000	592.600	311.000	596.600	319.000	598.800	323.000
GR	600.600	327.000	600.600	400.000	600.800	500.000	601.200	600.000	0.000	0.000
NC	.035	.035	.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	15947.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
SB	0.000	1.550	2.980	0.000	25.840	0.000	160.200	0.000	592.360	592.360

BRIDGE SECTION 34+02 PRIVATE BRIDGE (AE&W) SECT. AD

X1	15957.000	0.000	0.000	0.000	10.000	10.000	10.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	598.560	599.860	0.000	0.000	0.000	0.000	0.000
BT	10.000	0.000	600.060	0.000	100.000	599.860	0.000	200.000	599.860	0.000
BT	281.000	600.060	0.000	284.000	600.160	598.060	323.000	600.260	598.560	327.000
BT	600.360	0.000	400.000	600.360	0.000	500.000	600.560	0.000	600.000	600.960
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.058	.060	.038	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	15958.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000

VALLEY SECTION 42+07 (AE&W) SECT. AE

X1	16752.000	7.000	0.000	67.000	794.000	794.000	794.000	0.000	-.240	0.000
X3	0.000	0.000	0.000	0.000	0.000	225.000	0.000	0.000	0.000	0.000
GR	601.200	0.000	593.000	26.000	593.000	41.000	600.900	67.000	600.900	122.000
GR	600.900	322.000	601.100	422.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION 48+56 (AE&W) SECT. AF

X1	17401.000	7.000	0.000	69.000	649.000	649.000	649.000	0.000	-.240	0.000
GR	601.500	0.000	593.300	28.000	593.300	43.000	602.100	69.000	601.900	138.000
GR	602.200	238.000	602.000	338.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION 52+66 (AE&W) SECT. AG

X1	17811.000	7.000	0.000	78.000	410.000	410.000	410.000	0.000	-.240	0.000
GR	601.800	0.000	593.500	30.000	593.500	45.000	604.700	78.000	602.000	130.000
GR	602.100	230.000	602.200	330.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.060	.060	.044	0.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION 53+66 (AE&W) SECT. AH

X1	17911.000	10.000	283.000	333.000	100.000	100.000	100.000	0.000	-.240	0.000
GR	602.200	0.000	602.400	100.000	602.000	217.000	603.400	283.000	595.900	300.000
GR	595.900	314.000	604.700	333.000	602.000	400.000	602.100	500.000	602.200	600.000

VALLEY SECTION 54+66 (AE&W) SECT. AI

X1	18011.000	10.000	283.000	333.000	100.000	100.000	100.000	0.000	-.240	0.000
GR	602.200	0.000	602.400	100.000	602.000	217.000	602.400	283.000	595.900	300.000
GR	595.900	314.000	602.400	333.000	602.000	400.000	602.100	500.000	602.200	600.000

VALLEY SECTION 57+66 (AE&W) SECT.AJ

X1	18311.000	10.000	283.000	333.000	350.000	250.000	300.000	0.000	-.240	0.000
GR	602.200	0.000	602.400	100.000	602.000	217.000	603.300	283.000	595.900	300.000
GR	595.900	314.000	603.300	333.000	602.000	400.000	602.100	500.000	602.200	600.000

VALLEY SECTION NO. 2 (J&A) SECT.AK

X1	19536.000	17.000	500.000	542.000	1050.000	1350.000	1225.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	174.000	0.000	869.000	0.000	0.000	0.000	0.000
GR	603.600	0.000	603.200	100.000	603.400	200.000	603.500	300.000	603.600	400.000
GR	604.700	500.000	596.700	515.000	595.800	520.000	595.900	523.000	596.600	527.000
GR	597.100	530.000	606.400	542.000	604.400	600.000	604.100	700.000	602.900	800.000
GR	603.000	900.000	603.000	1000.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION NO. 1 (J&A) SECT.AL

X1	20836.000	17.000	500.000	532.000	1300.000	1300.000	1300.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	494.000	0.000	539.000	0.000	0.000	0.000	0.000
GR	603.300	0.000	604.300	100.000	604.300	200.000	604.500	300.000	604.600	400.000
GR	604.700	500.000	598.100	508.000	597.000	511.000	596.800	516.000	596.900	520.000
GR	597.900	524.000	604.900	532.000	604.600	600.000	605.400	700.000	604.800	800.000
GR	604.600	900.000	605.200	1000.000	0.000	0.000	0.000	0.000	0.000	0.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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*PROF 1

CCHV=      .300 CEHV=      .500
*SECNO 7786.000
  SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
  Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA     LEFT/RIGHT
  TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN       SSTA
  SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID      ENDST

  7786.00       9.74    594.74       0.00    594.74    595.48        .74       0.00       0.00    601.00
    1370.         0.     1370.         0.        0.      199.         0.         0.         0.     601.10
    0.00        0.00      6.88       0.00      .035      .080       .035      0.000     585.00    230.64
  .017123         0.        0.         0.         0         0          0       0.00      35.78    266.42

*SECNO 7787.000

3265 DIVIDED FLOW

3370 NORMAL BRIDGE,NRD= 15 MIN ELTRD=   600.90 MAX ELLC=   598.80

  7787.00       9.63    594.63       0.00      0.00    595.60        .96        .01        .11    601.00
    1370.         0.     1370.         0.        0.      174.         0.         0.         0.     601.10
     .00        0.00      7.87       0.00      .040      .020       .040       .010     585.00    230.77
  .003184         1.        1.         1.         2         0          0       0.00      32.57    266.25

*SECNO 7860.000

3265 DIVIDED FLOW

3370 NORMAL BRIDGE,NRD= 15 MIN ELTRD=   600.90 MAX ELLC=   598.80

                BRIDGE SECTION NO.1 HALL ROAD (M-59)  (J&A)      SECT. A

  7860.00      10.01    595.01       0.00      0.00    595.85        .84        .21        .04    601.00
    1370.         0.     1370.         0.        0.      187.         0.         0.         0.     601.10
     .00        0.00      7.34       0.00      .040      .020       .040       .019     585.00    230.29
  .002663        73.       73.        73.         2         0          0       0.00      33.64    266.84

*SECNO 7861.000
  7861.00      10.32    595.32       0.00      0.00    595.92        .60        .00        .07    601.00
    1370.         0.     1370.         0.        0.      220.         0.         0.         0.     601.10
     .00        0.00      6.22       0.00      .050      .040       .050       .019     585.00    229.90
  .003246         1.        1.         1.         2         0          0       0.00      37.42    267.32

*SECNO 8050.000
  SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
  Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA     LEFT/RIGHT
  TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN       SSTA
  SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID      ENDST

3470 ENCROACHMENT STATIONS=       93.0      245.0  TYPE=      1  TARGET=      -93.000
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T.W. due to
skew,

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                      VALLEY SECTION NO.2    (J&A)                          SECT. B
   8050.00     10.55    596.15     0.00      0.00    596.26      .11       .20       .15    592.90
   1345.       259.     1084.       2.       188.     367.        3.        2.        0.     594.60
     .02       1.38     2.95       .52      .050      .040      .050      .033    585.60     93.00
  .000470      275.     190.      190.         2         0         0      0.00    110.51    203.51

 *SECNO 8198.000
   8198.00     10.56    596.16     0.00      0.00    596.45      .29       .10       .09    598.80
   1345.        0.      1345.       0.        0.      310.        0.        4.        1.     598.80
     .03       0.00     4.34       0.00     .050      .040      .050      .035    585.60    200.00
  .001142      148.     148.      148.         2         0         0      0.00     34.00    234.00

 *SECNO 8199.000

 3370 NORMAL BRIDGE,NRD=   5 MIN ELTRD=   596.60 MAX ELLC=   596.60

   8199.00     10.56    596.16     0.00      0.00    596.45      .29       .00       .00    598.80
   1345.        0.      1345.       0.        0.      310.        0.        4.        1.     598.80
     .03       0.00     4.34       0.00     .035      .020      .035      .035    585.60    200.00
  .000286       1.       1.        1.          0         0         0      0.00     34.00    234.00

 *SECNO 8215.000

 3370 NORMAL BRIDGE,NRD=   5 MIN ELTRD=   596.60 MAX ELLC=   596.60

                      BRIDGE SECTION NO.3 PRIVATE BRIDGE    (J&A)       SECT. C
   8215.00     10.57    596.17     0.00      0.00    596.46      .29       .00       .00    598.80
   1345.        0.      1345.       0.        0.      310.        0.        4.        1.     598.80
     .03       0.00     4.33       0.00     .035      .020      .035      .035    585.60    200.00
  .000285      16.      16.       16.          0         0         0      0.00     34.00    234.00

 *SECNO 8216.000
   8216.00     10.57    596.17     0.00      0.00    596.46      .29       .00       .00    598.80
   1345.        0.      1345.       0.        0.      310.        0.        4.        1.     598.80
     .03       0.00     4.34       0.00     .050      .040      .050      .034    585.60    200.00
  .001140       1.       1.        1.          0         0         0      0.00     34.00    234.00

 *SECNO 8885.000
     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST


                      VALLEY SECTION NO.4    (J&A)                          SECT. D

   8885.00     10.37    596.87     0.00      0.00    596.94      .07       .41       .07    596.20
   1345.        1.      874.      470.        6.      358.      470.       13.        3.     593.60
     .13        .23     2.44       1.00     .060      .042      .060      .039    586.50    181.91
  .000378      669.     669.      669.         2         0         0      0.00    235.04    416.95

 *SECNO 9086.000

 3470 ENCROACHMENT STATIONS=          .0       989.0  TYPE=      1  TARGET=     1149.999
   9086.00     10.45    596.95     0.00      0.00    597.04      .09       .09       .01    586.70
   1345.       499.     579.      267.      523.      168.      245.       18.        5.     586.50
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      .16       .95      3.45      1.09      .060      .042      .060      .039    586.50    604.04
  .000426      350.      201.      201.         2         0         0      0.00    384.96    989.00

*SECNO 9091.000

3470 ENCROACHMENT STATIONS=        .0      989.0  TYPE=      1  TARGET=     1149.999
  9091.00     10.53    597.03      0.00      0.00    597.06       .03       .00       .02    586.70
    1345.      718.      246.      382.      542.      169.      253.       18.        5.    586.50
      .16      1.32      1.45      1.51      .035      .080      .035      .039    586.50    600.83
  .000271        5.        5.        5.         2         0         0      0.00    388.16    989.00

                                                                        skew .86
SPECIAL BRIDGE

SB  XK         XKOR      COFQ      RDLEN      BWC       BWP      BAREA       SS      ELCHU     ELCHD
     0.00      1.75      2.98      0.00     16.50      0.00    130.20      0.00    586.50    586.50

*SECNO 9107.000
PRESSURE AND WEIR FLOW
                                                                        Weir length = 950 ft
  EGPRS     EGLWC       H3      QWEIR       QPR      BAREA   TRAPEZOID      ELLC      ELTRD   has not been skew
                                                               AREA
   599.93    597.06      0.00     1116.      233.      130.      130.    594.40    594.50

                          1150 × .86                      1116 × .86 = 960

3470 ENCROACHMENT STATIONS=        .0      989.0  TYPE=      1  TARGET=     1149.999

          BRIDGE SECT. NO.5 GARFIELD ROAD(ABANDONED) (J8A)   SECT.E

  9107.00     10.58    597.08      0.00      0.00    597.11       .03       .06      0.00    586.70
    1345.      723.      240.      382.      557.      170.      260.       18.        5.    586.50
      .17      1.30      1.41      1.47      .035      .080      .035      .039    586.50    598.36
  .000255       16.       16.       16.         2         0         7      0.00    390.64    989.00
                                                                        "n" values adjusted to
*SECNO 9110.000                                                          obtain better continuity?

3470 ENCROACHMENT STATIONS=        .0      989.0  TYPE=      1  TARGET=     1149.999
  9110.00     10.56    597.06      0.00      0.00    597.14       .07       .00       .02    586.70
    1345.      527.      539.      279.      552.      170.      257.       18.        5.    586.50
      .17       .95      3.18      1.08      .060      .045      .060      .039    586.50    599.24
  .000409        3.        3.        3.         2         0         0      0.00    389.76    989.00

*SECNO 9155.000
   SECNO     DEPTH     CWSEL     CRIWS     WSELK       EG        HV        HL      OLOSS   BANK ELEV
     Q        QLOB      QCH      QROB      ALOB       ACH      AROB       VOL       TWA   LEFT/RIGHT
   TIME       VLOB      VCH      VROB       XNL      XNCH       XNR       WTN     ELMIN      SSTA
   SLOPE     XLOBL     XLCH     XLOBR     ITRIAL      IDC     ICONT     CORAR    TOPWID     ENDST

3470 ENCROACHMENT STATIONS=     100.0      602.0  TYPE=      1  TARGET=     -100.000

          VALLEY SECTION NO.1    (AE8W)                      SECT. F

  9155.00     11.47    597.15      0.00      0.00    597.16       .01       .01       .02    592.08
    1345.      702.      560.       83.     1033.      431.      209.       19.        5.    593.68
      .18       .68      1.30       .40      .060      .045      .060      .039    585.68    100.00
  .000104       45.       45.       45.         2         0         0      0.00    423.29    523.29
```

*SECNO 9550.000

VALLEY SECTION NO.4 (AE&W) SECT. G

9550.00	10.80	597.18	0.00	0.00	597.31	.13	.09	.06	594.58
1345.	395.	825.	125.	302.	235.	110.	30.	8.	594.58
.22	1.31	3.52	1.13	.060	.045	.060	.041	586.38	87.09
.001026	395.	395.	395.	2	0	0	0.00	261.86	348.95

*SECNO 9609.000

9609.00	10.65	597.33	0.00	0.00	597.39	.06	.06	.02	593.58
1345.	797.	377.	170.	504.	137.	138.	31.	9.	593.58
.23	1.58	2.75	1.23	.060	.045	.060	.041	586.68	92.59
.000895	59.	59.	59.	2	0	0	0.00	262.30	354.89

*SECNO 9610.000

3370 NORMAL BRIDGE,NRD= 19 MIN ELTRD= 593.58 MAX ELLC= 592.68

9610.00	10.66	597.34	0.00	0.00	597.39	.05	.00	.00	593.58
1345.	945.	197.	202.	505.	111.	139.	31.	9.	593.58
.23	1.87	1.78	1.46	.050	.038	.050	.041	586.68	92.55
.000868	1.	1.	1.	1	0	0	-26.60	262.49	355.05

*SECNO 9625.000

3370 NORMAL BRIDGE,NRD= 19 MIN ELTRD= 593.58 MAX ELLC= 592.68

BRIDGE SECTION NO.5 PRIVATE BRIDGE (AE&W) SECT. H

9625.00	10.68	597.36	0.00	0.00	597.41	.05	.01	.00	593.58
1345.	946.	196.	203.	508.	111.	140.	31.	9.	593.58
.23	1.86	1.77	1.45	.050	.038	.050	.041	586.68	92.44
.000852	15.	15.	15.	0	0	0	-26.60	263.09	355.53

*SECNO 9626.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
9626.00	10.67	597.35	0.00	0.00	597.41	.06	.00	.00	593.58
1345.	802.	371.	172.	508.	137.	140.	31.	9.	593.58
.23	1.58	2.70	1.23	.050	.038	.050	.041	586.68	92.43
.000611	1.	1.	1.	0	0	0	0.00	263.14	355.56

*SECNO 9700.000

VALLEY SECTION NO.6 (AE&W) SECT. I

9700.00	10.82	597.40	0.00	0.00	597.45	.06	.04	.00	594.28
1345.	627.	371.	347.	467.	139.	187.	32.	9.	594.28
.24	1.34	2.66	1.85	.060	.046	.035	.041	586.58	92.15
.000723	50.	74.	100.	1	0	0	0.00	294.18	386.34

*SECNO 9965.000

VALLEY SECTION NO.8 (AE&W) SECT. J

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   9965.00     10.16    597.54     0.00      0.00    597.56       .02       .10       .01    595.38
   1345.       404.     224.      717.      568.     154.      555.       39.       12.     595.38
    .31         .71     1.45      1.29      .060      .046      .035      .041    587.38     58.62
 .000227       265.     265.      265.         2         0         0      0.00    463.91    522.53

  1490 NH CARD USED
 *SECNO 10245.000

                   VALLEY SECTION NO.9    (AE&W)                          SECT. K

  10245.00     10.61    597.59     0.00      0.00    597.69       .11       .09       .04    594.88
   1345.       410.     805.      130.      366.     245.      153.       45.       15.     595.98
    .34        1.12     3.23       .85      .043      .033      .035      .042    586.98    400.37
 .000474       320.     280.      220.         2         0         0      0.00    523.85    924.22

  1490 NH CARD USED
 *SECNO 10445.000

 3470 ENCROACHMENT STATIONS=      260.0      660.0   TYPE=      1  TARGET=     -260.000

                   VALLEY SECTION NO.11   (AE&W)                          SECT. L

  10445.00     10.15    597.73     0.00      0.00    597.75       .02       .03       .03    589.48
   1345.       654.     250.      441.      923.     157.      441.       50.       17.     589.38
    .40         .71     1.60      1.00      .043      .033      .035      .042    587.58    260.00
 .000066       200.     200.      200.         2         0         0      0.00    392.93    652.93

 *SECNO 10845.000
 3280 CROSS SECTION  10845.00 EXTENDED        .36 FEET

    SECNO     DEPTH     CWSEL     CRIWS     WSELK      EG        HV        HL      OLOSS   BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN      ELMIN      SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR    TOPWID     ENDST

  10845.00     10.06    597.76     0.00      0.00    597.81       .06       .04       .02    591.00
   1345.       573.     343.      429.      348.     133.      262.       61.       19.     590.90
    .45        1.65     2.57      1.64      .035      .033      .035      .041    587.70      0.00
 .000234       400.     400.      400.         2         0         0      0.00    174.42    174.42

 *SECNO 10945.000
 3280 CROSS SECTION  10945.00 EXTENDED        .14 FEET
                                          u/s of Lewis Drain confluence

                   VALLEY SECTION NO.12   (AE&W)                          SECT. M

  10945.00      9.84    597.82     0.00      0.00    597.84       .02       .02       .01    591.28
    765.       320.     202.      243.      328.     130.      247.       63.       20.     591.18
    .48         .98     1.55       .98      .035      .033      .035      .041    587.98      0.00
 .000088       100.     100.      100.         2         0         0      0.00    172.45    172.45

 *SECNO 11445.000

                   VALLEY SECTION NO.13   (AE&W)                          SECT. N

  11445.00      8.68    597.86     0.00      0.00    597.89       .03       .05       .00    592.08
    765.       306.     261.      198.      301.     151.      197.       70.       22.     592.08
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.59	1.02	1.73	1.00	.035	.033	.035	.040	589.18	.21
.000104	500.	500.	500.	2	0	0	0.00	169.95	170.16

*SECNO 11945.000

VALLEY SECTION NO.14 (AE&W) SECT. O

11945.00	8.64	597.92	0.00	0.00	597.95	.03	.06	.00	592.28
765.	289.	276.	199.	257.	143.	181.	77.	24.	592.28
.69	1.12	1.93	1.10	.035	.033	.035	.039	589.28	11.80
.000133	500.	500.	500.	0	0	0	0.00	155.38	167.18

*SECNO 12445.000

VALLEY SECTION NO.15 (AE&W) SECT. P

12445.00	8.21	597.99	0.00	0.00	598.02	.03	.06	.00	592.58
765.	255.	250.	261.	247.	140.	253.	84.	26.	592.58
.80	1.03	1.78	1.03	.035	.033	.035	.038	589.78	11.27
.000118	500.	500.	500.	1	0	0	0.00	180.96	192.23

*SECNO 12545.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

VALLEY SECTION NO.16 (AE&W) SECT. Q

12545.00	8.32	598.00	0.00	0.00	598.03	.03	.01	.00	592.48
765.	306.	198.	261.	265.	107.	235.	86.	26.	592.48
.82	1.15	1.86	1.12	.035	.033	.035	.038	589.68	12.52
.000142	100.	100.	100.	0	0	0	0.00	173.20	185.73

*SECNO 12645.000

VALLEY SECTION 1+00 (AE&W) SECT. R

12645.00	8.56	598.02	0.00	0.00	598.04	.03	.01	.00	593.46
765.	157.	451.	157.	180.	295.	180.	87.	26.	593.46
.84	.87	1.53	.87	.035	.033	.035	.038	589.46	16.13
.000088	100.	100.	100.	0	0	0	0.00	167.74	183.87

*SECNO 13453.000

VALLEY SECTION 9+08 (AE&W) SECT. S

13453.00	7.86	598.12	0.00	0.00	598.16	.04	.11	.01	594.26
765.	128.	507.	130.	136.	266.	138.	98.	29.	594.26
.98	.94	1.91	.94	.050	.042	.050	.039	590.26	24.45
.000256	808.	808.	808.	1	0	0	0.00	152.95	177.40

*SECNO 13653.000

VALLEY SECTION 11+08 (AE&W) SECT. T

13653.00	7.71	598.17	0.00	0.00	598.24	.07	.06	.01	594.46
765.	37.	597.	131.	42.	260.	110.	101.	30.	594.46

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     1.01       .87     2.30      1.20      .050      .042      .050      .039    590.46     15.30
  .000385      200.     200.      200.         1         0         0      0.00    104.77    120.07

*SECNO 13753.000

                    VALLEY SECTION 12+08    (AE&W)                           SECT. U

 13753.00      7.65   598.21      0.00      0.00    598.28       .07       .04       .00    594.56
     765.       36.     591.      138.       41.      257.      121.      101.       30.    594.56
     1.02       .87     2.30      1.13      .050      .042      .050      .039    590.56     15.31
  .000390      100.     100.      100.         0         0         0      0.00    115.30    130.61

*SECNO 14128.000
    SECNO     DEPTH    CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS  BANK ELEV
        Q      QLOB      QCH      QROB      ALOB       ACH      AROB       VOL       TWA LEFT/RIGHT
     TIME      VLOB      VCH      VROB       XNL      XNCH       XNR       WTN     ELMIN      SSTA
    SLOPE     XLOBL     XLCH     XLOBR    ITRIAL       IDC     ICONT     CORAR    TOPWID     ENDST

                    VALLEY SECTION 15+83    (AE&W)                           SECT. V

 14128.00      7.41   598.37      0.00      0.00    598.45       .08       .16       .01    594.96
     765.       20.     611.      134.       22.      247.      113.      105.       31.    594.96
     1.07       .90     2.48      1.18      .050      .042      .050      .039    590.96     24.97
  .000478      375.     375.      375.         0         0         0      0.00    106.76    131.73

*SECNO 14328.000

                    VALLEY SECTION 17+83    (AE&W)                           SECT. W

 14328.00      7.32   598.48      0.00      0.00    598.54       .06       .08       .01    595.16
     765.      118.     530.      118.      117.      244.      117.      107.       32.    595.16
     1.10      1.01     2.18      1.01      .050      .042      .050      .039    591.16     21.25
  .000374      200.     200.      200.         2         0         0      0.00    157.49    178.75

*SECNO 14801.000

3470 ENCROACHMENT STATIONS=       38.0       163.0   TYPE=      1   TARGET=      125.000

                    VALLEY SECTION 22+56    (AE&W)                           SECT. X

 14801.00      7.02   598.68      0.00      0.00    598.74       .07       .20       .01    595.66
     765.      107.     551.      107.       94.      231.       95.      112.       33.    595.66
     1.17      1.14     2.39      1.13      .050      .042      .050      .039    591.66     38.00
  .000483      473.     473.      473.         0         0         0      0.00    125.00    163.00

*SECNO 14886.000

3470 ENCROACHMENT STATIONS=       41.0       130.0   TYPE=      1   TARGET=      -41.000

                    VALLEY SECTION 23+41    (AE&W)                           SECT. Y

 14886.00      6.94   598.70      0.00      0.00    598.81       .11       .05       .02    595.76
     765.        9.     646.      110.        9.      228.       81.      112.       34.    595.76
     1.17      1.02     2.83      1.36      .050      .042      .050      .039    591.76     41.00
  .000693       85.      85.       85.         0         0         0      0.00     82.81    123.81

*SECNO 14981.000
 14981.00      6.85   598.71      0.00      0.00    599.03       .33       .11       .11    604.36
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      765.         0.       765.         0.        0.       167.         0.       113.        34.      604.36
      1.18       0.00       4.59       0.00      .050       .042       .050       .039     591.86      83.00
   .002428        95.        95.        95.         2          0          0       0.00      34.00     117.00

 *SECNO 14982.000
     SECNO      DEPTH      CWSEL      CRIWS      WSELK         EG         HV         HL      OLOSS  BANK ELEV
         Q       QLOB        QCH       QROB       ALOB        ACH       AROB        VOL        TWA LEFT/RIGHT
      TIME       VLOB        VCH       VROB        XNL       XNCH        XNR        WTN      ELMIN       SSTA
     SLOPE      XLOBL       XLCH      XLOBR     ITRIAL        IDC      ICONT      CORAR     TOPWID      ENDST

 3370 NORMAL BRIDGE,NRD=  4 MIN ELTRD=  604.36 MAX ELLC=  600.76

  14982.00       6.85     598.71       0.00       0.00     599.03        .33        .00        .00     604.36
      765.         0.       765.         0.         0.       167.         0.       113.        34.     604.36
      1.18       0.00       4.58       0.00       .040       .021       .040       .039     591.86      83.00
   .000606         1.         1.         1.          0          0          0       0.00      34.00     117.00

 *SECNO 15054.000

 3370 NORMAL BRIDGE,NRD=  4 MIN ELTRD=  604.36 MAX ELLC=  600.76

                BRIDGE SECTION 24+56 21 MILE ROAD   (AE&W)           SECT. Z

  15054.00       6.90     598.76       0.00       0.00     599.08        .32        .04        .00     604.36
      765.         0.       765.         0.         0.       169.         0.       113.        34.     604.36
      1.18       0.00       4.54       0.00       .040       .021       .040       .039     591.86      83.00
   .000588        72.        72.        72.          2          0          0       0.00      34.00     117.00

 *SECNO 15055.000
  15055.00       6.90     598.76       0.00       0.00     599.08        .32        .00        .00     604.36
      765.         0.       765.         0.         0.       169.         0.       113.        34.     604.36
      1.18       0.00       4.54       0.00       .035       .033       .035       .039     591.86      83.00
   .001451         1.         1.         1.          0          0          0       0.00      34.00     117.00

 *SECNO 15097.000

                VALLEY SECTION 25+33   (AE&W)                        SECT. AA

  15097.00       7.19     599.05       0.00       0.00     599.18        .13        .04        .06     600.66
      755.         0.       755.         0.         0.       262.         0.       114.        34.     600.16
      1.19       0.00       2.88       0.00       .040       .037       .040       .039     591.86     195.75
   .000724        42.        42.        42.          2          0          0       0.00      57.91     253.66

 *SECNO 15228.000

                VALLEY SECTION 26+83   (AE&W)                        SECT. AB

  15228.00       7.19     599.15       0.00       0.00     599.28        .13        .09        .00     600.66
      755.         0.       755.         0.         0.       262.         0.       114.        34.     600.36
      1.20       0.00       2.88       0.00       .040       .037       .040       .039     591.96     271.53
   .000727       131.       131.       131.          2          0          0       0.00      57.86     329.39

 *SECNO 15303.000
     SECNO      DEPTH      CWSEL      CRIWS      WSELK         EG         HV         HL      OLOSS  BANK ELEV
         Q       QLOB        QCH       QROB       ALOB        ACH       AROB        VOL        TWA LEFT/RIGHT
      TIME       VLOB        VCH       VROB        XNL       XNCH        XNR        WTN      ELMIN       SSTA
     SLOPE      XLOBL       XLCH      XLOBR     ITRIAL        IDC      ICONT      CORAR     TOPWID      ENDST
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15303.00	7.13	599.19	0.00	0.00	599.39	.20	.08	.04	650.90
755.	0.	755.	0.	0.	208.	208.	115.	34.	650.90
1.21	0.00	3.63	0.00	.040	.037	.040	.039	592.06	271.47
.001629	75.	75.	75.	1	0	0	0.00	57.98	329.45

*SECNO 15325.000

15325.00	6.42	599.18	0.00	0.00	599.49	.31	.05	.05	601.36
755.	0.	755.	0.	0.	169.	169.	115.	34.	601.36
1.21	0.00	4.46	0.00	.040	.037	.040	.039	592.76	276.49
.002738	22.	22.	22.	2	0	0	0.00	50.79	327.28

*SECNO 15328.000

15328.00	4.00	599.06	0.00	0.00	599.63	.58	.01	.13	600.66
755.	0.	755.	0.	0.	124.	0.	115.	34.	600.36
1.21	0.00	6.09	0.00	.050	.030	.050	.039	595.06	272.41
.005751	3.	3.	3.	2	0	0	0.00	56.63	329.04

*SECNO 15329.000

DAM SECTION 27+83 (AE&W) SECT. AC

15329.00	4.01	599.07	0.00	0.00	599.64	.57	.01	.00	600.66
755.	0.	755.	0.	0.	124.	0.	115.	34.	600.36
1.21	0.00	6.08	0.00	.050	.030	.050	.039	595.06	272.39
.005730	1.	1.	1.	0	0	0	0.00	56.66	329.05

*SECNO 15332.000

15332.00	6.73	599.49	0.00	0.00	599.74	.26	.01	.10	650.90
755.	0.	755.	0.	0.	186.	186.	115.	34.	650.90
1.21	0.00	4.06	0.00	.050	.030	.050	.039	592.76	274.27
.001426	3.	3.	3.	2	0	0	0.00	53.97	328.24

*SECNO 15354.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
15354.00	7.58	599.64	0.00	0.00	599.80	.16	.03	.03	600.66
755.	0.	755.	0.	0.	235.	235.	115.	34.	600.66
1.21	0.00	3.22	0.00	.040	.037	.040	.039	592.06	269.92
.001163	22.	22.	22.	2	0	0	0.00	60.89	330.81

*SECNO 15778.000

15778.00	8.07	600.03	0.00	0.00	600.12	.10	.31	.02	600.66
755.	0.	755.	0.	0.	302.	0.	119.	35.	600.66
1.26	0.00	2.50	0.00	.040	.037	.040	.039	591.96	268.88
.000489	424.	424.	424.	2	0	0	0.00	61.30	330.18

*SECNO 15946.000

3280 CROSS SECTION 15946.00 EXTENDED .04 FEET

15946.00	7.74	600.10	0.00	0.00	600.25	.15	.10	.03	600.06
755.	17.	738.	0.	50.	236.	0.	120.	35.	600.36
1.27	.33	3.13	0.00	.040	.037	.040	.039	592.36	0.00

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 .000750      168.      168.      168.         2         0         0      0.00    326.43    326.43

*SECNO 15947.000
3280 CROSS SECTION  15947.00 EXTENDED        .07 FEET

  15947.00      7.77    600.13      0.00      0.00    600.26       .13       .00       .01    600.06
      755.       49.      706.        0.       57.      237.        0.      120.       35.    600.36
      1.27       .85      2.98      0.00      .035      .080      .035      .039    592.36      0.00
   .003161        1.        1.        1.         2         0         0      0.00    326.49    326.49

SPECIAL BRIDGE

SB  XK          XKOR       COFQ      RDLEN       BWC       BWP      BAREA       SS        ELCHU     ELCHD
     0.00       1.55       2.98       0.00      25.84      0.00     160.20      0.00     592.36    592.36

*SECNO 15957.000
3280 CROSS SECTION  15957.00 EXTENDED        .21 FEET

PRESSURE AND WEIR FLOW

  EGPRS      EGLWC        H3      QWEIR       QPR      BAREA   TRAPEZOID     ELLC      ELTRD
                                                                 AREA
   600.66     600.26      0.00      252.      507.      160.      160.     598.56     599.86

                BRIDGE SECTION 34+02 PRIVATE BRIDGE (AE&W)        SECT. AD

  15957.00      7.91    600.27      0.00      0.00    600.37       .10       .11      0.00    600.06
      755.      103.      652.        0.       98.      244.        0.      120.       36.    600.36
      1.27      1.06      2.68      0.00      .035      .080      .035      .039    592.36      0.00
   .002484       10.       10.       10.         2         0         3      0.00    326.80    326.80
                                                   high? to force
                                                   flow into D.B.?
*SECNO 15958.000
3280 CROSS SECTION  15958.00 EXTENDED        .20 FEET

    SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS  BANK ELEV
    Q         QLOB      QCH       QROB      ALOB       ACH       AROB      VOL       TWA   LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL        XNCH      XNR       WTN      ELMIN      SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL     IDC       ICONT     CORAR    TOPWID     ENDST
                                                                                                      Dup
  15958.00      7.90    600.26      0.00      0.00    600.39       .13       .00       .02    600.06
      755.       32.      723.        0.       96.      243.        0.      120.       36.    600.36
      1.27       .33      2.97      0.00      .058      .038      .060      .039    592.36      0.00
   .000692        1.        1.        1.         1         0         0      0.00    326.79    326.79

*SECNO 16752.000

3470 ENCROACHMENT STATIONS=          .0      225.0  TYPE=      1  TARGET=     224.999

                VALLEY SECTION 42+07    (AE&W)                    SECT. AE

  16752.00      7.99    600.75      0.00      0.00    600.83       .08       .43       .01 99999.76
      755.        0.      754.        1.        0.      326.       14.      126.       41.    600.66
      1.37      0.00      2.31       .10      .058      .038      .060      .039    592.76       .67
   .000438      794.      794.      794.         2         0         0      0.00    224.33    225.00
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*SECNO 17401.000

VALLEY SECTION 48+56 (AE&W) SECT. AF

17401.00	7.98	601.04	0.00	0.00	601.12	.09	.29	.00	601.26
755.	0.	755.	0.	0.	322.	0.	131.	43.	601.86
1.45	0.00	2.34	0.00	.058	.038	.060	.039	593.06	.76
.000453	649.	649.	649.	2	0	0	0.00	65.81	66.57

*SECNO 17811.000

VALLEY SECTION 52+66 (AE&W) SECT. AG

17811.00	7.96	601.22	0.00	0.00	601.31	.08	.18	.00	601.56
755.	0.	755.	0.	0.	327.	0.	134.	43.	604.46
1.50	0.00	2.31	0.00	.058	.038	.060	.039	593.26	1.23
.000442	410.	410.	410.	0	0	0	0.00	67.23	68.46

*SECNO 17911.000

VALLEY SECTION 53+66 (AE&W) SECT. AH

17911.00	5.49	601.15	0.00	0.00	601.58	.43	.10	.17	603.16
755.	0.	755.	0.	0.	144.	0.	135.	43.	604.46
1.50	0.00	5.25	0.00	.060	.044	.060	.039	595.66	287.55
.004496	100.	100.	100.	2	0	0	0.00	38.32	325.86

*SECNO 18011.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

VALLEY SECTION 54+66 (AE&W) SECT. AI

18011.00	6.05	601.71	0.00	0.00	601.96	.26	.33	.05	602.16
755.	0.	755.	0.	0.	186.	0.	135.	44.	602.16
1.51	0.00	4.06	0.00	.060	.044	.060	.039	595.66	234.19
.002484	100.	100.	100.	2	0	0	0.00	47.49	331.68

*SECNO 18311.000

3265 DIVIDED FLOW

3280 CROSS SECTION 18311.00 EXTENDED .44 FEET

VALLEY SECTION 57+66 (AE&W) SECT. AJ

18311.00	6.73	602.39	0.00	0.00	602.52	.13	.52	.04	603.06
755.	45.	642.	68.	95.	205.	118.	137.	46.	603.06
1.54	.47	3.14	.58	.060	.044	.060	.039	595.66	0.00
.001299	350.	300.	250.	2	0	0	0.00	528.86	600.00

*SECNO 19536.000

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3265 DIVIDED FLOW

3280 CROSS SECTION  19536.00 EXTENDED        .91 FEET

3470 ENCROACHMENT STATIONS=      174.0      869.0  TYPE=      1  TARGET=      695.000

                    VALLEY SECTION NO. 2 (J&A)                              SECT.AK

   19536.00     8.12   603.92     0.00     0.00   604.05      .14     1.53      .00   604.70
       755.      48.     627.      80.     101.     193.     110.     149.      59.   606.40
       1.66      .48     3.25      .72     .060     .044     .060     .039   595.80   174.00
    .001197    1050.    1225.    1350.        2        0        0     0.00   444.95   869.00

*SECNO 20836.000
3280 CROSS SECTION  20836.00 EXTENDED        .31 FEET

3470 ENCROACHMENT STATIONS=      494.0      539.0  TYPE=      1  TARGET=       45.000

                    VALLEY SECTION NO. 1 (J&A)                              SECT.AL

   20836.00     8.71   605.51     0.00     0.00   605.73      .22     1.63      .04   604.70
       755.       3.     749.       3.       5.     200.       4.     158.      66.   604.90
       1.76      .72     3.75      .62     .060     .044     .060     .040   596.80   494.00
    .001317    1300.    1300.    1300.        2        0        0     0.00    45.00   539.00
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**************************************************
 HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
 ERROR CORR -  01,02
 MODIFICATION -  50,51,52,53
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

GLOEDE DITCH

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
7786.000	0.00	0.00	0.00	585.00	850.00	593.89	0.00	594.28	101.89	5.01	169.62	84.21
7786.000	0.00	0.00	0.00	585.00	1250.00	594.60	0.00	595.24	152.73	6.44	194.03	101.15
7786.000	0.00	0.00	0.00	585.00	1370.00	594.74	0.00	595.48	171.23	6.88	199.01	104.69
7786.000	0.00	0.00	0.00	585.00	1935.00	595.32	0.00	596.52	259.39	8.79	220.24	120.14
7787.000	1.00	600.90	598.80	585.00	850.00	593.84	0.00	594.34	18.21	5.71	148.92	199.18
7787.000	1.00	600.90	598.80	585.00	1250.00	594.51	0.00	595.35	28.15	7.36	169.94	235.61
7787.000	1.00	600.90	598.80	585.00	1370.00	594.63	0.00	595.60	31.84	7.87	174.00	242.79
7787.000	1.00	600.90	598.80	585.00	1935.00	595.13	0.00	596.73	50.40	10.16	190.52	272.56
7860.000	73.00	600.90	598.80	585.00	850.00	594.01	0.00	594.48	16.66	5.51	154.23	208.25
7860.000	73.00	600.90	598.80	585.00	1250.00	594.82	0.00	595.57	24.21	6.93	180.30	254.05
7860.000	73.00	600.90	598.80	585.00	1370.00	595.01	0.00	595.85	26.63	7.34	186.64	265.49
7860.000	73.00	600.90	598.80	585.00	1935.00	595.94	0.00	597.15	35.17	8.82	219.33	326.26
7861.000	1.00	0.00	0.00	585.00	850.00	594.17	0.00	594.52	21.99	4.75	179.00	181.25
7861.000	1.00	0.00	0.00	585.00	1250.00	595.09	0.00	595.63	30.09	5.90	211.79	227.87
7861.000	1.00	0.00	0.00	585.00	1370.00	595.32	0.00	595.92	32.46	6.22	220.35	240.45
7861.000	1.00	0.00	0.00	585.00	1935.00	596.43	0.00	597.27	39.65	7.35	263.42	307.28
8050.000	190.00	0.00	0.00	585.60	835.00	594.68	0.00	594.76	4.51	2.50	399.87	393.13
8050.000	190.00	0.00	0.00	585.60	1230.00	595.84	0.00	595.95	4.67	2.86	525.72	569.30
8050.000	190.00	0.00	0.00	585.60	1345.00	596.15	0.00	596.26	4.70	2.95	559.26	620.56
8050.000	190.00	0.00	0.00	585.60	1905.00	597.55	0.00	597.69	4.66	3.29	716.93	882.29
8198.000	148.00	0.00	0.00	585.60	835.00	594.72	0.00	594.88	7.19	3.20	261.11	311.44
8198.000	148.00	0.00	0.00	585.60	1230.00	595.87	0.00	596.13	10.49	4.10	299.94	379.76
8198.000	148.00	0.00	0.00	585.60	1345.00	596.16	0.00	596.45	11.42	4.34	310.01	397.94
8198.000	148.00	0.00	0.00	585.60	1905.00	597.53	0.00	597.93	14.43	5.16	439.20	501.47
8199.000	1.00	596.60	596.60	585.60	835.00	594.72	0.00	594.88	1.80	3.20	261.13	622.94
8199.000	1.00	596.60	596.60	585.60	1230.00	595.87	0.00	596.13	2.62	4.10	299.97	759.60
8199.000	1.00	596.60	596.60	585.60	1345.00	596.16	0.00	596.45	2.86	4.34	310.03	795.97
8199.000	1.00	596.60	596.60	585.60	1905.00	597.49	0.00	597.97	9.67	5.65	402.08	612.63
8215.000	16.00	596.60	596.60	585.60	835.00	594.73	0.00	594.89	1.79	3.19	261.37	623.75
8215.000	16.00	596.60	596.60	585.60	1230.00	595.87	0.00	596.13	2.61	4.10	300.31	760.85
8215.000	16.00	596.60	596.60	585.60	1345.00	596.17	0.00	596.46	2.85	4.33	310.41	797.35
8215.000	16.00	596.60	596.60	585.60	1905.00	597.51	0.00	597.99	9.64	5.64	404.80	613.68

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
8216.000	1.00	0.00	0.00	585.60	835.00	594.73	0.00	594.89	7.18	3.20	261.24	311.66
8216.000	1.00	0.00	0.00	585.60	1230.00	595.87	0.00	596.13	10.47	4.10	300.14	380.11
8216.000	1.00	0.00	0.00	585.60	1345.00	596.17	0.00	596.46	11.40	4.34	310.22	398.33
8216.000	1.00	0.00	0.00	585.60	1905.00	597.64	0.00	598.02	13.77	5.06	457.97	513.41
8885.000	669.00	0.00	0.00	586.50	835.00	595.23	0.00	595.31	5.08	2.46	487.51	370.43
8885.000	669.00	0.00	0.00	586.50	1230.00	596.53	0.00	596.60	4.02	2.44	756.95	613.28
8885.000	669.00	0.00	0.00	586.50	1345.00	596.87	0.00	596.94	3.78	2.44	833.83	691.79
8885.000	669.00	0.00	0.00	586.50	1905.00	598.41	0.00	598.47	2.84	2.41	1242.38	1130.04
9086.000	201.00	0.00	0.00	586.50	835.00	595.32	0.00	595.47	6.23	3.72	395.18	334.58
9086.000	201.00	0.00	0.00	586.50	1230.00	596.62	0.00	596.72	4.74	3.56	808.50	565.14
9086.000	201.00	0.00	0.00	586.50	1345.00	596.95	0.00	597.04	4.26	3.45	934.98	651.71
9086.000	201.00	0.00	0.00	586.50	1905.00	598.49	0.00	598.54	2.57	2.94	1577.92	1187.46
9091.000	5.00	0.00	0.00	586.50	835.00	595.42	0.00	595.49	6.10	1.95	416.42	338.19
9091.000	5.00	0.00	0.00	586.50	1230.00	596.70	0.00	596.74	3.21	1.55	841.81	686.33
9091.000	5.00	0.00	0.00	586.50	1345.00	597.03	0.00	597.06	2.71	1.45	964.72	816.28
9091.000	5.00	0.00	0.00	586.50	1905.00	598.53	0.00	598.55	1.35	1.12	1594.70	1639.10
9107.000	16.00	594.50	594.40	586.50	835.00	595.65	0.00	595.70	4.95	1.78	472.83	375.40
9107.000	16.00	594.50	594.40	586.50	1230.00	596.76	0.00	596.80	3.01	1.50	863.93	708.86
9107.000	16.00	594.50	594.40	586.50	1345.00	597.08	0.00	597.11	2.55	1.41	987.16	841.78
9107.000	16.00	594.50	594.40	586.50	1905.00	598.59	0.00	598.61	1.28	1.10	1623.71	1681.58
9110.000	3.00	0.00	0.00	586.50	835.00	595.62	0.00	595.73	5.51	3.34	465.32	355.76
9110.000	3.00	0.00	0.00	586.50	1230.00	596.74	0.00	596.82	4.53	3.27	854.97	578.09
9110.000	3.00	0.00	0.00	586.50	1345.00	597.06	0.00	597.14	4.09	3.18	979.12	664.85
9110.000	3.00	0.00	0.00	586.50	1905.00	598.58	0.00	598.62	2.50	2.72	1621.54	1204.05
9155.000	45.00	0.00	0.00	585.68	835.00	595.75	0.00	595.77	1.13	1.19	1119.48	783.77
9155.000	45.00	0.00	0.00	585.68	1230.00	596.84	0.00	596.85	1.07	1.29	1544.01	1187.08
9155.000	45.00	0.00	0.00	585.68	1345.00	597.15	0.00	597.16	1.04	1.30	1674.21	1321.39
9155.000	45.00	0.00	0.00	535.68	1905.00	598.62	0.00	598.64	.85	1.32	2333.75	2066.01
9550.000	395.00	0.00	0.00	586.38	835.00	595.78	0.00	595.96	15.53	3.70	330.29	211.86
9550.000	395.00	0.00	0.00	586.38	1230.00	596.87	0.00	597.01	11.60	3.62	566.86	361.10
9550.000	395.00	0.00	0.00	586.38	1345.00	597.18	0.00	597.31	10.26	3.52	647.27	419.91
9550.000	395.00	0.00	0.00	586.38	1905.00	598.66	0.00	598.74	6.03	3.08	1068.85	775.75
9609.000	59.00	0.00	0.00	586.68	835.00	595.99	0.00	596.08	14.23	3.15	456.77	221.33
9609.000	59.00	0.00	0.00	586.68	1230.00	597.04	0.00	597.10	9.86	2.83	703.95	391.67
9609.000	59.00	0.00	0.00	586.68	1345.00	597.33	0.00	597.39	8.95	2.75	779.24	449.63
9609.000	59.00	0.00	0.00	586.68	1905.00	598.74	0.00	598.79	5.74	2.41	1180.53	794.92
9610.000	1.00	593.58	592.68	586.68	835.00	596.03	0.00	596.09	17.19	2.22	437.77	201.39
9610.000	1.00	593.58	592.68	586.68	1230.00	597.05	0.00	597.11	9.92	1.86	679.27	390.47
9610.000	1.00	593.58	592.68	586.68	1345.00	597.34	0.00	597.39	8.68	1.78	754.26	456.45
9610.000	1.00	593.58	592.68	586.68	1905.00	598.74	0.00	598.79	4.99	1.51	1154.11	852.54
9625.000	15.00	593.58	592.68	586.68	835.00	596.05	0.00	596.11	16.59	2.19	442.98	205.03
9625.000	15.00	593.58	592.68	586.68	1230.00	597.07	0.00	597.12	9.68	1.84	684.85	395.28
9625.000	15.00	593.58	592.68	586.68	1345.00	597.36	0.00	597.41	8.52	1.77	759.21	460.92
9625.000	15.00	593.58	592.68	586.68	1905.00	598.75	0.00	598.80	4.95	1.50	1157.65	856.34

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
9626.000	1.00	0.00	0.00	586.68	835.00	596.05	0.00	596.12	9.32	3.03	469.57	273.56
9626.000	1.00	0.00	0.00	586.68	1230.00	597.07	0.00	597.13	6.70	2.77	711.94	475.34
9626.000	1.00	0.00	0.00	586.68	1345.00	597.35	0.00	597.41	6.11	2.70	786.18	544.11
9626.000	1.00	0.00	0.00	586.68	1905.00	598.75	0.00	598.80	3.97	2.38	1184.33	955.63
9700.000	74.00	0.00	0.00	586.58	835.00	596.11	0.00	596.21	14.69	3.31	439.27	217.90
9700.000	74.00	0.00	0.00	586.58	1230.00	597.11	0.00	597.18	8.30	2.77	711.62	427.04
9700.000	74.00	0.00	0.00	586.58	1345.00	597.40	0.00	597.45	7.23	2.66	793.60	500.38
9700.000	74.00	0.00	0.00	586.58	1905.00	598.78	0.00	598.83	4.00	2.23	1228.80	952.56
9965.000	265.00	0.00	0.00	587.38	835.00	596.38	0.00	596.40	3.59	1.59	778.46	440.55
9965.000	265.00	0.00	0.00	587.38	1230.00	597.28	0.00	597.30	2.53	1.49	1156.56	772.72
9965.000	265.00	0.00	0.00	587.38	1345.00	597.54	0.00	597.56	2.27	1.45	1277.02	893.20
9965.000	265.00	0.00	0.00	587.38	1905.00	598.87	0.00	598.89	1.35	1.28	1966.97	1642.15
10245.000	280.00	0.00	0.00	586.98	835.00	596.44	0.00	596.59	6.16	3.32	358.49	336.50
10245.000	280.00	0.00	0.00	586.98	1230.00	597.32	0.00	597.45	5.37	3.40	635.12	530.78
10245.000	280.00	0.00	0.00	586.98	1345.00	597.59	0.00	597.69	4.74	3.28	764.55	617.55
10245.000	280.00	0.00	0.00	586.98	1905.00	598.90	0.00	598.95	2.29	2.56	1666.09	1257.98
10445.000	200.00	0.00	0.00	587.58	835.00	596.64	0.00	596.65	.53	1.32	1096.35	1150.63
10445.000	200.00	0.00	0.00	587.58	1230.00	597.49	0.00	597.51	.64	1.55	1426.69	1535.50
10445.000	200.00	0.00	0.00	587.58	1345.00	597.73	0.00	597.75	.66	1.60	1520.60	1661.06
10445.000	200.00	0.00	0.00	587.58	1905.00	598.96	0.00	598.98	.64	1.70	2010.35	2383.90
10845.000	400.00	0.00	0.00	587.70	835.00	596.66	0.00	596.70	1.90	2.13	560.56	604.99
10845.000	400.00	0.00	0.00	587.70	1230.00	597.52	0.00	597.57	2.30	2.51	701.30	810.90
10845.000	400.00	0.00	0.00	587.70	1345.00	597.76	0.00	597.81	2.34	2.57	742.78	879.67
10845.000	400.00	0.00	0.00	587.70	1905.00	598.98	0.00	599.05	2.21	2.73	963.25	1282.43
10945.000	100.00	0.00	0.00	587.98	475.00	596.71	0.00	596.72	.73	1.29	524.78	555.68
10945.000	100.00	0.00	0.00	587.98	700.00	597.58	0.00	597.60	.87	1.51	663.73	752.58
10945.000	100.00	0.00	0.00	587.98	765.00	597.82	0.00	597.84	.88	1.55	705.17	817.24
10945.000	100.00	0.00	0.00	587.98	1085.00	599.05	0.00	599.08	.81	1.63	924.82	1204.88
11445.000	500.00	0.00	0.00	589.18	475.00	596.74	0.00	596.76	.91	1.46	472.52	499.14
11445.000	500.00	0.00	0.00	589.18	700.00	597.62	0.00	597.65	1.03	1.69	608.32	689.61
11445.000	500.00	0.00	0.00	589.18	765.00	597.86	0.00	597.89	1.04	1.73	648.92	749.23
11445.000	500.00	0.00	0.00	589.18	1085.00	599.09	0.00	599.12	.94	1.81	864.99	1121.61
11945.000	500.00	0.00	0.00	589.28	475.00	596.79	0.00	596.82	1.17	1.64	419.53	438.91
11945.000	500.00	0.00	0.00	589.28	700.00	597.68	0.00	597.71	1.31	1.88	544.14	610.54
11945.000	500.00	0.00	0.00	589.28	765.00	597.92	0.00	597.95	1.33	1.93	581.33	664.21
11945.000	500.00	0.00	0.00	589.28	1085.00	599.14	0.00	599.18	1.21	2.03	787.17	985.27
12445.000	500.00	0.00	0.00	589.78	475.00	596.85	0.00	596.88	1.12	1.54	451.38	449.36
12445.000	500.00	0.00	0.00	589.78	700.00	597.75	0.00	597.77	1.19	1.74	596.88	642.44
12445.000	500.00	0.00	0.00	589.78	765.00	597.99	0.00	598.02	1.18	1.78	640.27	702.99
12445.000	500.00	0.00	0.00	589.78	1085.00	599.21	0.00	599.24	1.01	1.82	876.66	1077.64
12545.000	100.00	0.00	0.00	589.68	475.00	596.87	0.00	596.89	1.37	1.64	423.82	405.67
12545.000	100.00	0.00	0.00	589.68	700.00	597.76	0.00	597.79	1.43	1.82	563.09	584.97
12545.000	100.00	0.00	0.00	589.68	765.00	598.00	0.00	598.03	1.42	1.86	604.62	641.34
12545.000	100.00	0.00	0.00	589.68	1085.00	599.22	0.00	599.25	1.23	1.90	833.57	979.42

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
12645.000	100.00	0.00	0.00	589.46	475.00	596.88	0.00	596.90	.79	1.28	476.71	535.90
12645.000	100.00	0.00	0.00	589.46	700.00	597.77	0.00	597.80	.87	1.48	615.10	749.94
12645.000	100.00	0.00	0.00	589.46	765.00	598.02	0.00	598.04	.88	1.53	655.47	815.73
12645.000	100.00	0.00	0.00	589.46	1085.00	599.23	0.00	599.26	.83	1.65	872.93	1192.15
13453.000	808.00	0.00	0.00	590.26	475.00	596.98	0.00	597.01	2.49	1.65	376.22	300.89
13453.000	808.00	0.00	0.00	590.26	700.00	597.88	0.00	597.92	2.57	1.86	503.25	436.77
13453.000	808.00	0.00	0.00	590.26	765.00	598.12	0.00	598.16	2.56	1.91	540.01	478.48
13453.000	808.00	0.00	0.00	590.26	1085.00	599.33	0.00	599.37	2.29	2.03	737.06	717.07
13653.000	200.00	0.00	0.00	590.46	475.00	597.03	0.00	597.08	3.49	1.91	297.88	254.28
13653.000	200.00	0.00	0.00	590.46	700.00	597.93	0.00	597.99	3.81	2.23	386.04	358.46
13653.000	200.00	0.00	0.00	590.46	765.00	598.17	0.00	598.24	3.85	2.30	411.25	390.02
13653.000	200.00	0.00	0.00	590.46	1085.00	599.37	0.00	599.45	3.67	2.53	543.40	566.11
13753.000	100.00	0.00	0.00	590.56	475.00	597.06	0.00	597.11	3.63	1.94	297.06	249.14
13753.000	100.00	0.00	0.00	590.56	700.00	597.97	0.00	598.03	3.89	2.24	392.18	355.07
13753.000	100.00	0.00	0.00	590.56	765.00	598.21	0.00	598.28	3.90	2.30	419.80	387.45
13753.000	100.00	0.00	0.00	590.56	1085.00	599.41	0.00	599.48	3.60	2.49	568.18	571.71
14128.000	375.00	0.00	0.00	590.96	475.00	597.21	0.00	597.27	4.60	2.10	267.25	221.43
14128.000	375.00	0.00	0.00	590.96	700.00	598.12	0.00	598.20	4.77	2.41	356.43	320.39
14128.000	375.00	0.00	0.00	590.96	765.00	598.37	0.00	598.45	4.78	2.48	381.61	349.90
14128.000	375.00	0.00	0.00	590.96	1085.00	599.55	0.00	599.64	4.37	2.68	517.66	519.08
14328.000	200.00	0.00	0.00	591.16	475.00	597.31	0.00	597.36	4.21	1.98	308.16	231.41
14328.000	200.00	0.00	0.00	591.16	700.00	598.23	0.00	598.29	3.85	2.14	439.11	356.54
14328.000	200.00	0.00	0.00	591.16	765.00	598.48	0.00	598.54	3.74	2.18	477.22	395.33
14328.000	200.00	0.00	0.00	591.16	1085.00	599.67	0.00	599.72	3.09	2.24	680.72	616.93
14801.000	473.00	0.00	0.00	591.66	475.00	597.53	0.00	597.60	5.58	2.19	274.73	201.04
14801.000	473.00	0.00	0.00	591.66	700.00	598.43	0.00	598.50	4.98	2.35	388.64	313.56
14801.000	473.00	0.00	0.00	591.66	765.00	598.68	0.00	598.74	4.83	2.39	419.16	348.08
14801.000	473.00	0.00	0.00	591.66	1085.00	599.83	0.00	599.90	4.15	2.51	563.11	532.80
14886.000	85.00	0.00	0.00	591.76	475.00	597.58	0.00	597.66	6.82	2.40	226.35	181.85
14886.000	85.00	0.00	0.00	591.76	700.00	598.47	0.00	598.57	6.95	2.75	298.15	265.58
14886.000	85.00	0.00	0.00	591.76	765.00	598.70	0.00	598.81	6.93	2.83	317.84	290.59
14886.000	85.00	0.00	0.00	591.76	1085.00	599.84	0.00	599.97	6.53	3.12	414.67	424.53
14981.000	95.00	0.00	0.00	591.86	475.00	597.62	0.00	597.83	19.88	3.65	130.08	106.55
14981.000	95.00	0.00	0.00	591.86	700.00	598.48	0.00	598.78	23.45	4.40	159.05	144.54
14981.000	95.00	0.00	0.00	591.86	765.00	598.71	0.00	599.03	24.28	4.59	166.80	155.26
14981.000	95.00	0.00	0.00	591.86	1085.00	599.80	0.00	600.24	26.89	5.32	203.90	209.25
14982.000	1.00	604.36	600.76	591.86	475.00	597.62	0.00	597.83	5.00	3.66	129.82	212.43
14982.000	1.00	604.36	600.76	591.86	700.00	598.48	0.00	598.78	5.86	4.40	159.10	289.22
14982.000	1.00	604.36	600.76	591.86	765.00	598.71	0.00	599.03	6.06	4.58	166.86	310.66
14982.000	1.00	604.36	600.76	591.86	1085.00	599.80	0.00	600.24	6.72	5.32	203.95	418.67
15054.000	72.00	604.36	600.76	591.86	475.00	597.66	0.00	597.86	4.84	3.62	131.19	215.86
15054.000	72.00	604.36	600.76	591.86	700.00	598.53	0.00	598.82	5.68	4.35	160.78	293.83
15054.000	72.00	604.36	600.76	591.86	765.00	598.76	0.00	599.08	5.88	4.54	168.61	315.58
15054.000	72.00	604.36	600.76	591.86	1085.00	599.86	0.00	600.29	6.53	5.27	205.94	424.70

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
15055.000	1.00	0.00	0.00	591.86	475.00	597.66	0.00	597.86	11.95	3.62	131.20	137.39
15055.000	1.00	0.00	0.00	591.86	700.00	598.53	0.00	598.83	14.01	4.35	160.80	187.01
15055.000	1.00	0.00	0.00	591.86	765.00	598.76	0.00	599.08	14.51	4.54	168.63	200.85
15055.000	1.00	0.00	0.00	591.86	1085.00	599.86	0.00	600.29	16.11	5.27	205.96	270.30
15097.000	42.00	0.00	0.00	591.86	465.00	597.85	0.00	597.93	5.98	2.36	196.74	190.22
15097.000	42.00	0.00	0.00	591.86	690.00	598.80	0.00	598.92	7.05	2.79	247.67	259.86
15097.000	42.00	0.00	0.00	591.86	755.00	599.05	0.00	599.18	7.24	2.88	262.18	280.65
15097.000	42.00	0.00	0.00	591.86	1070.00	600.26	0.00	600.42	7.36	3.18	337.66	394.40
15228.000	131.00	0.00	0.00	591.96	465.00	597.93	0.00	598.01	6.07	2.38	195.57	188.70
15228.000	131.00	0.00	0.00	591.96	690.00	598.89	0.00	599.01	7.09	2.79	247.14	259.13
15228.000	131.00	0.00	0.00	591.96	755.00	599.15	0.00	599.28	7.27	2.88	261.77	280.09
15228.000	131.00	0.00	0.00	591.96	1070.00	600.36	0.00	600.51	7.43	3.18	336.18	392.54
15303.000	75.00	0.00	0.00	592.06	465.00	597.96	0.00	598.12	15.25	3.22	289.01	119.08
15303.000	75.00	0.00	0.00	592.06	690.00	598.93	0.00	599.13	16.35	3.56	387.13	170.62
15303.000	75.00	0.00	0.00	592.06	755.00	599.19	0.00	599.39	16.29	3.63	416.35	187.09
15303.000	75.00	0.00	0.00	592.06	1070.00	600.41	0.00	600.63	18.25	3.77	567.92	250.47
15325.000	22.00	0.00	0.00	592.76	465.00	597.95	0.00	598.20	23.67	4.01	231.67	95.58
15325.000	22.00	0.00	0.00	592.76	690.00	598.92	0.00	599.22	27.78	4.40	313.29	130.91
15325.000	22.00	0.00	0.00	592.76	755.00	599.18	0.00	599.49	27.38	4.46	338.75	144.28
15325.000	22.00	0.00	0.00	592.76	1070.00	600.41	0.00	600.72	22.25	4.48	477.63	226.85
* 15328.000	3.00	0.00	0.00	595.06	465.00	597.94	597.94	598.69	127.74	6.97	66.73	41.14
15328.000	3.00	0.00	0.00	595.06	690.00	598.77	0.00	599.40	70.76	6.38	108.18	82.03
15328.000	3.00	0.00	0.00	595.06	755.00	599.06	0.00	599.63	57.51	6.09	123.99	99.55
15328.000	3.00	0.00	0.00	595.05	1070.00	600.35	0.00	600.78	26.72	5.26	203.28	207.00
15329.000	1.00	0.00	0.00	595.06	465.00	598.30	0.00	598.78	67.81	5.58	83.37	56.47
15329.000	1.00	0.00	0.00	595.06	690.00	598.78	0.00	599.41	70.54	6.37	108.30	82.15
15329.000	1.00	0.00	0.00	595.06	755.00	599.07	0.00	599.64	57.30	6.08	124.15	99.74
15329.000	1.00	0.00	0.00	595.06	1070.00	600.36	0.00	600.79	26.66	5.26	203.43	207.23
15332.000	3.00	0.00	0.00	592.76	465.00	598.73	0.00	598.88	9.56	3.15	295.54	150.42
15332.000	3.00	0.00	0.00	592.76	690.00	599.29	0.00	599.53	13.82	3.94	350.34	185.59
15332.000	3.00	0.00	0.00	592.76	755.00	599.49	0.00	599.74	14.26	4.06	371.73	199.93
15332.000	3.00	0.00	0.00	592.76	1070.00	600.54	0.00	600.83	13.23	4.32	494.81	294.17
15354.000	22.00	0.00	0.00	592.06	465.00	598.83	0.00	598.92	8.10	2.49	374.00	163.35
15354.000	22.00	0.00	0.00	592.06	690.00	599.44	0.00	599.59	11.28	3.10	445.43	205.42
15354.000	22.00	0.00	0.00	592.06	755.00	599.64	0.00	599.80	11.63	3.22	469.46	221.36
15354.000	22.00	0.00	0.00	592.06	1070.00	600.85	0.00	600.95	65.03	2.56	837.17	132.69
15778.000	424.00	0.00	0.00	591.96	465.00	599.08	0.00	599.14	3.20	1.88	246.78	259.96
15778.000	424.00	0.00	0.00	591.96	690.00	599.81	0.00	599.90	4.60	2.39	288.84	321.56
15778.000	424.00	0.00	0.00	591.96	755.00	600.03	0.00	600.12	4.89	2.50	302.04	341.55
15778.000	424.00	0.00	0.00	591.96	1070.00	601.27	0.00	601.35	3.53	2.39	700.74	569.43
15946.000	168.00	0.00	0.00	592.36	465.00	599.13	0.00	599.22	5.13	2.40	193.58	205.25
15946.000	168.00	0.00	0.00	592.36	690.00	599.88	0.00	600.02	7.40	3.06	227.78	253.67
15946.000	168.00	0.00	0.00	592.36	755.00	600.10	0.00	600.25	7.50	3.13	285.79	275.64
15946.000	168.00	0.00	0.00	592.36	1070.00	601.36	0.00	601.41	2.68	2.15	925.00	653.31

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
15947.000	1.00	0.00	0.00	592.36	465.00	599.13	0.00	599.22	23.99	2.40	193.60	94.94
15947.000	1.00	0.00	0.00	592.36	690.00	599.88	0.00	600.02	34.55	3.05	227.88	117.38
15947.000	1.00	0.00	0.00	592.36	755.00	600.13	0.00	600.26	31.61	2.98	294.38	134.29
15947.000	1.00	0.00	0.00	592.36	1070.00	601.39	0.00	601.42	4.64	1.31	941.10	496.72
15957.000	10.00	599.86	598.56	592.36	465.00	599.25	0.00	599.34	22.37	2.34	198.58	98.32
15957.000	10.00	599.86	598.56	592.36	690.00	600.07	0.00	600.19	28.79	2.83	275.33	128.60
15957.000	10.00	599.86	598.56	592.36	755.00	600.27	0.00	600.37	24.84	2.68	341.22	151.50
15957.000	10.00	599.86	598.56	592.36	1070.00	601.43	0.00	601.45	4.34	1.27	962.25	513.62
15958.000	1.00	0.00	0.00	592.36	465.00	599.25	0.00	599.34	5.04	2.34	198.67	207.13
15958.000	1.00	0.00	0.00	592.36	690.00	600.07	0.00	600.20	6.86	2.91	276.29	263.43
15953.000	1.00	0.00	0.00	592.36	755.00	600.26	0.00	600.39	6.92	2.97	338.94	286.95
15958.000	1.00	0.00	0.00	592.36	1070.00	601.41	0.00	601.47	3.48	2.40	950.39	573.35
16752.000	794.00	0.00	0.00	592.76	465.00	599.61	0.00	599.67	3.28	1.83	254.50	256.95
16752.000	794.00	0.00	0.00	592.76	690.00	600.55	0.00	600.63	4.12	2.20	313.24	340.04
16752.000	794.00	0.00	0.00	592.76	755.00	600.75	0.00	600.83	4.38	2.31	340.25	360.73
16752.000	794.00	0.00	0.00	592.76	1070.00	601.70	0.00	601.79	4.24	2.53	553.91	519.39
17401.000	649.00	0.00	0.00	593.06	465.00	599.83	0.00	599.89	3.50	1.88	247.68	248.64
17401.000	649.00	0.00	0.00	593.06	690.00	600.82	0.00	600.90	4.26	2.24	308.30	334.12
17401.000	649.00	0.00	0.00	593.06	755.00	601.04	0.00	601.12	4.53	2.34	322.35	354.81
17401.000	649.00	0.00	0.00	593.06	1070.00	601.99	0.00	602.11	5.25	2.74	434.85	467.04
17811.000	410.00	0.00	0.00	593.26	465.00	599.98	0.00	600.03	3.53	1.87	248.46	247.66
17811.000	410.00	0.00	0.00	593.26	690.00	601.00	0.00	601.07	4.19	2.21	312.24	337.10
17811.000	410.00	0.00	0.00	593.26	755.00	601.22	0.00	601.31	4.42	2.31	327.30	359.19
17811.000	410.00	0.00	0.00	593.26	1070.00	602.21	0.00	602.32	4.95	2.65	469.14	481.10
17911.000	100.00	0.00	0.00	595.66	465.00	599.92	0.00	600.26	46.38	4.65	99.91	68.28
17911.000	100.00	0.00	0.00	595.66	690.00	600.93	0.00	601.34	44.29	5.10	135.33	103.69
17911.000	100.00	0.00	0.00	595.66	755.00	601.15	0.00	601.58	44.96	5.25	143.73	112.60
17911.000	100.00	0.00	0.00	595.66	1070.00	602.16	600.09	602.59	40.71	5.47	282.16	167.71
18011.000	100.00	0.00	0.00	595.66	465.00	600.43	0.00	600.63	24.96	3.58	130.01	93.07
18011.000	100.00	0.00	0.00	595.66	690.00	601.46	0.00	601.71	24.58	3.95	174.65	139.16
18011.000	100.00	0.00	0.00	595.66	755.00	601.71	0.00	601.96	24.84	4.06	185.92	151.50
18011.000	100.00	0.00	0.00	595.66	1070.00	602.78	0.00	602.88	10.89	3.07	700.22	324.24
18311.000	300.00	0.00	0.00	595.66	465.00	601.09	0.00	601.25	16.48	3.14	147.90	114.55
18311.000	300.00	0.00	0.00	595.66	690.00	602.14	0.00	602.33	16.71	3.49	229.86	168.78
18311.000	300.00	0.00	0.00	595.66	755.00	602.40	0.00	602.57	15.84	3.47	277.10	189.72
18311.000	300.00	0.00	0.00	595.66	1070.00	603.13	0.00	603.30	15.08	3.60	451.58	275.55
19536.000	1225.00	0.00	0.00	595.80	465.00	602.83	0.00	602.97	12.06	3.01	154.45	133.89
19536.000	1225.00	0.00	0.00	595.80	690.00	603.85	0.00	603.98	10.86	3.08	376.62	209.35
19536.000	1225.00	0.00	0.00	595.80	755.00	604.02	0.00	604.14	10.33	3.04	452.53	234.96
19536.000	1225.00	0.00	0.00	595.80	1070.00	604.60	0.00	604.68	8.63	2.89	781.40	364.18
20836.000	1300.00	0.00	0.00	596.80	465.00	604.26	0.00	604.39	9.97	2.90	160.16	147.24
20836.000	1300.00	0.00	0.00	596.80	690.00	605.32	0.00	605.51	12.28	3.55	200.30	196.90
20836.000	1300.00	0.00	0.00	596.80	755.00	605.49	0.00	605.71	13.31	3.76	208.10	206.95
20836.000	1300.00	0.00	0.00	596.80	1070.00	606.08	0.00	606.46	19.36	4.82	234.72	243.19

GLOFDE DITCH

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
7786.000	850.00	593.89	0.00	0.00	0.00	33.39	0.00
7786.000	1250.00	594.60	.71	0.00	0.00	35.38	0.00
7786.000	1370.00	594.74	.14	0.00	0.00	35.78	0.00
7786.000	1935.00	595.32	.58	0.00	0.00	37.41	0.00
7787.000	850.00	593.84	0.00	-.05	0.00	30.32	1.00
7787.000	1250.00	594.51	.67	-.09	0.00	32.21	1.00
7787.000	1370.00	594.63	.13	-.11	0.00	32.57	1.00
7787.000	1935.00	595.13	.50	-.19	0.00	33.96	1.00
7860.000	850.00	594.01	0.00	.17	0.00	30.81	73.00
7860.000	1250.00	594.82	.81	.31	0.00	33.11	73.00
7860.000	1370.00	595.01	.19	.38	0.00	33.64	73.00
7860.000	1935.00	595.94	.94	.82	0.00	36.27	73.00
7861.000	850.00	594.17	0.00	.16	0.00	34.17	1.00
7861.000	1250.00	595.09	.92	.27	0.00	36.77	1.00
7861.000	1370.00	595.32	.23	.31	0.00	37.42	1.00
7861.000	1935.00	596.43	1.11	.49	0.00	40.04	1.00
8050.000	835.00	594.68	0.00	.51	0.00	106.22	190.00
8050.000	1230.00	595.84	1.17	.75	0.00	109.62	190.00
8050.000	1345.00	596.15	.30	.83	0.00	110.51	190.00
8050.000	1905.00	597.55	1.40	1.12	0.00	114.60	190.00
8198.000	835.00	594.72	0.00	.05	0.00	34.00	148.00
8198.000	1230.00	595.87	1.14	.02	0.00	34.00	148.00
8198.000	1345.00	596.16	.30	.01	0.00	34.00	148.00
8198.000	1905.00	597.53	1.37	-.02	0.00	176.28	148.00
8199.000	835.00	594.72	0.00	.00	0.00	34.00	1.00
8199.000	1230.00	595.87	1.14	.00	0.00	34.00	1.00
8199.000	1345.00	596.16	.30	.00	0.00	34.00	1.00
8199.000	1905.00	597.49	1.33	-.04	0.00	174.51	1.00
8215.000	835.00	594.73	0.00	.00	0.00	34.00	16.00
8215.000	1230.00	595.87	1.14	.00	0.00	34.00	16.00
8215.000	1345.00	596.17	.30	.01	0.00	34.00	16.00
8215.000	1905.00	597.51	1.34	.02	0.00	175.39	16.00
8216.000	835.00	594.73	0.00	.00	0.00	34.00	1.00
8216.000	1230.00	595.87	1.14	.00	0.00	34.00	1.00
8216.000	1345.00	596.17	.30	.00	0.00	34.00	1.00
8216.000	1905.00	597.64	1.47	.12	0.00	181.05	1.00
8885.000	835.00	595.23	0.00	.51	0.00	198.15	669.00
8885.000	1230.00	596.53	1.30	.66	0.00	222.55	669.00
8885.000	1345.00	596.87	.34	.70	0.00	235.04	669.00
8885.000	1905.00	598.41	1.54	.78	0.00	292.61	669.00
9086.000	835.00	595.32	0.00	.09	0.00	204.73	201.00
9086.000	1230.00	596.62	1.29	.08	0.00	371.26	201.00
9086.000	1345.00	596.95	.33	.08	0.00	384.96	201.00
9086.000	1905.00	598.49	1.54	.07	0.00	451.01	201.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
9091.000	835.00	595.42	0.00	.10	0.00	219.21	5.00
9091.000	1230.00	596.70	1.28	.09	0.00	374.92	5.00
9091.000	1345.00	597.03	.32	.08	0.00	388.16	5.00
9091.000	1905.00	598.53	1.50	.04	0.00	452.60	5.00
9107.000	835.00	595.65	0.00	.22	0.00	285.78	16.00
9107.000	1230.00	596.76	1.12	.06	0.00	377.32	16.00
9107.000	1345.00	597.08	.32	.06	0.00	390.64	16.00
9107.000	1905.00	598.59	1.50	.06	0.00	455.35	16.00
9110.000	835.00	595.62	0.00	-.03	0.00	277.84	3.00
9110.000	1230.00	596.74	1.12	-.02	0.00	376.35	3.00
9110.000	1345.00	597.06	.32	-.02	0.00	389.76	3.00
9110.000	1905.00	598.58	1.52	-.01	0.00	455.15	3.00
9155.000	835.00	595.75	0.00	.13	0.00	361.57	45.00
9155.000	1230.00	596.84	1.08	.10	0.00	413.22	45.00
9155.000	1345.00	597.15	.31	.08	0.00	423.29	45.00
9155.000	1905.00	598.62	1.48	.04	0.00	471.01	45.00
9550.000	835.00	595.78	0.00	.03	0.00	183.26	395.00
9550.000	1230.00	596.87	1.09	.04	0.00	251.35	395.00
9550.000	1345.00	597.18	.31	.04	0.00	261.86	395.00
9550.000	1905.00	598.66	1.47	.04	0.00	310.17	395.00
9609.000	835.00	595.99	0.00	.21	0.00	219.91	59.00
9609.000	1230.00	597.04	1.05	.17	0.00	253.04	59.00
9609.000	1345.00	597.33	.29	.15	0.00	262.30	59.00
9609.000	1905.00	598.74	1.41	.08	0.00	306.98	59.00
9610.000	835.00	596.03	0.00	.04	0.00	221.00	1.00
9610.000	1230.00	597.05	1.03	.02	0.00	253.28	1.00
9610.000	1345.00	597.34	.29	.01	0.00	262.49	1.00
9610.000	1905.00	598.74	1.40	.00	0.00	307.00	1.00
9625.000	835.00	596.05	0.00	.03	0.00	221.75	15.00
9625.000	1230.00	597.07	1.01	.02	0.00	253.98	15.00
9625.000	1345.00	597.36	.29	.01	0.00	263.09	15.00
9625.000	1905.00	598.75	1.40	.01	0.00	307.37	15.00
9626.000	835.00	596.05	0.00	-.01	0.00	221.75	1.00
9626.000	1230.00	597.07	1.02	-.00	0.00	254.04	1.00
9626.000	1345.00	597.35	.29	-.00	0.00	263.14	1.00
9626.000	1905.00	598.75	1.40	-.00	0.00	307.37	1.00
9700.000	835.00	596.11	0.00	.07	0.00	255.62	74.00
9700.000	1230.00	597.11	1.00	.05	0.00	285.73	74.00
9700.000	1345.00	597.40	.28	.04	0.00	294.18	74.00
9700.000	1905.00	598.78	1.38	.03	0.00	335.53	74.00
9965.000	835.00	596.38	0.00	.26	0.00	398.08	265.00
9965.000	1230.00	597.28	.90	.16	0.00	441.95	265.00
9965.000	1345.00	597.54	.27	.14	0.00	463.91	265.00
9965.000	1905.00	598.87	1.33	.09	0.00	550.00	265.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
10245.000	835.00	596.44	0.00	.07	0.00	217.91	280.00
10245.000	1230.00	597.32	.88	.05	0.00	459.43	280.00
10245.000	1345.00	597.59	.26	.04	0.00	523.85	280.00
10245.000	1905.00	598.90	1.32	.03	0.00	841.22	280.00
10445.000	835.00	596.64	0.00	.20	0.00	382.20	200.00
10445.000	1230.00	597.49	.85	.17	0.00	390.94	200.00
10445.000	1345.00	597.73	.24	.15	0.00	392.93	200.00
10445.000	1905.00	598.96	1.23	.06	0.00	400.00	200.00
10845.000	835.00	596.66	0.00	.02	0.00	155.06	400.00
10845.000	1230.00	597.52	.86	.02	0.00	172.24	400.00
10845.000	1345.00	597.76	.24	.02	0.00	174.42	400.00
10845.000	1905.00	598.98	1.23	.02	0.00	183.00	400.00
10945.000	475.00	596.71	0.00	.05	0.00	149.95	100.00
10945.000	700.00	597.58	.87	.06	0.00	168.94	100.00
10945.000	765.00	597.82	.24	.06	0.00	172.45	100.00
10945.000	1085.00	599.05	1.23	.07	0.00	183.00	100.00
11445.000	475.00	596.74	0.00	.04	0.00	144.92	500.00
11445.000	700.00	597.62	.88	.04	0.00	164.53	500.00
11445.000	765.00	597.86	.24	.04	0.00	169.95	500.00
11445.000	1085.00	599.09	1.23	.04	0.00	181.23	500.00
11945.000	475.00	596.79	0.00	.05	0.00	131.62	500.00
11945.000	700.00	597.68	.88	.05	0.00	150.25	500.00
11945.000	765.00	597.92	.24	.06	0.00	155.38	500.00
11945.000	1085.00	599.14	1.22	.05	0.00	178.07	500.00
12445.000	475.00	596.85	0.00	.06	0.00	151.86	500.00
12445.000	700.00	597.75	.89	.07	0.00	174.70	500.00
12445.000	765.00	597.99	.24	.07	0.00	180.96	500.00
12445.000	1085.00	599.21	1.22	.07	0.00	200.00	500.00
12545.000	475.00	596.87	0.00	.01	0.00	144.86	100.00
12545.000	700.00	597.76	.89	.01	0.00	167.12	100.00
12545.000	765.00	598.00	.24	.01	0.00	173.20	100.00
12545.000	1085.00	599.22	1.22	.01	0.00	200.00	100.00
12645.000	475.00	596.88	0.00	.02	0.00	146.71	100.00
12645.000	700.00	597.77	.89	.01	0.00	163.22	100.00
12645.000	765.00	598.02	.24	.01	0.00	167.74	100.00
12645.000	1085.00	599.23	1.21	.01	0.00	190.20	100.00
13453.000	475.00	596.98	0.00	.10	0.00	132.47	808.00
13453.000	700.00	597.88	.90	.10	0.00	148.60	808.00
13453.000	765.00	598.12	.24	.10	0.00	152.95	808.00
13453.000	1085.00	599.33	1.20	.10	0.00	174.43	808.00
13653.000	475.00	597.03	0.00	.05	0.00	93.50	200.00
13653.000	700.00	597.93	.90	.05	0.00	102.37	200.00
13653.000	765.00	598.17	.24	.05	0.00	104.77	200.00
13653.000	1085.00	599.37	1.20	.04	0.00	116.54	200.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
13753.000	475.00	597.06	0.00	.04	0.00	99.25	100.00
13753.000	700.00	597.97	.90	.04	0.00	111.89	100.00
13753.000	765.00	598.21	.24	.04	0.00	115.30	100.00
13753.000	1085.00	599.41	1.20	.04	0.00	132.13	100.00
14128.000	475.00	597.21	0.00	.15	0.00	91.90	375.00
14128.000	700.00	598.12	.91	.16	0.00	103.67	375.00
14128.000	765.00	598.37	.24	.16	0.00	106.76	375.00
14128.000	1085.00	599.55	1.18	.14	0.00	122.10	375.00
14328.000	475.00	597.31	0.00	.10	0.00	129.31	200.00
14328.000	700.00	598.23	.92	.11	0.00	151.60	200.00
14328.000	765.00	598.48	.25	.12	0.00	157.49	200.00
14328.000	1085.00	599.67	1.19	.12	0.00	185.83	200.00
14801.000	475.00	597.53	0.00	.22	0.00	124.81	473.00
14801.000	700.00	598.43	.90	.20	0.00	125.00	473.00
14801.000	765.00	598.68	.24	.19	0.00	125.00	473.00
14801.000	1085.00	599.83	1.15	.16	0.00	125.00	473.00
14886.000	475.00	597.58	0.00	.04	0.00	78.26	85.00
14886.000	700.00	598.47	.89	.03	0.00	81.85	85.00
14886.000	765.00	598.70	.24	.03	0.00	82.81	85.00
14886.000	1085.00	599.84	1.14	.02	0.00	87.36	85.00
14981.000	475.00	597.62	0.00	.04	0.00	34.00	95.00
14981.000	700.00	598.48	.86	.01	0.00	34.00	95.00
14981.000	765.00	598.71	.23	.00	0.00	34.00	95.00
14981.000	1085.00	599.80	1.09	-.04	0.00	34.00	95.00
14982.000	475.00	597.62	0.00	.00	0.00	34.00	1.00
14982.000	700.00	598.48	.86	.00	0.00	34.00	1.00
14982.000	765.00	598.71	.23	.00	0.00	34.00	1.00
14982.000	1085.00	599.80	1.09	.00	0.00	34.00	1.00
15054.000	475.00	597.66	0.00	.04	0.00	34.00	72.00
15054.000	700.00	598.53	.87	.05	0.00	34.00	72.00
15054.000	765.00	598.76	.23	.05	0.00	34.00	72.00
15054.000	1085.00	599.86	1.10	.06	0.00	34.00	72.00
15055.000	475.00	597.66	0.00	.00	0.00	34.00	1.00
15055.000	700.00	598.53	.87	.00	0.00	34.00	1.00
15055.000	765.00	598.76	.23	.00	0.00	34.00	1.00
15055.000	1085.00	599.86	1.10	.00	0.00	34.00	1.00
15097.000	465.00	597.85	0.00	.19	0.00	50.72	42.00
15097.000	690.00	598.80	.95	.27	0.00	56.40	42.00
15097.000	755.00	599.05	.25	.29	0.00	57.91	42.00
15097.000	1070.00	600.26	1.21	.40	0.00	86.56	42.00
15228.000	465.00	597.93	0.00	.08	0.00	50.58	131.00
15228.000	690.00	598.89	.96	.09	0.00	56.33	131.00
15228.000	755.00	599.15	.26	.09	0.00	57.86	131.00
15228.000	1070.00	600.36	1.21	.10	0.00	65.08	131.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	15303.000	465.00	597.96	0.00	.03	0.00	45.24	75.00
	15303.000	690.00	598.93	.97	.04	0.00	55.39	75.00
	15303.000	755.00	599.19	.26	.04	0.00	57.98	75.00
	15303.000	1070.00	600.41	1.22	.05	0.00	82.65	75.00
	15325.000	465.00	597.95	0.00	-.00	0.00	35.51	22.00
	15325.000	690.00	598.92	.97	-.01	0.00	48.20	22.00
	15325.000	755.00	599.18	.26	-.01	0.00	50.79	22.00
	15325.000	1070.00	600.41	1.23	-.00	0.00	61.29	22.00
*	15328.000	465.00	597.94	0.00	-.02	0.00	44.85	3.00
	15328.000	690.00	598.77	.83	-.15	0.00	53.75	3.00
	15328.000	755.00	599.06	.29	-.12	0.00	56.63	3.00
	15328.000	1070.00	600.35	1.30	-.05	0.00	65.11	3.00
	15329.000	465.00	598.30	0.00	.36	0.00	48.87	1.00
	15329.000	690.00	598.78	.48	.01	0.00	53.77	1.00
	15329.000	755.00	599.07	.29	.01	0.00	56.66	1.00
	15329.000	1070.00	600.36	1.29	.00	0.00	65.12	1.00
	15332.000	465.00	598.73	0.00	.43	0.00	46.22	3.00
	15332.000	690.00	599.29	.56	.51	0.00	51.93	3.00
	15332.000	755.00	599.49	.19	.42	0.00	53.97	3.00
	15332.000	1070.00	600.54	1.06	.19	0.00	62.11	3.00
	15354.000	465.00	598.83	0.00	.09	0.00	54.18	22.00
	15354.000	690.00	599.44	.61	.15	0.00	59.72	22.00
	15354.000	755.00	599.64	.20	.15	0.00	60.89	22.00
	15354.000	1070.00	600.85	1.21	.30	0.00	591.93	22.00
	15778.000	465.00	599.08	0.00	.26	0.00	55.78	424.00
	15778.000	690.00	599.81	.73	.37	0.00	60.03	424.00
	15778.000	755.00	600.03	.22	.39	0.00	61.30	424.00
	15778.000	1070.00	601.27	1.24	.43	0.00	600.00	424.00
	15946.000	465.00	599.13	0.00	.05	0.00	41.88	168.00
	15946.000	690.00	599.88	.75	.07	0.00	161.05	168.00
	15946.000	755.00	600.10	.22	.07	0.00	326.43	168.00
	15946.000	1070.00	601.36	1.26	.09	0.00	600.00	168.00
	15947.000	465.00	599.13	0.00	.00	0.00	41.88	1.00
	15947.000	690.00	599.88	.75	.00	0.00	161.66	1.00
	15947.000	755.00	600.13	.25	.03	0.00	326.49	1.00
	15947.000	1070.00	601.39	1.27	.03	0.00	600.00	1.00
	15957.000	465.00	599.25	0.00	.12	0.00	42.32	10.00
	15957.000	690.00	600.07	.82	.19	0.00	326.36	10.00
	15957.000	755.00	600.27	.20	.14	0.00	326.80	10.00
	15957.000	1070.00	601.43	1.16	.04	0.00	600.00	10.00
	15958.000	465.00	599.25	0.00	.00	0.00	42.33	1.00
	15958.000	690.00	600.07	.81	-.00	0.00	326.36	1.00
	15958.000	755.00	600.26	.19	-.02	0.00	326.79	1.00
	15958.000	1070.00	601.41	1.16	-.02	0.00	600.00	1.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
16752.000	465.00	599.61	0.00	.36	0.00	59.28	794.00
16752.000	690.00	600.55	.94	.49	0.00	65.37	794.00
16752.000	755.00	600.75	.20	.49	0.00	224.33	794.00
16752.000	1070.00	601.70	.95	.29	0.00	225.00	794.00
17401.000	465.00	599.83	0.00	.22	0.00	58.14	649.00
17401.000	690.00	600.82	.99	.27	0.00	64.46	649.00
17401.000	755.00	601.04	.22	.29	0.00	65.81	649.00
17401.000	1070.00	601.99	.95	.29	0.00	338.00	649.00
17811.000	465.00	599.98	0.00	.14	0.00	59.04	410.00
17811.000	690.00	601.00	1.02	.18	0.00	65.74	410.00
17811.000	755.00	601.22	.23	.19	0.00	67.23	410.00
17811.000	1070.00	602.21	.99	.22	0.00	280.11	410.00
17911.000	465.00	599.92	0.00	-.05	0.00	32.87	100.00
17911.000	690.00	600.93	1.01	-.07	0.00	37.33	100.00
17911.000	755.00	601.15	.22	-.07	0.00	38.32	100.00
17911.000	1070.00	602.16	1.00	-.06	0.00	485.89	100.00
18011.000	465.00	600.43	0.00	.51	0.00	40.45	100.00
18011.000	690.00	601.46	1.03	.53	0.00	46.16	100.00
18011.000	755.00	601.71	.24	.55	0.00	47.49	100.00
18011.000	1070.00	602.78	1.08	.63	0.00	600.00	100.00
18311.000	465.00	601.09	0.00	.66	0.00	40.43	300.00
18311.000	690.00	602.14	1.05	.68	0.00	171.89	300.00
18311.000	755.00	602.40	.25	.69	0.00	199.18	300.00
18311.000	1070.00	603.13	.73	.35	0.00	270.00	300.00
19536.000	465.00	602.83	0.00	1.73	0.00	33.88	1225.00
19536.000	690.00	603.85	1.02	1.71	0.00	433.97	1225.00
19536.000	755.00	604.02	.17	1.63	0.00	463.97	1225.00
19536.000	1070.00	604.60	.58	1.47	0.00	632.00	1225.00
20836.000	465.00	604.26	0.00	1.44	0.00	30.74	1300.00
20836.000	690.00	605.32	1.05	1.47	0.00	65.00	1300.00
20836.000	755.00	605.49	.17	1.47	0.00	45.00	1300.00
20836.000	1070.00	606.08	.59	1.48	0.00	45.00	1300.00

SUMMARY OF ERRORS

CAUTION SECNO=15328.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO=15328.000 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=15328.000 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL

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*************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -   01,02
  MODIFICATION -  50,51,52,53
*************************************************

T1                MACOMB TWP. FIS J&A FILE NO. 5850-03
T2                100 YEAR FLOOD
T3                GLOEDE DITCH

J1   ICHECK    INQ      NINV     IDIR      STRT      METRIC    HVINS     Q        WSEL      FQ
       0.       4.       0.       0.   0.000000     0.00      0.0      0.     594.740    0.000

J2   NPROF     IPLOT    PRFVS    XSECV     XSECH      FN       ALLDC     IBW      CHNIM     ITRACE
       3.000    0.000    1.000    0.000     0.000     0.000     0.000     0.000    0.000     0.000
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*PROF 3

CCHV=     .300 CEHV=     .500
*SECNO 7786.000
      SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS     BANK ELEV
      Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA     LEFT/RIGHT
      TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN        SSTA
      SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID       ENDST

    7786.00      9.74     594.74       0.00     594.74     595.48        .74       0.00       0.00     601.00
     1370.         0.      1370.         0.         0.       199.         0.         0.         0.     601.10
       0.00      0.00       6.88       0.00       .035       .080       .035      0.000     585.00     230.64
    .017123        0.         0.         0.          0          0          0       0.00      35.78     266.42

*SECNO 7787.000

3265 DIVIDED FLOW

3370 NORMAL BRIDGE,NRD= 15 MIN ELTRD=  600.90 MAX ELLC=  598.80

    7787.00      9.63     594.63       0.00       0.00     595.60        .96        .01        .11     601.00
     1370.         0.      1370.         0.         0.       174.         0.         0.         0.     601.10
        .00      0.00       7.87       0.00       .040       .020       .040       .010     585.00     230.77
    .003184        1.         1.         1.          2          0          0       0.00      32.57     266.25

*SECNO 7860.000

3265 DIVIDED FLOW

3370 NORMAL BRIDGE,NRD= 15 MIN ELTRD=  600.90 MAX ELLC=  598.80

                  BRIDGE SECTION NO.1 HALL ROAD (M-59)  (J&A)      SECT. A

    7860.00     10.01     595.01       0.00       0.00     595.85        .84        .21        .04     601.00
     1370.         0.      1370.         0.         0.       187.         0.         0.         0.     601.10
        .00      0.00       7.34       0.00       .040       .020       .040       .019     585.00     230.29
    .002663       73.        73.        73.          2          0          0       0.00      33.64     266.84

*SECNO 7861.000
    7861.00     10.32     595.32       0.00       0.00     595.92        .60        .00        .07     601.00
     1370.         0.      1370.         0.         0.       220.         0.         0.         0.     601.10
        .00      0.00       6.22       0.00       .050       .040       .050       .019     585.00     229.90
    .003246        1.         1.         1.          2          0          0       0.00      37.42     267.32

*SECNO 8050.000
      SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS     BANK ELEV
      Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA     LEFT/RIGHT
      TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN        SSTA
      SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID       ENDST

3470 ENCROACHMENT STATIONS=       93.0      245.0  TYPE=      1  TARGET=      -93.000
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                VALLEY SECTION NO.2   (J&A)                           SECT. B
   8050.00     10.55     596.15      0.00      0.00    596.26       .11       .20       .15    592.90
   1345.       259.     1084.         2.      188.     367.         3.        2.        0.     594.60
    .02        1.38      2.95        .52      .050      .040      .050      .033    585.60     93.00
  .000470      275.      190.       190.         2         0         0      0.00    110.51    203.51

  *SECNO 8198.000
   8198.00     10.56     596.16      0.00      0.00    596.45       .29       .10       .09    598.80
   1345.        0.      1345.         0.        0.     310.         0.        4.        1.     598.80
    .03        0.00      4.34       0.00      .050      .040      .050      .035    585.60    200.00
  .001142      148.      148.       148.         2         0         0      0.00     34.00    234.00

  *SECNO 8199.000

  3370 NORMAL BRIDGE,NRD=  5 MIN ELTRD=  596.60 MAX ELLC=  596.60

   8199.00     10.56     596.16      0.00      0.00    596.45       .29       .00       .00    598.80
   1345.        0.      1345.         0.        0.     310.         0.        4.        1.     598.80
    .03        0.00      4.34       0.00      .035      .020      .035      .035    585.60    200.00
  .000286       1.        1.         1.          0         0         0      0.00     34.00    234.00

  *SECNO 8215.000

  3370 NORMAL BRIDGE,NRD=  5 MIN ELTRD=  596.60 MAX ELLC=  596.60

                BRIDGE SECTION NO.3 PRIVATE BRIDGE   (J&A)        SECT. C

   8215.00     10.57     596.17      0.00      0.00    596.46       .29       .00       .00    598.80
   1345.        0.      1345.         0.        0.     310.         0.        4.        1.     598.80
    .03        0.00      4.33       0.00      .035      .020      .035      .035    585.60    200.00
  .000285      16.        16.        16.         0         0         0      0.00     34.00    234.00

  *SECNO 8216.000
   8216.00     10.57     596.17      0.00      0.00    596.46       .29       .00       .00    598.80
   1345.        0.      1345.         0.        0.     310.         0.        4.        1.     598.80
    .03        0.00      4.34       0.00      .050      .040      .050      .034    585.60    200.00
  .001140       1.        1.         1.          0         0         0      0.00     34.00    234.00

  *SECNO 8885.000
    SECNO      DEPTH     CWSEL      CRIWS     WSELK      EG        HV        HL       OLOSS   BANK ELEV
    Q          QLOB      QCH        QROB      ALOB       ACH       AROB      VOL      TWA    LEFT/RIGHT
    TIME       VLOB      VCH        VROB      XNL        XNCH      XNR       WTN      ELMIN      SSTA
    SLOPE      XLOBL     XLCH       XLOBR     ITRIAL     IDC       ICONT     CORAR    TOPWID     ENDST


                VALLEY SECTION NO.4   (J&A)                           SECT. D

   8885.00     10.37     596.87      0.00      0.00    596.94       .07       .41       .07    596.20
   1345.        1.       874.       470.        6.     358.       470.       13.        3.     593.60
    .13         .23      2.44       1.00      .060      .042      .060      .039    586.50    181.91
  .000378      669.      669.       669.         2         0         0      0.00    235.04    416.95

  *SECNO 9086.000

  3470 ENCROACHMENT STATIONS=          .0       989.0  TYPE=      1  TARGET=      1149.999
   9086.00     10.45     596.95      0.00      0.00    597.04       .09       .09       .01    586.70
   1345.       499.      579.       267.      523.     168.       245.       18.        5.     586.50
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      .16      .95     3.45     1.09     .060     .042     .060     .039    586.50   604.04
  .000426     350.     201.     201.        2        0        0     0.00    384.96   989.00

 *SECNO 9091.000

 3470 ENCROACHMENT STATIONS=       .0     989.0  TYPE=      1  TARGET=    1149.999
   9091.00    10.53   597.03     0.00     0.00   597.06      .03      .00      .02    586.70
     1345.     718.     246.     382.     542.     169.     253.      18.       5.    586.50
      .16     1.32     1.45     1.51     .035     .080     .035     .039    586.50   600.83
  .000271       5.       5.       5.        2        0        0     0.00    388.16   989.00

 SPECIAL BRIDGE

 SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.00      1.75      2.98      0.00      16.50     0.00      130.20    0.00      586.50    586.50

 *SECNO 9107.000
 PRESSURE AND WEIR FLOW

  EGPRS     EGLWC      H3       QWEIR      QPR      BAREA   TRAPEZOID   ELLC      ELTRD
                                                               AREA
  599.93    597.06     0.00     1116.      233.     130.       130.    594.40    594.50

 3470 ENCROACHMENT STATIONS=       .0     989.0  TYPE=      1  TARGET=    1149.999

                BRIDGE SECT. NO.5 GARFIELD ROAD(ABANDONED) (J&A)    SECT.E

   9107.00    10.58   597.08     0.00     0.00   597.11      .03      .06     0.00    586.70
     1345.     723.     240.     382.     557.     170.     260.      18.       5.    586.50
      .17     1.30     1.41     1.47     .035     .080     .035     .039    586.50   598.36
  .000255      16.      16.      16.        2        0        7     0.00    390.64   989.00

 *SECNO 9110.000

 3470 ENCROACHMENT STATIONS=       .0     989.0  TYPE=      1  TARGET=    1149.999
   9110.00    10.56   597.06     0.00     0.00   597.14      .07      .00      .02    586.70
     1345.     527.     539.     279.     552.     170.     257.      18.       5.    586.50
      .17      .95     3.18     1.08     .060     .045     .060     .039    586.50   599.24
  .000409       3.       3.       3.        2        0        0     0.00    389.76   989.00

 *SECNO 9155.000
    SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
    Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
    TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN    SSTA
    SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID   ENDST

 3470 ENCROACHMENT STATIONS=    100.0     602.0  TYPE=      1  TARGET=    -100.000

                VALLEY SECTION NO.1    (AE&W)                    SECT. F

   9155.00    11.47   597.15     0.00     0.00   597.16      .01      .01      .02    592.08
     1345.     702.     560.      83.    1033.     431.     209.      19.       5.    593.68
      .18      .68     1.30      .40     .060     .045     .060     .039    585.68   100.00
  .000104      45.      45.      45.        2        0        0     0.00    423.29   523.29
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 *SECNO 9550.000

                 VALLEY SECTION NO.4    (AE&W)                  SECT. G

   9550.00    10.80   597.18     0.00     0.00   597.31      .13      .09      .06   594.58
     1345.     395.     825.     125.     302.     235.     110.      30.       8.   594.58
       .22     1.31     3.52     1.13     .060     .045     .060     .041   586.38    87.09
   .001026     395.     395.     395.        2        0        0     0.00   261.86   348.95

 *SECNO 9609.000
   9609.00    10.65   597.33     0.00     0.00   597.39      .06      .06      .02   593.58
     1345.     797.     377.     170.     504.     137.     138.      31.       9.   593.58
       .23     1.58     2.75     1.23     .060     .045     .060     .041   586.68    92.59
   .000895      59.      59.      59.        2        0        0     0.00   262.30   354.89

 *SECNO 9610.000

 3370 NORMAL BRIDGE,NRD= 19 MIN ELTRD=  593.58 MAX ELLC=  592.68

   9610.00    10.66   597.34     0.00     0.00   597.39      .05      .00      .00   593.58
     1345.     945.     197.     202.     505.     111.     139.      31.       9.   593.58
       .23     1.87     1.78     1.46     .050     .038     .050     .041   586.68    92.55
   .000868       1.       1.       1.        1        0        0   -26.60   262.49   355.05

 *SECNO 9625.000

 3370 NORMAL BRIDGE,NRD= 19 MIN ELTRD=  593.58 MAX ELLC=  592.68

                 BRIDGE SECTION NO.5 PRIVATE BRIDGE    (AE&W)       SECT. H

   9625.00    10.68   597.36     0.00     0.00   597.41      .05      .01      .00   593.58
     1345.     946.     196.     203.     508.     111.     140.      31.       9.   593.58
       .23     1.86     1.77     1.45     .050     .038     .050     .041   586.68    92.44
   .000852      15.      15.      15.        0        0        0   -26.60   263.09   355.53

 *SECNO 9626.000
    SECNO    DEPTH    CWSEL    CRIWS    WSELK       EG       HV       HL    OLOSS  BANK ELEV
     Q        QLOB     QCH      QROB     ALOB      ACH     AROB      VOL      TWA  LEFT/RIGHT
    TIME      VLOB     VCH      VROB     XNL      XNCH      XNR      WTN    ELMIN      SSTA
    SLOPE    XLOBL    XLCH     XLOBR   ITRIAL      IDC    ICONT    CORAR   TOPWID     ENDST

   9626.00    10.67   597.35     0.00     0.00   597.41      .06      .00      .00   593.58
     1345.     802.     371.     172.     508.     137.     140.      31.       9.   593.58
       .23     1.58     2.70     1.23     .050     .038     .050     .041   586.68    92.43
   .000611       1.       1.       1.        0        0        0     0.00   263.14   355.56

 *SECNO 9700.000

                 VALLEY SECTION NO.6    (AE&W)                  SECT. I

   9700.00    10.82   597.40     0.00     0.00   597.45      .06      .04      .00   594.28
     1345.     627.     371.     347.     467.     139.     187.      32.       9.   594.28
       .24     1.34     2.66     1.85     .060     .046     .035     .041   586.58    92.15
   .000723      50.      74.     100.        1        0        0     0.00   294.18   386.34

 *SECNO 9965.000

                 VALLEY SECTION NO.8    (AE&W)                  SECT. J
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     9965.00     10.16    597.54      0.00      0.00    597.56       .02       .10       .01    595.38
        1345.      404.      224.      717.      568.      154.      555.       39.       12.    595.38
          .31       .71      1.45      1.29      .060      .046      .035      .041    587.38     58.62
      .000227      265.      265.      265.         2         0         0      0.00    463.91    522.53

   1490 NH CARD USED
   *SECNO 10245.000

                       VALLEY SECTION NO.9   (AE&W)                     SECT. K

    10245.00     10.61    597.59      0.00      0.00    597.69       .11       .09       .04    594.88
        1345.      410.      805.      130.      366.      245.      153.       45.       15.    595.98
          .34      1.12      3.28       .85      .043      .033      .035      .042    586.98    400.37
      .000474      320.      280.      220.         2         0         0      0.00    523.85    924.22

   1490 NH CARD USED
   *SECNO 10445.000

   3470 ENCROACHMENT STATIONS=      260.0      660.0  TYPE=      1  TARGET=     -260.000

                       VALLEY SECTION NO.11   (AE&W)                    SECT. L

    10445.00     10.15    597.73      0.00      0.00    597.75       .02       .03       .03    589.48
        1345.      654.      250.      441.      923.      157.      441.       50.       17.    589.38
          .40       .71      1.60      1.00      .043      .033      .035      .042    587.58    260.00
      .000066      200.      200.      200.         2         0         0      0.00    392.93    652.93

   *SECNO 10845.000
   3280 CROSS SECTION  10845.00 EXTENDED        .36 FEET

       SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS  BANK ELEV
       Q          QLOB       QCH      QROB      ALOB       ACH      AROB       VOL       TWA  LEFT/RIGHT
       TIME       VLOB       VCH      VROB       XNL      XNCH       XNR       WTN     ELMIN      SSTA
       SLOPE     XLOBL      XLCH     XLOBR    ITRIAL       IDC     ICONT     CORAR    TOPWID     ENDST

    10845.00     10.06    597.76      0.00      0.00    597.81       .06       .04       .02    591.00
        1345.      573.      343.      429.      348.      133.      262.       61.       19.    590.90
          .45      1.65      2.57      1.64      .035      .033      .035      .041    587.70      0.00
      .000234      400.      400.      400.         2         0         0      0.00    174.42    174.42

   *SECNO 10945.000
   3280 CROSS SECTION  10945.00 EXTENDED        .14 FEET

                       VALLEY SECTION NO.12   (AE&W)                    SECT. M

    10945.00      9.84    597.82      0.00      0.00    597.84       .02       .02       .01    591.28
         765.      320.      202.      243.      328.      130.      247.       63.       20.    591.18
          .48       .98      1.55       .98      .035      .033      .035      .041    587.98      0.00
      .000088      100.      100.      100.         2         0         0      0.00    172.45    172.45

   *SECNO 11445.000

                       VALLEY SECTION NO.13   (AE&W)                    SECT. N

    11445.00      8.68    597.86      0.00      0.00    597.89       .03       .05       .00    592.08
         765.      306.      261.      198.      301.      151.      197.       70.       22.    592.08
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      .59      1.02      1.73      1.00      .035      .033      .035      .040    589.18       .21
  .000104      500.      500.      500.         2         0         0      0.00    169.95    170.16

*SECNO 11945.000

                VALLEY SECTION NO.14    (AE&W)                        SECT. O

 11945.00      8.64    597.92      0.00      0.00    597.95       .03       .06       .00    592.28
     765.      289.      276.      199.      257.      143.      181.       77.       24.    592.28
      .69      1.12      1.93      1.10      .035      .033      .035      .039    589.28     11.80
  .000133      500.      500.      500.         0         0         0      0.00    155.38    167.18

*SECNO 12445.000

                VALLEY SECTION NO.15    (AE&W)                        SECT. P

 12445.00      8.21    597.99      0.00      0.00    598.02       .03       .06       .00    592.58
     765.      255.      250.      261.      247.      140.      253.       84.       26.    592.58
      .80      1.03      1.78      1.03      .035      .033      .035      .038    589.78     11.27
  .000118      500.      500.      500.         1         0         0      0.00    180.96    192.23

*SECNO 12545.000
    SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS   BANK ELEV
        Q      QLOB       QCH      QROB      ALOB       ACH      AROB       VOL       TWA  LEFT/RIGHT
     TIME      VLOB       VCH      VROB       XNL      XNCH       XNR       WTN     ELMIN      SSTA
    SLOPE     XLOBL      XLCH     XLOBR    ITRIAL       IDC     ICONT     CORAR    TOPWID     ENDST

                VALLEY SECTION NO.16    (AE&W)                        SECT. Q

 12545.00      8.32    598.00      0.00      0.00    598.03       .03       .01       .00    592.48
     765.      306.      198.      261.      265.      107.      233.       86.       26.    592.48
      .82      1.15      1.86      1.12      .035      .033      .035      .038    589.68     12.52
  .000142      100.      100.      100.         0         0         0      0.00    173.20    185.73

*SECNO 12645.000

                VALLEY SECTION 1+00     (AE&W)                        SECT. R

 12645.00      8.56    598.02      0.00      0.00    598.04       .03       .01       .00    593.46
     765.      157.      451.      157.      180.      295.      180.       87.       26.    593.46
      .84       .87      1.53       .87      .035      .033      .035      .038    589.46     16.13
  .000088      100.      100.      100.         0         0         0      0.00    167.74    183.87

*SECNO 13453.000

                VALLEY SECTION 9+08     (AE&W)                        SECT. S

 13453.00      7.86    598.12      0.00      0.00    598.16       .04       .11       .01    594.26
     765.      128.      507.      130.      136.      266.      138.       98.       29.    594.26
      .98       .94      1.91       .94      .050      .042      .050      .039    590.26     24.45
  .000256      808.      808.      808.         1         0         0      0.00    152.95    177.40

*SECNO 13653.000

                VALLEY SECTION 11+08    (AE&W)                        SECT. T

 13653.00      7.71    598.17      0.00      0.00    598.24       .07       .06       .01    594.46
     765.       37.      592.      131.       42.      260.      110.      101.       30.    594.46
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      1.01       .87      2.30      1.20      .050      .042      .050      .039    590.46     15.30
   .000385      200.      200.      200.         1         0         0      0.00    104.77    120.07

*SECNO 13753.000

                VALLEY SECTION 12+08   (AE&W)                      SECT. U

  13753.00      7.65    598.21      0.00      0.00    598.28       .07       .04       .00    594.56
      765.       36.      591.      138.       41.      257.      121.      101.       30.    594.56
      1.02       .87      2.30      1.13      .050      .042      .050      .039    590.56     15.31
   .000390      100.      100.      100.         0         0         0      0.00    115.30    130.61

*SECNO 14128.000
    SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS  BANK ELEV
        Q      QLOB       QCH      QROB      ALOB       ACH      AROB       VOL       TWA  LEFT/RIGHT
     TIME      VLOB       VCH      VROB       XNL      XNCH       XNR       WTN     ELMIN      SSTA
    SLOPE     XLOBL      XLCH     XLOBR    ITRIAL       IDC     ICONT     CORAR    TOPWID     ENDST

                VALLEY SECTION 15+83   (AE&W)                      SECT. V

  14128.00      7.41    598.37      0.00      0.00    598.45       .08       .16       .01    594.96
      765.       20.      611.      134.       22.      247.      113.      105.       31.    594.96
      1.07       .90      2.48      1.18      .050      .042      .050      .039    590.96     24.97
   .000478      375.      375.      375.         0         0         0      0.00    106.76    131.73

*SECNO 14328.000

                VALLEY SECTION 17+83   (AE&W)                      SECT. W

  14328.00      7.32    598.48      0.00      0.00    598.54       .06       .08       .01    595.16
      765.      118.      530.      118.      117.      244.      117.      107.       32.    595.16
      1.10      1.01      2.18      1.01      .050      .042      .050      .039    591.16     21.25
   .000374      200.      200.      200.         2         0         0      0.00    157.49    178.75

*SECNO 14801.000

3470 ENCROACHMENT STATIONS=       38.0      163.0   TYPE=      1   TARGET=      125.000

                VALLEY SECTION 22+56   (AE&W)                      SECT. X

  14801.00      7.02    598.68      0.00      0.00    598.74       .07       .20       .01    595.66
      765.      107.      551.      107.       94.      231.       95.      112.       33.    595.66
      1.17      1.14      2.39      1.13      .050      .042      .050      .039    591.66     38.00
   .000483      473.      473.      473.         0         0         0      0.00    125.00    163.00

*SECNO 14886.000

3470 ENCROACHMENT STATIONS=       41.0      130.0   TYPE=      1   TARGET=      -41.000

                VALLEY SECTION 23+41   (AE&W)                      SECT. Y

  14886.00      6.94    598.70      0.00      0.00    598.81       .11       .05       .02    595.76
      765.        9.      646.      110.        9.      228.       81.      112.       34.    595.76
      1.17      1.02      2.83      1.36      .050      .042      .050      .039    591.76     41.00
   .000693       85.       85.       85.         0         0         0      0.00     82.81    123.81

*SECNO 14981.000
  14981.00      6.85    598.71      0.00      0.00    599.03       .33       .11       .11    604.36
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     765.         0.       765.        0.         0.       167.         0.       113.        34.      604.36
     1.18       0.00       4.59      0.00       .050       .042       .050       .039     591.86      83.00
  .002428        95.        95.       95.          2          0          0       0.00      34.00     117.00

*SECNO 14982.000
    SECNO      DEPTH      CWSEL     CRIWS      WSELK       EG          HV         HL        OLOSS    BANK ELEV
    Q          QLOB       QCH       QROB       ALOB        ACH         AROB       VOL       TWA     LEFT/RIGHT
    TIME       VLOB       VCH       VROB       XNL         XNCH        XNR        WTN       ELMIN       SSTA
    SLOPE      XLOBL      XLCH      XLOBR      ITRIAL      IDC         ICONT      CORAR     TOPWID      ENDST

3370 NORMAL BRIDGE,NRD=   4 MIN ELTRD=   604.36 MAX ELLC=   600.76

 14982.00       6.85     598.71      0.00       0.00     599.03        .33        .00        .00     604.36
     765.         0.       765.        0.         0.       167.         0.       113.        34.     604.36
     1.18       0.00       4.58      0.00       .040       .021       .040       .039     591.86      83.00
  .000606         1.         1.        1.          0          0          0       0.00      34.00     117.00

*SECNO 15054.000

3370 NORMAL BRIDGE,NRD=   4 MIN ELTRD=   604.36 MAX ELLC=   600.76

                  BRIDGE SECTION 24+56 21 MILE ROAD    (AE&W)         SECT. Z

 15054.00       6.90     598.76      0.00       0.00     599.08        .32        .04        .00     604.36
     765.         0.       765.        0.         0.       169.         0.       113.        34.     604.36
     1.18       0.00       4.54      0.00       .040       .021       .040       .039     591.86      83.00
  .000588        72.        72.       72.          2          0          0       0.00      34.00     117.00

*SECNO 15055.000
 15055.00       6.90     598.76      0.00       0.00     599.08        .32        .00        .00     604.36
     765.         0.       765.        0.         0.       169.         0.       113.        34.     604.36
     1.18       0.00       4.54      0.00       .035       .033       .035       .039     591.86      83.00
  .001451         1.         1.        1.          0          0          0       0.00      34.00     117.00

*SECNO 15097.000

                  VALLEY SECTION 25+33    (AE&W)                      SECT. AA

 15097.00       7.19     599.05      0.00       0.00     599.18        .13        .04        .06     600.66
     755.         0.       755.        0.         0.       262.         0.       114.        34.     600.16
     1.19       0.00       2.88      0.00       .040       .037       .040       .039     591.86     195.75
  .000724        42.        42.       42.          2          0          0       0.00      57.91     253.66

*SECNO 15228.000

                  VALLEY SECTION 26+83    (AE&W)                      SECT. AB

 15228.00       7.19     599.15      0.00       0.00     599.28        .13        .09        .00     600.66
     755.         0.       755.        0.         0.       262.         0.       114.        34.     600.36
     1.20       0.00       2.88      0.00       .040       .037       .040       .039     591.96     271.53
  .000727       131.       131.      131.          2          0          0       0.00      57.86     329.39

*SECNO 15303.000
    SECNO      DEPTH      CWSEL     CRIWS      WSELK       EG          HV         HL        OLOSS    BANK ELEV
    Q          QLOB       QCH       QROB       ALOB        ACH         AROB       VOL       TWA     LEFT/RIGHT
    TIME       VLOB       VCH       VROB       XNL         XNCH        XNR        WTN       ELMIN       SSTA
    SLOPE      XLOBL      XLCH      XLOBR      ITRIAL      IDC         ICONT      CORAR     TOPWID      ENDST
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  15303.00     7.13   599.19     0.00     0.00   599.39      .20      .08      .04   650.90
      755.       0.     755.       0.       0.     208.     208.     115.      34.   650.90
      1.21     0.00     3.63     0.00     .040     .037     .040     .039   592.06   271.47
   .001629      75.      75.      75.        1        0        0     0.00    57.98   329.45

 *SECNO 15325.000
  15325.00     6.42   599.18     0.00     0.00   599.49      .31      .05      .05   601.36
      755.       0.     755.       0.       0.     169.     169.     115.      34.   601.36
      1.21     0.00     4.46     0.00     .040     .037     .040     .039   592.76   276.49
   .002738      22.      22.      22.        2        0        0     0.00    50.79   327.28

 *SECNO 15328.000
  15328.00     4.00   599.06     0.00     0.00   599.63      .58      .01      .13   600.66
      755.       0.     755.       0.       0.     124.       0.     115.      34.   600.36
      1.21     0.00     6.09     0.00     .050     .030     .050     .039   595.06   272.41
   .005751       3.       3.       3.        2        0        0     0.00    56.63   329.04

 *SECNO 15329.000

                DAM SECTION 27+83       (AE8W)                  SECT. AC

  15329.00     4.01   599.07     0.00     0.00   599.64      .57      .01      .00   600.66
      755.       0.     755.       0.       0.     124.       0.     115.      34.   600.36
      1.21     0.00     6.08     0.00     .050     .030     .050     .039   595.06   272.39
   .005730       1.       1.       1.        0        0        0     0.00    56.66   329.05

 *SECNO 15332.000
  15332.00     6.73   599.49     0.00     0.00   599.74      .26      .01      .10   650.90
      755.       0.     755.       0.       0.     186.     186.     115.      34.   650.90
      1.21     0.00     4.06     0.00     .050     .030     .050     .039   592.76   274.27
   .001426       3.       3.       3.        2        0        0     0.00    53.97   328.24

 *SECNO 15354.000
    SECNO     DEPTH    CWSEL    CRIWS    WSELK       EG       HV       HL    OLOSS  BANK ELEV
    Q         QLOB     QCH      QROB     ALOB      ACH      AROB     VOL      TWA   LEFT/RIGHT
    TIME      VLOB     VCH      VROB     XNL       XNCH     XNR      WTN      ELMIN     SSTA
    SLOPE     XLOBL    XLCH     XLOBR    ITRIAL    IDC      ICONT    CORAR    TOPWID    ENDST

  15354.00     7.58   599.64     0.00     0.00   599.80      .16      .03      .03   600.66
      755.       0.     755.       0.       0.     235.     235.     115.      34.   600.66
      1.21     0.00     3.22     0.00     .040     .037     .040     .039   592.06   269.92
   .001163      22.      22.      22.        2        0        0     0.00    60.89   330.81

 *SECNO 15778.000
  15778.00     8.07   600.03     0.00     0.00   600.12      .10      .31      .02   600.66
      755.       0.     755.       0.       0.     302.       0.     119.      35.   600.66
      1.26     0.00     2.50     0.00     .040     .037     .040     .039   591.96   268.88
   .000489     424.     424.     424.        2        0        0     0.00    61.30   330.18

 *SECNO 15946.000
 3280 CROSS SECTION  15946.00 EXTENDED       .04 FEET

  15946.00     7.74   600.10     0.00     0.00   600.25      .15      .10      .03   600.06
      755.      17.     738.       0.      50.     236.       0.     120.      35.   600.36
      1.27      .33     3.13     0.00     .040     .037     .040     .039   592.36     0.00
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 .000750      168.      168.      168.        2        0        0      0.00   326.43   326.43

*SECNO 15947.000
3280 CROSS SECTION  15947.00 EXTENDED        .07 FEET

 15947.00     7.77    600.13     0.00      0.00    600.26      .13       .00      .01   600.06
     755.      49.      706.       0.       57.      237.       0.      120.       35.   600.36
     1.27      .85      2.98     0.00      .035      .080     .035      .039   592.36     0.00
  .003161       1.        1.       1.        2        0        0      0.00   326.49   326.49

SPECIAL BRIDGE

SB   XK          XKOR        COFQ       RDLEN       BWC        BWP        BAREA       SS          ELCHU       ELCHD
      0.00        1.55        2.98       0.00       25.84       0.00      160.20       0.00      592.36      592.36

*SECNO 15957.000
3280 CROSS SECTION  15957.00 EXTENDED        .21 FEET

PRESSURE AND WEIR FLOW

  EGPRS      EGLWC        H3      QWEIR       QPR       BAREA   TRAPEZOID     ELLC     ELTRD
                                                                   AREA
   600.66    600.26      0.00      252.      507.      160.      160.     598.56    599.86

                       BRIDGE SECTION 34+02 PRIVATE BRIDGE (AE&W)       SECT. AD

 15957.00     7.91    600.27     0.00      0.00    600.37      .10       .11     0.00   600.06
     755.     103.      652.       0.       98.      244.       0.      120.       36.   600.36
     1.27     1.06      2.68     0.00      .035      .080     .035      .039   592.36     0.00
  .002484      10.       10.      10.        2        0        3      0.00   326.80   326.80

*SECNO 15958.000
3280 CROSS SECTION  15958.00 EXTENDED        .20 FEET

   SECNO     DEPTH     CWSEL     CRIWS     WSELK      EG        HV        HL      OLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL      TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN      ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR    TOPWID     ENDST

 15958.00     7.90    600.26     0.00      0.00    600.39      .13       .00      .02   600.06
     755.      32.      723.       0.       96.      243.       0.      120.       36.   600.36
     1.27      .33      2.97     0.00      .058      .038     .060      .039   592.36     0.00
  .000692       1.        1.       1.        1        0        0      0.00   326.79   326.79

*SECNO 16752.000

3470 ENCROACHMENT STATIONS=         .0      225.0  TYPE=      1  TARGET=      224.999

                       VALLEY SECTION 42+07   (AE&W)                    SECT. AE

 16752.00     7.99    600.75     0.00      0.00    600.83      .08       .43      .01 99999.76
     755.       0.      754.       1.        0.      326.      14.      126.       41.   600.66
     1.37     0.00      2.31      .10      .058      .038     .060      .039   592.76      .67
  .000438     794.      794.     794.        2        0        0      0.00   224.33   225.00
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*SECNO 17401.000

                    VALLEY SECTION 48+56   (AE&W)                        SECT. AF

    17401.00      7.98    601.04      0.00      0.00    601.12       .09       .29       .00    601.26
        755.        0.      755.        0.        0.      322.        0.      131.       43.    601.86
        1.45      0.00      2.34      0.00      .058      .038      .060      .039    593.06       .76
     .000453      649.      649.      649.         2         0         0      0.00     65.81     66.57

*SECNO 17811.000

                    VALLEY SECTION 52+66   (AE&W)                        SECT. AG

    17811.00      7.96    601.22      0.00      0.00    601.31       .08       .18       .00    601.56
        755.        0.      755.        0.        0.      327.        0.      134.       43.    604.46
        1.50      0.00      2.31      0.00      .058      .038      .060      .039    593.26      1.23
     .000442      410.      410.      410.         0         0         0      0.00     67.23     68.46

*SECNO 17911.000

                    VALLEY SECTION 53+66   (AE&W)                        SECT. AH

    17911.00      5.49    601.15      0.00      0.00    601.58       .43       .10       .17    603.16
        755.        0.      755.        0.        0.      144.        0.      135.       43.    604.46
        1.50      0.00      5.25      0.00      .060      .044      .060      .039    595.66    287.55
     .004496      100.      100.      100.         2         0         0      0.00     38.32    325.86

*SECNO 18011.000
      SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
      Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
      TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
      SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST

                    VALLEY SECTION 54+66   (AE&W)                        SECT. AI

    18011.00      6.05    601.71      0.00      0.00    601.96       .26       .33       .05    602.16
        755.        0.      755.        0.        0.      186.        0.      135.       44.    602.16
        1.51      0.00      4.06      0.00      .060      .044      .060      .039    595.66    284.18
     .002484      100.      100.      100.         2         0         0      0.00     47.49    331.68

*SECNO 18311.000

3265 DIVIDED FLOW

3280 CROSS SECTION   18311.00 EXTENDED        .20 FEET


3470 ENCROACHMENT STATIONS=      173.0      443.0  TYPE=      1  TARGET=      270.000

                    VALLEY SECTION 57+66 (AE&W)                            SECT.AJ

    18311.00      6.74    602.40      0.00      0.00    602.57       .18       .59       .02    603.06
        755.       21.      710.       24.       35.      205.       37.      137.       44.    603.06
        1.53       .61      3.47       .64      .060      .044      .060      .039    595.66    173.00
     .001584      350.      300.      250.         2         0         0      0.00    199.18    443.00
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*SECNO 19536.000
3265 DIVIDED FLOW

3280 CROSS SECTION  19536.00 EXTENDED      1.02 FEET


3470 ENCROACHMENT STATIONS=     174.0     869.0  TYPE=      1  TARGET=      695.000

                    VALLEY SECTION NO. 2 (J&A)                            SECT.AK

   19536.00      8.22    604.02     0.00      0.00    604.14       .12      1.55       .02    604.70
       755.       .66.      599.       90.      129.      197.      127.      147.       53.    606.40
       1.67       .51      3.04       .71      .060      .044      .060      .039    595.80    174.00
    .001033     1050.     1225.     1350.         2         0         0      0.00    463.97    869.00

*SECNO 20836.000
3280 CROSS SECTION  20836.00 EXTENDED       .29 FEET


3470 ENCROACHMENT STATIONS=     494.0     539.0  TYPE=      1  TARGET=       45.000

                    VALLEY SECTION NO. 1 (J&A)                            SECT.AL

   20836.00      8.69    605.49     0.00      0.00    605.71       .22      1.52       .05    604.70
       755.        3.      749.        3.        5.      199.        4.      157.       61.    604.90
       1.76       .71      3.76       .61      .060      .044      .060      .040    596.80    494.00
    .001331     1300.     1300.     1300.         2         0         0      0.00     45.00    539.00
```

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Macomb Twp

3) WATERCOURSE: Gloede Ditch

4) DOCUMENT TYPE: 100 Year Flood
&
100 year flood encroached

00BREAK00

```
$       $     $$      $$$$$$    $$$$$$$$   $$$$$ $  $$$$$$$  $$$$$$$
$$     $$    $$$$    $$    $$      $$      $$    $  $$    $$ $$    $$
$$$   $$$   $$  $$   $$            $$      $$   $$$ $$    $$ $$    $$
$$$$$$$$$  $$    $$  $$            $$      $$  $ $$ $$    $$ $$$$$$$
$$ $$ $$   $$    $$  $$            $$      $$ $$ $$ $$    $$ $$    $$
$$     $$  $$$$$$$$  $$            $$      $$ $  $$ $$$$$$$  $$    $$
$$     $$  $$    $$  $$            $$      $$$   $$ $$  $$   $$    $$
$$     $$  $$    $$  $$     $$ $$  $$       $    $$ $$   $$  $$    $$
$$     $$  $$    $$   $$$$$$     $$$       $ $$$$$  $$    $$ $$$$$$$
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GLOEDE DITCH
J&A FILE No. 5850-03
MACOMB TWP. FIS
10-50-100-500 YR. FLOODS
"ENCROACHED FLOODWAY"

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 *************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -    01,02
  MODIFICATION -  50,51,52,53
 *************************************************

 C
 T1            MACOMB TWP. FIS J&A FILE NO. 5850-03
 T2            10 YEAR FLOOD
 T3            GLOEDE DITCH

 J1  ICHECK    INQ      NINV     IDIR      STRT    METRIC    HVINS     Q       WSEL      FQ

          0.        2.       0.       0.  0.000000    0.00      0.0       0.   593.890    0.000

 J2  NPROF     IPLOT    PRFVS    XSECV     XSECH      FN     ALLDC     IBW     CHNIM     ITRACE

        1.000     0.000   -1.000    0.000     0.000    0.000    0.000    0.000    0.000    0.000

 NC       .035      .035      .080      .300      .500     0.000     0.000     0.000     0.000     0.000
 QT      4.000   850.000  1250.000  1370.000  1935.000     0.000     0.000     0.000     0.000     0.000

 X1   7786.000    23.000   440.000   517.000     0.000     0.000     0.000      .520     0.000     0.000
 GR    600.900     0.000   600.900    40.000   601.000   140.000   601.100   240.000   601.100   340.000
 GR    601.000   440.000   596.200   440.000   586.700   463.000   586.300   463.600   586.300   466.400
 GR    585.000   475.000   587.100   483.000   588.500   437.000   588.400   490.600   588.400   493.400
 GR    596.300   517.000   601.100   517.000   601.200   540.000   601.300   640.000   601.400   740.000
 GR    601.400   840.000   601.500   940.000   601.500   980.000     0.000     0.000     0.000     0.000
 NC       .040      .040      .020     0.000     0.000     0.000     0.000     0.000     0.000     0.000

 X1   7787.000    29.000   440.000   517.000     1.000     1.000     1.000      .520     0.000     0.000
 X2      0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000      .520     0.000
 BT     15.000     0.000   600.900     0.000    40.000   600.900     0.000   140.000   601.000     0.000
 BT    240.000   601.100     0.000   340.000   601.100     0.000   440.000   601.000   598.800   440.000
 BT    601.600   598.800   517.000   601.600   598.800   517.000   601.100   598.800   540.000   601.200
 BT      0.000   640.000   601.300     0.000   740.000   601.400     0.000   840.000   601.400     0.000
 BT    940.000   601.500     0.000   980.000   601.500     0.000     0.000     0.000     0.000     0.000
 GR    600.900     0.000   600.900    40.000   601.000   140.000   601.100   240.000   601.100   340.000
 GR    601.000   440.000   601.600   440.000   596.200   440.000   586.700   463.000   586.300   463.600
 GR    598.800   463.600   598.800   466.400   586.300   466.400   585.000   475.000   587.100   483.000
 GR    588.500   437.000   588.400   490.600   598.800   490.600   598.800   493.400   588.400   493.400
 GR    596.300   517.000   601.600   517.000   601.100   517.000   601.200   540.000   601.300   640.000
 GR    601.400   740.000   601.400   840.000   601.500   940.000   601.500   980.000     0.000     0.000

               BRIDGE SECTION NO.1 HALL ROAD (M-59)  (J&A)     SECT. A

 X1   7860.000     0.000     0.000     0.000    73.000    73.000    73.000     0.000     0.000     0.000
 X2      0.000     0.000     0.000     0.000     0.000     0.000     1.000     0.000     0.000     0.000
 NC       .050      .050      .040     0.000     0.000     0.000     0.000     0.000     0.000     0.000

 X1   7861.000    23.000   440.000   517.000     1.000     1.000     1.000      .520     0.000     0.000
 GR    600.900     0.000   600.900    40.000   601.000   140.000   601.100   240.000   601.100   340.000
 GR    601.000   440.000   596.200   440.000   586.700   463.000   586.300   463.600   586.300   466.400
 GR    585.000   475.000   587.100   483.000   588.500   487.000   588.400   490.600   588.400   493.400
 GR    596.300   517.000   601.100   517.000   601.200   540.000   601.300   640.000   601.400   740.000
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GR	601.400	840.000	601.500	940.000	601.500	980.000	0.000	0.000	0.000	0.000
QT	4.000	835.000	1230.000	1345.000	1905.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION NO.2 (J&A) SECT. B

X1	8050.000	10.000	150.000	199.000	275.000	190.000	190.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	93.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	593.100	0.000	592.700	50.000	592.900	150.000	586.100	164.000	585.600	170.000
GR	586.200	175.000	586.700	182.000	594.600	199.000	601.800	220.000	601.400	245.000
X1	8198.000	11.000	200.000	234.000	148.000	148.000	148.000	0.000	0.000	0.000
GR	597.200	0.000	596.600	100.000	598.800	200.000	589.700	200.000	586.400	209.000
GR	585.600	215.000	586.100	220.000	585.800	224.000	589.800	234.000	598.800	234.000
GR	601.400	292.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.035	.035	.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	8199.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	5.000	0.000	597.200	0.000	100.000	596.600	0.000	200.000	598.800	596.600
BT	234.000	598.800	596.600	292.000	601.400	0.000	0.000	0.000	0.000	0.000

BRIDGE SECTION NO.3 PRIVATE BRIDGE (J&A) SECT. C

X1	8215.000	0.000	0.000	0.000	16.000	16.000	16.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NC	.050	.050	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	8216.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
NC	.060	.060	.042	0.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION NO.4 (J&A) SECT. D

X1	8885.000	11.000	200.000	250.000	669.000	669.000	669.000	0.000	0.000	0.000
GR	599.700	0.000	599.900	100.000	596.200	200.000	586.500	222.000	586.500	225.000
GR	586.900	230.000	587.000	237.000	593.600	250.000	593.000	300.000	595.200	400.000
GR	601.800	467.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	9086.000	21.000	1000.000	1019.000	350.000	201.000	201.000	.860	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	1150.000	0.000	0.000	0.000	0.000
GR	601.200	0.000	600.400	100.000	600.100	200.000	600.000	300.000	600.600	400.000
GR	599.700	500.000	599.000	600.000	597.000	700.000	594.900	800.000	594.500	900.000
GR	595.700	975.000	586.700	1000.000	586.700	1005.000	586.600	1010.000	586.800	1015.000
GR	586.500	1019.000	595.800	1044.000	595.400	1100.000	596.500	1200.000	597.200	1300.000
GR	601.800	1380.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.035	.035	.080	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	9091.000	21.000	1000.000	1019.000	5.000	5.000	5.000	.860	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	1150.000	0.000	0.000	0.000	0.000
GR	601.200	0.000	600.400	100.000	600.100	200.000	600.000	300.000	600.600	400.000
GR	599.700	500.000	599.000	600.000	597.000	700.000	594.900	800.000	594.500	900.000
GR	595.700	975.000	586.700	1000.000	586.700	1005.000	586.600	1010.000	586.800	1015.000
GR	586.500	1019.000	595.800	1044.000	595.400	1100.000	596.500	1200.000	597.200	1300.000
GR	601.800	1380.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	1.750	2.980	0.000	16.500	0.000	130.200	0.000	586.500	586.500

BRIDGE SECT. NO.5 GARFIELD ROAD(ABANDONED) (J&A) SECT.E

X1	9107.000	21.000	1000.00	1019.000	16.000	16.000	16.000	.860	0.000	0.000

X2	0.000	0.000	1.000	594.400	594.500	0.000	0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	1150.000	0.000	0.000	0.000	0.000
BT	16.000	0.000	601.200	0.000	100.000	600.400	0.000	200.000	600.100	0.000
BT	300.000	600.000	0.000	400.000	600.600	0.000	500.000	599.700	0.000	600.000
BT	599.000	0.000	700.000	597.000	0.000	800.000	594.900	0.000	900.000	594.500
BT	0.000	1000.000	596.000	586.700	1000.000	596.000	594.800	1019.000	596.000	594.500
BT	1019.000	596.000	586.500	1100.000	595.400	0.000	1150.000	596.000	0.000	0.000
GR	601.200	0.000	600.400	100.000	600.100	200.000	600.000	300.000	600.600	400.000
GR	599.700	500.000	599.000	600.000	597.000	700.000	594.900	800.000	594.500	900.000
GR	595.700	975.000	586.700	1000.000	586.700	1005.000	586.600	1010.000	586.800	1015.000
GR	586.500	1019.000	595.800	1044.000	595.400	1100.000	596.500	1200.000	597.200	1300.000
GR	601.800	1330.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.060	.060	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	9110.000	21.000	1000.000	1019.000	3.000	3.000	3.000	.360	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	1150.000	0.000	0.000	0.000	0.000
GR	601.200	0.000	600.400	100.000	600.100	200.000	600.000	300.000	600.600	400.000
GR	599.700	500.000	599.000	600.000	597.000	700.000	594.900	800.000	594.500	900.000
GR	595.700	975.000	586.700	1000.000	586.700	1005.000	586.600	1010.000	586.800	1015.000
GR	586.500	1019.000	595.300	1044.000	595.400	1100.000	596.500	1200.000	597.200	1300.000
GR	601.800	1380.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION NO.1 (AE&W) SECT. F

X1	9155.000	10.000	337.000	392.000	45.000	45.000	45.000	0.000	.080	0.000
X3	0.000	0.000	0.000	100.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	597.600	0.000	594.900	92.000	592.300	202.000	592.000	295.000	592.000	337.000
GR	585.600	363.000	593.600	392.000	595.400	442.000	596.100	492.000	599.500	602.000

VALLEY SECTION NO.4 (AE&W) SECT. G

X1	9550.000	9.000	240.000	275.000	395.000	395.000	395.000	0.000	.080	0.000
GR	599.860	0.000	598.500	70.000	596.800	90.000	594.000	200.000	594.500	240.000
GR	586.300	260.000	594.500	275.000	595.000	300.000	599.300	400.000	0.000	0.000

X1	9609.000	25.000	260.000	274.000	59.000	59.000	59.000	0.000	.080	0.000
GR	599.800	0.000	599.000	82.000	595.200	105.000	594.500	120.000	593.500	260.000
GR	589.600	260.000	588.600	260.000	587.100	261.000	586.600	262.000	586.600	264.000
GR	587.100	265.000	588.600	266.000	589.600	266.000	589.600	268.000	588.600	268.000
GR	587.100	269.000	586.600	270.000	586.600	272.000	587.100	273.000	588.600	274.000
GR	589.600	274.000	593.500	274.000	595.500	310.000	599.400	410.000	600.400	510.000
NC	.050	.050	.038	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	9610.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	19.000	0.000	599.880	0.000	82.000	599.080	0.000	105.000	595.280	0.000
BT	120.000	594.580	0.000	260.000	593.580	589.680	261.000	593.580	592.180	262.000
BT	593.580	592.680	264.000	593.580	592.680	265.000	593.580	592.180	266.000	593.580
BT	589.680	268.000	593.580	589.680	269.000	593.580	592.180	270.000	593.580	592.680
BT	272.000	593.580	592.680	273.000	593.580	592.180	274.000	593.580	589.680	310.000
BT	595.580	0.000	410.000	599.480	0.000	510.000	600.480	0.000	0.000	0.000

BRIDGE SECTION NO.5 PRIVATE BRIDGE (AE&W) SECT. H

X1	9625.000	0.000	0.000	0.000	15.000	15.000	15.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000

X1	9626.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
NC	.060	.035	.046	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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                   VALLEY SECTION NO.6    (AE&W)                      SECT. I

X1   9700.000     10.000    260.000    280.000     50.000    100.000     74.000      0.000       .080      0.000
GR    599.800      0.000    599.000     82.000    595.200    105.000    594.500    120.000    594.200    260.000
GR    586.500    275.000    594.200    280.000    595.200    320.000    595.800    350.000    600.200    455.000

                   VALLEY SECTION NO.8    (AE&W)                      SECT. J

X1   9965.000     10.000    295.000    320.000    265.000    265.000    265.000      0.000       .080      0.000
GR    598.400      0.000    597.200     75.000    593.300    185.000    594.400    220.000    595.300    295.000
GR    587.300    305.000    595.300    320.000    594.400    370.000    593.200    435.000    598.800    550.000
NH      4.000       .080    620.000       .035    698.000       .033    733.000       .035    930.000      0.000

                   VALLEY SECTION NO.9    (AE&W)                      SECT. K

X1  10245.000     13.000    693.000    733.000    320.000    220.000    280.000      0.000       .080      0.000
GR    599.200      0.000    597.000    520.000    595.200    620.000    594.800    693.000    589.900    709.000
GR    589.100    713.000    586.900    716.000    586.900    722.000    591.500    727.000    595.900    733.000
GR    596.900    820.000    597.000    920.000    598.200    930.000      0.000      0.000      0.000      0.000
NH      4.000       .080    450.000       .035    541.000       .033    557.000       .035    666.000      0.000

                   VALLEY SECTION NO.11    (AE&W)                     SECT. L

X1  10445.000     11.000    541.000    557.000    200.000    200.000    200.000      0.000       .080      0.000
X3      0.000      0.000      0.000    260.000      0.000      0.000      0.000      0.000      0.000      0.000
GR    599.100      0.000    594.400    450.000    594.400    470.000    589.600    530.000    589.400    541.000
GR    587.500    545.000    587.500    555.000    589.300    557.000    589.400    567.000    597.300    650.000
GR    598.500    660.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
NC       .035       .035       .033      0.000      0.000      0.000      0.000      0.000      0.000      0.000

X1  10845.000      9.000     90.000    105.000    400.000    400.000    400.000      0.000      -.200      0.000
GR    597.600      0.000    591.300     80.000    591.200     90.000    590.100     95.000    587.900     97.000
GR    587.900    104.000    591.100    105.000    591.200    113.000    598.900    183.000      0.000      0.000
QT      4.000    475.000    700.000    765.000   1035.000      0.000      0.000      0.000      0.000      0.000

                   VALLEY SECTION NO.12    (AE&W)                     SECT. M

X1  10945.000      9.000     90.000    105.000    100.000    100.000    100.000      0.000       .080      0.000
GR    597.600      0.000    591.300     80.000    591.200     90.000    590.100     95.000    587.900     97.000
GR    587.900    104.000    591.100    105.000    591.200    113.000    598.900    183.000      0.000      0.000

                   VALLEY SECTION NO.13    (AE&W)                     SECT. N

X1  11445.000      8.000     91.000    110.000    500.000    500.000    500.000      0.000       .080      0.000
GR    597.800      0.000    592.100     76.000    592.000     91.000    589.100     96.000    589.100    105.000
GR    592.000    110.000    592.100    119.000    599.100    182.000      0.000      0.000      0.000      0.000

                   VALLEY SECTION NO.14    (AE&W)                     SECT. O

X1  11945.000      8.000     92.000    110.000    500.000    500.000    500.000      0.000       .080      0.000
GR    598.800      0.000    592.400     78.000    592.200     92.000    589.200     96.000    589.200    106.000
GR    592.200    110.000    592.300    118.000    599.500    182.000      0.000      0.000      0.000      0.000

                   VALLEY SECTION NO.15    (AE&W)                     SECT. P

X1  12445.000      8.000     91.000    110.000    500.000    500.000    500.000      0.000       .080      0.000
GR    598.800      0.000    592.600     78.000    592.500     91.000    589.700     96.000    589.700    104.000
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GR	592.500	110.000	592.600	123.000	598.500	200.000	0.000	0.000	0.000	0.000

VALLEY SECTION NO.16 (AE&W) SECT. Q

X1	12545.000	8.000	96.000	110.000	100.000	100.000	100.000	0.000	.080	0.000
GR	598.900	0.000	592.500	82.000	592.400	96.000	589.600	97.000	589.600	104.000
GR	592.400	110.000	592.500	120.000	599.100	200.000	0.000	0.000	0.000	0.000

VALLEY SECTION 1+00 (AE&W) SECT. R

X1	12645.000	8.000	79.000	121.000	100.000	100.000	100.000	0.000	-.240	0.000
GR	600.000	0.000	594.700	49.000	593.700	79.000	589.700	95.000	589.700	105.000
GR	593.700	121.000	594.700	151.000	600.000	200.000	0.000	0.000	0.000	0.000
NC	.050	.050	.042	0.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION 9+08 (AE&W) SECT. S

X1	13453.000	8.000	79.000	121.000	808.000	808.000	808.000	0.000	-.240	0.000
GR	601.200	0.000	595.500	49.000	594.500	79.000	590.500	95.000	590.500	105.000
GR	594.500	121.000	595.500	151.000	600.300	200.000	0.000	0.000	0.000	0.000

VALLEY SECTION 11+08 (AE&W) SECT. T

X1	13653.000	7.000	38.000	80.000	200.000	200.000	200.000	0.000	-.240	0.000
GR	600.900	0.000	594.700	38.000	590.700	54.000	590.700	64.000	594.700	80.000
GR	595.700	110.000	600.800	129.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION 12+08 (AE&W) SECT. U

X1	13753.000	7.000	38.000	80.000	100.000	100.000	100.000	0.000	-.240	0.000
GR	600.900	0.000	594.800	38.000	590.800	54.000	590.800	64.000	594.800	80.000
GR	595.800	110.000	600.800	149.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION 15+83 (AE&W) SECT. V

X1	14128.000	7.000	38.000	80.000	375.000	375.000	375.000	0.000	-.240	0.000
GR	605.100	0.000	595.200	38.000	591.200	54.000	591.200	64.000	595.200	80.000
GR	596.200	110.000	600.500	149.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION 17+83 (AE&W) SECT. W

X1	14328.000	8.000	79.000	121.000	200.000	200.000	200.000	0.000	-.240	0.000
GR	600.500	0.000	596.400	49.000	595.400	79.000	591.400	95.000	591.400	105.000
GR	595.400	121.000	596.400	151.000	600.500	200.000	0.000	0.000	0.000	0.000

VALLEY SECTION 22+56 (AE&W) SECT. X

X1	14801.000	8.000	79.000	121.000	473.000	473.000	473.000	0.000	-.240	0.000
X3	0.000	0.000	0.000	38.000	0.000	163.000	0.000	0.000	0.000	0.000
GR	600.500	0.000	596.900	49.000	595.900	79.000	591.900	95.000	591.900	105.000
GR	595.900	121.000	596.900	151.000	600.500	200.000	0.000	0.000	0.000	0.000

VALLEY SECTION 23+41 (AE&W) SECT. Y

X1	14886.000	8.000	44.000	86.000	85.000	85.000	85.000	0.000	-.240	0.000
X3	0.000	0.000	0.000	41.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	600.500	0.000	597.000	14.000	596.000	[illegible]	[illegible]	60.000	[illegible]	[illegible]

GR	596.000	86.000	597.000	116.000	600.500	130.000	0.000	0.000	0.000	0.000
X1	14981.000	8.000	83.000	117.000	95.000	95.000	95.000	0.000	-.240	0.000
GR	604.600	0.000	604.600	83.000	597.600	83.000	592.100	95.000	592.100	105.000
GR	597.600	117.000	604.600	117.000	604.600	200.000	0.000	0.000	0.000	0.000
NC	.040	.040	.021	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	14982.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	4.000	0.000	604.360	0.000	83.000	604.360	600.760	117.000	604.360	600.760
BT	200.000	604.360	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

BRIDGE SECTION 24+56 21 MILE ROAD (AE&W) SECT. Z

X1	15054.000	0.000	0.000	0.000	72.000	72.000	72.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NC	.035	.035	.033	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	15055.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
NC	.040	.040	.037	0.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	4.000	465.000	690.000	755.000	1070.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION 25+33 (AE&W) SECT. AA

X1	15097.000	10.000	191.000	257.000	42.000	42.000	42.000	0.000	-.240	0.000
GR	601.900	0.000	600.900	100.000	600.900	191.000	592.100	217.000	592.100	232.000
GR	600.400	257.000	600.600	300.000	600.800	400.000	601.200	500.000	601.400	600.000

VALLEY SECTION 26+83 (AE&W) SECT. AB

X1	15228.000	8.000	267.000	333.000	131.000	131.000	131.000	0.000	-.240	0.000
GR	600.900	0.000	600.900	267.000	592.200	293.000	592.200	308.000	600.600	333.000
GR	600.800	400.000	600.900	500.000	601.100	600.000	0.000	0.000	0.000	0.000
X1	15303.000	12.000	282.000	322.000	75.000	75.000	75.000	0.000	-.240	0.000
GR	600.900	0.000	600.900	267.000	599.500	271.000	596.800	290.000	592.300	293.000
GR	592.300	309.000	596.800	316.000	598.300	326.000	600.600	333.000	600.800	400.000
GR	600.900	500.000	601.100	600.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	15325.000	0.000	0.000	0.000	22.000	22.000	22.000	0.000	.700	0.000
NC	.050	.050	.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	15328.000	14.000	267.000	333.000	3.000	3.000	3.000	0.000	-.240	0.000
GR	600.900	0.000	600.900	267.000	599.500	271.000	596.800	290.000	596.800	296.000
GR	595.300	296.000	595.300	308.000	596.800	308.000	596.800	316.000	598.300	326.000
GR	600.600	333.000	600.800	400.000	600.900	500.000	601.100	600.000	0.000	0.000

DAM SECTION 27+83 (AE&W) SECT. AC

X1	15329.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X1	15332.000	12.000	282.000	322.000	3.000	3.000	3.000	0.000	.460	0.000
GR	600.900	0.000	600.900	267.000	599.500	271.000	596.800	290.000	592.300	293.000
GR	592.300	309.000	596.800	316.000	598.300	326.000	600.600	333.000	600.800	400.000
GR	600.900	500.000	601.100	600.000	0.000	0.000	0.000	0.000	0.000	0.000
C	.040	.040	.037	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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X1  15354.000      0.000      0.000      0.000     22.000     22.000     22.000      0.000      -.700      0.000

X1  15778.000      9.000    267.000    332.000    424.000    424.000    424.000      0.000      -.240      0.000
GR    600.900      0.000    600.900    100.000    600.900    267.000    592.500    292.000    592.200    307.000
GR    600.900    332.000    600.900    400.000    600.900    500.000    601.100    600.000      0.000      0.000

X1  15946.000     14.000    281.000    327.000    168.000    168.000    168.000      0.000      -.240      0.000
GR    600.300      0.000    600.100    100.000    600.100    200.000    600.300    281.000    598.300    284.000
GR    596.600    288.000    592.600    296.000    592.600    311.000    596.600    319.000    598.800    323.000
GR    600.600    327.000    600.600    400.000    600.800    500.000    601.200    600.000      0.000      0.000
NC       .035       .035       .080      0.000      0.000      0.000      0.000      0.000      0.000      0.000

X1  15947.000      0.000      0.000      0.000      1.000      1.000      1.000      0.000      0.000      0.000
SB      0.000      1.550      2.980      0.000     25.840      0.000    160.200      0.000    592.360    592.360

               BRIDGE  SECTION  34+02  PRIVATE  BRIDGE  (AE&W)        SECT.  AD

X1  15957.000      0.000      0.000      0.000     10.000     10.000     10.000      0.000      0.000      0.000
X2      0.000      0.000      1.000    598.560    599.860      0.000      0.000      0.000      0.000      0.000
BT     10.000      0.000    600.060      0.000    100.000    599.860      0.000    200.000    599.860      0.000
BT    281.000    600.060      0.000    284.000    600.160    598.060    323.000    600.260    598.560    327.000
BT    600.360      0.000    400.000    600.360      0.000    500.000    600.560      0.000    600.000    600.960
BT      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
NC       .058       .060       .038      0.000      0.000      0.000      0.000      0.000      0.000      0.000

X1  15958.000      0.000      0.000      0.000      1.000      1.000      1.000      0.000      0.000      0.000

               VALLEY  SECTION  42+07    (AE&W)                       SECT.  AE

X1  16752.000      7.000      0.000     67.000    794.000    794.000    794.000      0.000      -.240      0.000
X3      0.000      0.000      0.000      0.000      0.000    225.000      0.000      0.000      0.000      0.000
GR    601.200      0.000    593.000     26.000    593.000     41.000    600.900     67.000    600.900    122.000
GR    600.900    322.000    601.100    422.000      0.000      0.000      0.000      0.000      0.000      0.000

               VALLEY  SECTION  43+56    (AE&W)                       SECT-  AF

X1  17401.000      7.000      0.000     59.000    649.000    649.000    649.000      0.000      -.240      0.000
GR    601.500      0.000    593.000     25.000    593.000     45.000    602.100     59.000    601.900    138.000
GR    602.200    235.000    602.000    338.000      0.000      0.000      0.000      0.000      0.000      0.000

               VALLEY  SECTION  52+66    (AE&W)                       SECT.  AG

X1  17811.000      7.000      0.000     78.000    410.000    410.000    410.000      0.000      -.240      0.000
GR    601.800      0.000    593.500     30.000    593.500     45.000    604.700     78.000    602.000    130.000
GR    602.100    230.000    602.200    330.000      0.000      0.000      0.000      0.000      0.000      0.000
NC       .060       .060       .044      0.000      0.000      0.000      0.000      0.000      0.000      0.000

               VALLEY  SECTION  53+66    (AE&W)                       SECT.  AH

X1  17911.000     10.000    283.000    333.000    100.000    100.000    100.000      0.000      -.240      0.000
GR    602.200      0.000    602.400    100.000    602.000    217.000    603.400    283.000    595.900    300.000
GR    595.900    314.000    604.700    333.000    602.000    400.000    602.100    500.000    602.200    600.000

               VALLEY  SECTIO   54+66    (AE&W)                       SECT   AI
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X1  18011.000    10.000   283.000   333.000   100.000   100.000   100.000     0.000     -.240     0.000
GR    602.200     0.000   602.400   100.000   602.000   217.000   602.400   283.000   595.900   300.000
GR    595.900   314.000   602.400   333.000   602.000   400.000   602.100   500.000   602.200   600.000

               VALLEY SECTION 57+66 (AE&W)                    SECT.AJ
X1  18311.000    10.000   283.000   333.000   350.000   250.000   300.000     0.000     -.240     0.000
X3      0.000     0.000     0.000   173.000     0.000   443.000     0.000     0.000     0.000     0.000
GR    602.200     0.000   602.400   100.000   602.000   217.000   603.300   233.000   595.900   300.000
GR    595.900   314.000   603.300   333.000   602.000   400.000   602.100   500.000   602.200   600.000

               VALLEY SECTION NO. 2 (J&A)                     SECT.AK
X1  19536.000    17.000   500.000   542.000  1050.000  1350.000  1225.000     0.000     0.000     0.000
X3      0.000     0.000     0.000   174.000     0.000   869.000     0.000     0.000     0.000     0.000
GR    603.600     0.000   603.200   100.000   603.400   200.000   603.500   300.000   603.600   400.000
GR    604.700   500.000   596.700   515.000   595.800   520.000   595.900   523.000   596.600   527.000
GR    597.100   530.000   605.400   542.000   604.400   600.000   604.100   700.000   602.900   800.000
GR    603.000   900.000   603.000  1000.000     0.000     0.000     0.000     0.000     0.000     0.000

               VALLEY SECTION NO. 1 (J&A)                     SECT.AL
X1  20836.000    17.000   500.000   532.000  1300.000  1300.000  1300.000     0.000     0.000     0.000
X3      0.000     0.000     0.000   494.000     0.000   539.000     0.000     0.000     0.000     0.000
GR    603.300     0.000   604.300   100.000   604.300   200.000   604.500   300.000   604.600   400.000
GR    604.700   500.000   598.100   508.000   597.000   511.000   596.800   516.000   596.900   520.000
GR    597.900   524.000   604.900   532.000   604.600   600.000   605.400   700.000   604.800   800.000
GR    604.600   900.000   605.200  1000.000     0.000     0.000     0.000     0.000     0.000     0.000
EJ      0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
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GLOEDE DITCH
J&A FILE NO. 5850-03
MACOMB TWP. FIS
100 YEAR FLOOD
"NATURAL FLOODWAY"

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*************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR  -  01,02
  MODIFICATION -  50,51,52,53
*************************************************


C
T1            MACOMB TWP. FIS J&A FILE NO. 5850-03
T2            100 YEAR FLOOD
T3            GLOEDE DITCH

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q        WSEL      FQ

       0.        4.        0.        0.  0.000000     0.00       0.0      0.   594.740    0.000

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW      CHNIM     ITRACE

      1.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

NC       .035       .035       .080       .300       .500      0.000      0.000      0.000      0.000      0.000
QT      4.000    850.000   1250.000   1370.000   1935.000      0.000      0.000      0.000      0.000      0.000


X1   7786.000     23.000    440.000    517.000      0.000      0.000      0.000       .520      0.000      0.000
GR    600.900      0.000    600.900     40.000    601.000    140.000    601.100    240.000    601.100    340.000
GR    601.000    440.000    596.200    440.000    586.700    463.000    586.300    463.600    586.300    466.400
GR    585.000    475.000    587.100    483.000    588.500    487.000    588.400    490.000    588.400    493.400
GR    596.300    517.000    601.100    517.000    601.200    540.000    601.300    640.000    601.400    740.000
GR    601.400    840.000    601.500    940.000    601.500    980.000      0.000      0.000      0.000      0.000
NC       .040       .040       .020      0.000      0.000      0.000      0.000      0.000      0.000      0.000


X1   7787.000     29.000    440.000    517.000      1.000      1.000      1.000       .520      0.000      0.000
X2      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000       .520      0.000
BT     15.000      0.000    600.900      0.000     40.000    600.900      0.000    140.000    601.000      0.000
BT    240.000    601.100      0.000    340.000    601.100      0.000    440.000    601.000    598.800    440.000
BT    601.600    598.800    517.000    601.600    598.800    517.000    601.100    598.800    540.000    601.200
BT      0.000    640.000    601.300      0.000    740.000    601.400      0.000    840.000    601.400      0.000
BT    940.000    601.500      0.000    980.000    601.500      0.000      0.000      0.000      0.000      0.000
GR    600.900      0.000    600.900     40.000    601.000    140.000    601.100    240.000    601.100    340.000
GR    601.000    440.000    601.600    440.000    596.200    440.000    586.700    463.000    586.300    463.600
GR    598.800    463.600    598.800    466.400    586.300    466.400    585.000    475.000    587.100    483.000
GR    588.500    487.000    588.400    490.600    598.800    490.600    598.800    493.400    588.400    493.400
GR    596.300    517.000    601.600    517.000    601.100    517.000    601.200    540.000    601.300    640.000
GR    601.400    740.000    601.400    840.000    601.500    940.000    601.500    980.000      0.000      0.000


              BRIDGE SECTION NO.1 HALL ROAD (M-59)  (J&A)      SECT. A

X1   7860.000      0.000      0.000      0.000     73.000     73.000     73.000      0.000      0.000      0.000
X2      0.000      0.000      0.000      0.000      0.000      0.000      1.000      0.000      0.000      0.000
NC       .050       .050       .040      0.000      0.000      0.000      0.000      0.000      0.000      0.000


X1   7861.000     23.000    440.000    517.000      1.000      1.000      1.000       .520      0.000      0.000
GR    600.900      0.000    600.900     40.000    601.000    140.000    601.100    240.000    601.100    340.000
GR    601.000    440.000    596.200    440.000    586.700    463.000    586.300    463.600    586.300    466.400
GR    585.000    475.000    587.100    483.000    588.500    487.000    588.400    490.600    588.400    493.400
GR     596.30    517.000    601.100    517.000    601.200    540.000     601.30  [illegible]  [illegible]    740.000
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Run from Clinton to Hall to get this elev., see hydraulic booklet

GR	601.400	840.000	601.500	940.000	601.500	980.000	0.000	0.000	0.000	0.000
QT	4.000	835.000	1230.000	1345.000	1905.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION NO.2 (J&A) SECT. B

X1	8050.000	10.000	150.000	199.000	275.000	190.000	190.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	93.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	593.100	0.000	592.700	50.000	592.900	150.000	586.100	164.000	585.600	170.000
GR	586.200	175.000	586.700	182.000	594.600	199.000	601.800	220.000	601.400	245.000
X1	8198.000	11.000	200.000	234.000	148.000	148.000	148.000	0.000	0.000	0.000
GR	597.200	0.000	596.600	100.000	598.800	200.000	589.700	200.000	586.400	209.000
GR	585.600	215.000	586.100	220.000	585.800	224.000	589.800	234.000	598.800	234.000
GR	601.400	292.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.035	.035	.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	8199.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	5.000	0.000	597.200	0.000	100.000	596.600	0.000	200.000	598.800	596.600
BT	234.000	598.800	596.600	292.000	601.400	0.000	0.000	0.000	0.000	0.000

BRIDGE SECTION NO.3 PRIVATE BRIDGE (J&A) SECT. C

X1	8215.000	0.000	0.000	0.000	16.000	16.000	16.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NC	.050	.050	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	8216.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
NC	.060	.060	.042	0.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION NO.4 (J&A) SECT. D

X1	8885.000	11.000	200.000	250.000	669.000	669.000	669.000	0.000	0.000	0.000
GR	599.700	0.000	599.900	100.000	596.200	200.000	586.500	222.000	586.500	225.000
GR	586.900	230.000	587.000	237.000	593.600	250.000	593.000	300.000	595.200	400.000
GR	601.800	467.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	9086.000	21.000	1000.000	1019.000	350.000	201.000	201.000	.860	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	1150.000	0.000	0.000	0.000	0.000
GR	601.200	0.000	600.400	100.000	600.100	200.000	600.000	300.000	600.600	400.000
GR	599.700	500.000	599.000	600.000	597.000	700.000	594.900	800.000	594.500	900.000
GR	595.700	975.000	586.700	1000.000	586.700	1005.000	586.600	1010.000	586.800	1015.000
GR	586.500	1019.000	595.800	1044.000	595.400	1100.000	596.500	1200.000	597.200	1300.000
GR	601.800	1380.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.035	.035	.080	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	9091.000	21.000	1000.000	1019.000	5.000	5.000	5.000	.860	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	1150.000	0.000	0.000	0.000	0.000
GR	601.200	0.000	600.400	100.000	600.100	200.000	600.000	300.000	600.600	400.000
GR	599.700	500.000	599.000	600.000	597.000	700.000	594.900	800.000	594.500	900.000
GR	595.700	975.000	586.700	1000.000	586.700	1005.000	586.600	1010.000	586.800	1015.000
GR	586.500	1019.000	595.800	1044.000	595.400	1100.000	596.500	1200.000	597.200	1300.000
GR	601.800	1380.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	1.750	2.980	0.000	16.500	0.000	130.200	0.000	586.500	586.500

BRIDGE SECT. NO.5 GARFIELD ROAD(ABANDONED) (J&A) SECT.E

X1	9107.000	21.000	1000.000	1019.000	16.000	16.000	16.000	.860	0.000	0.00

X2	0.000	0.000	1.000	594.400	594.500	0.000	0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	1150.000	0.000	0.000	0.000	0.000
BT	16.000	0.000	601.200	0.000	100.000	600.400	0.000	200.000	600.100	0.000
BT	300.000	600.000	0.000	400.000	600.600	0.000	500.000	599.700	0.000	600.000
BT	599.000	0.000	700.000	597.000	0.000	800.000	594.900	0.000	900.000	594.500
BT	0.000	1000.000	596.000	586.700	1000.000	596.000	594.800	1019.000	596.000	594.500
BT	1019.000	596.000	586.500	1100.000	595.400	0.000	1150.000	596.000	0.000	0.000
GR	601.200	0.000	600.400	100.000	600.100	200.000	600.000	300.000	600.600	400.000
GR	599.700	500.000	599.000	600.000	597.000	700.000	594.900	800.000	594.500	900.000
GR	595.700	975.000	586.700	1000.000	586.700	1005.000	586.600	1010.000	586.800	1015.000
GR	586.500	1019.000	595.800	1044.000	595.400	1100.000	596.500	1200.000	597.200	1300.000
GR	601.800	1380.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.060	.060	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	9110.000	21.000	1000.000	1019.000	3.000	3.000	3.000	.860	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	1150.000	0.000	0.000	0.000	0.000
GR	601.200	0.000	600.400	100.000	600.100	200.000	600.000	300.000	600.600	400.000
GR	599.700	500.000	599.000	600.000	597.000	700.000	594.900	800.000	594.500	900.000
GR	595.700	975.000	586.700	1000.000	586.700	1005.000	586.600	1010.000	586.800	1015.000
GR	586.500	1019.000	595.800	1044.000	595.400	1100.000	596.500	1200.000	597.200	1300.000
GR	601.800	1380.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Triangle

VALLEY SECTION NO.1 (AE&W) SECT. F

X1	9155.000	10.000	337.000	392.000	45.000	45.000	45.000	0.000	.080	0.000
X3	0.000	0.000	0.000	100.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	597.600	0.000	594.900	92.000	592.300	202.000	592.000	295.000	592.000	337.000
GR	585.600	363.000	593.600	392.000	595.400	442.000	596.100	492.000	599.500	602.000

VALLEY SECTION NO.4 (AE&W) SECT. G

Tri

X1	9550.000	9.000	240.000	275.000	395.000	395.000	395.000	0.000	.080	0.000
GR	599.800	0.000	598.900	70.000	596.800	90.000	594.000	200.000	594.500	240.000
GR	586.300	260.000	594.500	275.000	595.000	300.000	599.300	400.000	0.000	0.000

X1	9609.000	25.000	260.000	274.000	59.000	59.000	59.000	0.000	.080	0.000
GR	599.800	0.000	599.000	82.000	595.200	105.000	594.500	120.000	593.500	260.000
GR	589.600	260.000	588.600	260.000	587.100	261.000	586.600	262.000	586.600	264.000
GR	587.100	265.000	588.600	266.000	589.600	266.000	589.600	268.000	588.600	268.000
GR	587.100	269.000	586.600	270.000	586.600	272.000	587.100	273.000	588.600	274.000
GR	589.600	274.000	593.500	274.000	595.500	310.000	599.400	410.000	600.400	510.000
NC	.050	.050	.038	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	9610.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	19.000	0.000	599.880	0.000	82.000	599.080	0.000	105.000	595.280	0.000
BT	120.000	594.580	0.000	260.000	593.580	589.680	261.000	593.580	592.180	262.000
BT	593.580	592.680	264.000	593.580	592.680	265.000	593.580	592.180	266.000	593.580
BT	589.680	268.000	593.580	589.680	269.000	593.580	592.180	270.000	593.580	592.680
BT	272.000	593.580	592.680	273.000	593.580	592.180	274.000	593.580	589.680	310.000
BT	595.580	0.000	410.000	599.480	0.000	510.000	600.480	0.000	0.000	0.000

BRIDGE SECTION NO.5 PRIVATE BRIDGE (AE&W) SECT. H

X1	9625.000	0.000	0.000	0.000	15.000	15.000	15.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000

X1	9626.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
NC	.060	.035	.046	0.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION NO.6 (AE&W) SECT. I

X1	9700.000	10.000	260.000	280.000	50.000	100.000	74.000	0.000	.080	0.000
GR	599.300	0.000	599.000	82.000	595.200	105.000	594.500	120.000	594.200	260.000
GR	586.500	275.000	594.200	280.000	595.200	320.000	595.800	350.000	600.200	455.000

VALLEY SECTION NO.8 (AE&W) SECT. J

X1	9965.000	10.000	295.000	320.000	265.000	265.000	265.000	0.000	.080	0.000
GR	598.400	0.000	597.200	75.000	593.300	185.000	594.400	220.000	595.300	295.000
GR	587.300	305.000	595.300	320.000	594.400	370.000	593.200	435.000	598.800	550.000
NH	4.000	.080	620.000	.035	698.000	.033	733.000	.035	930.000	0.000

VALLEY SECTION NO.9 (AE&W) SECT. K

X1	10245.000	13.000	698.000	733.000	320.000	220.000	280.000	0.000	.080	0.000
GR	599.200	0.000	597.000	520.000	595.200	620.000	594.300	698.000	589.900	709.000
GR	589.100	713.000	586.900	716.000	586.900	722.000	591.500	727.000	595.900	733.000
GR	596.900	820.000	597.000	920.000	598.200	930.000	0.000	0.000	0.000	0.000
NH	4.000	.080	450.000	.035	541.000	.033	557.000	.035	666.000	0.000

VALLEY SECTION NO.11 (AE&W) SECT. L

X1	10445.000	11.000	541.000	557.000	200.000	200.000	200.000	0.000	.080	0.000
X3	0.000	0.000	0.000	260.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	599.100	0.000	594.400	450.000	594.400	470.000	589.600	530.000	589.400	541.000
GR	587.500	545.000	587.500	555.000	589.300	557.000	589.400	567.000	597.300	650.000
GR	598.500	660.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.035	.035	.033	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	10845.000	9.000	90.000	105.000	400.000	400.000	400.000	0.000	-.200	0.000
GR	597.600	0.000	591.300	80.000	591.200	90.000	590.100	95.000	587.900	97.000
GR	587.900	104.000	591.100	105.000	591.200	113.000	598.900	183.000	0.000	0.000
BT	4.000	475.000	700.000	765.000	1085.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION NO.12 (AE&W) SECT. M

X1	10945.000	9.000	90.000	105.000	100.000	100.000	100.000	0.000	.080	0.000
GR	597.600	0.000	591.300	80.000	591.200	90.000	590.100	95.000	587.900	97.000
GR	587.900	104.000	591.100	105.000	591.200	113.000	598.900	183.000	0.000	0.000

VALLEY SECTION NO.13 (AE&W) SECT. N

X1	11445.000	8.000	91.000	110.000	500.000	500.000	500.000	0.000	.080	0.000
GR	597.800	0.000	592.100	76.000	592.000	91.000	589.100	96.000	589.100	105.000
GR	592.000	110.000	592.100	119.000	599.100	182.000	0.000	0.000	0.000	0.000

VALLEY SECTION NO.14 (AE&W) SECT. O

X1	11945.000	8.000	92.000	110.000	500.000	500.000	500.000	0.000	.080	0.000
GR	598.800	0.000	592.400	78.000	592.200	92.000	589.200	96.000	589.200	106.000
GR	592.200	110.000	592.300	118.000	599.500	182.000	0.000	0.000	0.000	0.000

VALLEY SECTION NO.15 (AE&W) SECT. P

X1	12445.000	8.000	91.000	110.000	500.000	500.000	500.000	0.000	.080	0.000
GR	598.800	0.000	592.600	78.000	592.500	91.000	589.700	96.000	589.700	[illegible]

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GR    592.500    110.000    592.600    123.000    598.500    200.000      0.000      0.000      0.000      0.000

               VALLEY SECTION NO.16    (AE&W)                SECT. Q

X1  12545.000      8.000     96.000    110.000    100.000    100.000    100.000      0.000       .080      0.000
GR    598.900      0.000    592.500     82.000    592.400     96.000    589.600     97.000    589.600    104.000
GR    592.400    110.000    592.500    120.000    599.100    200.000      0.000      0.000      0.000      0.000

               VALLEY SECTION 1+00     (AE&W)                SECT. R

X1  12645.000      8.000     79.000    121.000    100.000    100.000    100.000      0.000     -.240      0.000
GR    600.000      0.000    594.700     49.000    593.700     79.000    589.700     95.000    589.700    105.000
GR    593.700    121.000    594.700    151.000    600.000    200.000      0.000      0.000      0.000      0.000
NC       .050       .050       .042      0.000      0.000      0.000      0.000      0.000      0.000      0.000

               VALLEY SECTION 9+08     (AE&W)                SECT. S

X1  13453.000      8.000     79.000    121.000    808.000    808.000    808.000      0.000     -.240      0.000
GR    601.200      0.000    595.500     49.000    594.500     79.000    590.500     95.000    590.500    105.000
GR    594.500    121.000    595.500    151.000    600.800    200.000      0.000      0.000      0.000      0.000

               VALLEY SECTION 11+08    (AE&W)                SECT. T

X1  13653.000      7.000     38.000     80.000    200.000    200.000    200.000      0.000     -.240      0.000
GR    600.900      0.000    594.700     38.000    590.700     54.000    590.700     64.000    594.700     80.000
GR    595.700    110.000    600.800    129.000      0.000      0.000      0.000      0.000      0.000      0.000

               VALLEY SECTION 12+08    (AE&W)                SECT. U

X1  13753.000      7.000     38.000     80.000    100.000    100.000    100.000      0.000     -.240      0.000
GR    600.900      0.000    594.800     38.000    590.800     54.000    590.800     64.000    594.800     80.000
GR    595.300    110.000    600.800    149.000      0.000      0.000      0.000      0.000      0.000      0.000

               VALLEY SECTION 15+83    (AE&W)                SECT. V

X1  14128.000      7.000     38.000     80.000    375.000    375.000    375.000      0.000     -.240      0.000
GR    605.100      0.000    595.200     38.000    591.200     54.000    591.200     64.000    595.200     80.000
GR    596.200    110.000    600.500    149.000      0.000      0.000      0.000      0.000      0.000      0.000

               VALLEY SECTION 17+83    (AE&W)                SECT. W

X1  14328.000      8.000     79.000    121.000    200.000    200.000    200.000      0.000     -.240      0.000
GR    600.500      0.000    596.400     49.000    595.400     79.000    591.400     95.000    591.400    105.000
GR    595.400    121.000    596.400    151.000    600.500    200.000      0.000      0.000      0.000      0.000

               VALLEY SECTION 22+56    (AE&W)                SECT. X

X1  14801.000      8.000     79.000    121.000    473.000    473.000    473.000      0.000     -.240      0.000
X3      0.000      0.000      0.000     38.000      0.000    163.000      0.000      0.000      0.000      0.000
GR    600.500      0.000    596.900     49.000    595.900     79.000    591.900     95.000    591.900    105.000
GR    595.900    121.000    596.900    151.000    600.500    200.000      0.000      0.000      0.000      0.000

               VALLEY SECTION 23+41    (AE&W)                SECT. Y

X1  14886.000      8.000     44.000     86.000     85.000     85.000     85.000      0.000     -.240      0.000
X3      0.000      0.000      0.000     41.000      0.000      0.000      0.000      0.000      0.000      0.000
GR    600.500      0.000    597.000     14.000    596.000     44.000    597.000     60.000    597.000     70.0.0
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GR    596.000     86.000    597.000    116.000    600.500    130.000      0.000      0.000      0.000      0.000

X1  14981.000      8.000     83.000    117.000     95.000     95.000     95.000      0.000      -.240      0.000
GR    604.600      0.000    604.600     83.000    597.600     83.000    592.100     95.000    592.100    105.000
GR    597.600    117.000    604.600    117.000    604.600    200.000      0.000      0.000      0.000      0.000
NC       .040       .040       .021      0.000      0.000      0.000      0.000      0.000      0.000      0.000

X1  14982.000      0.000      0.000      0.000      1.000      1.000      1.000      0.000      0.000      0.000
BT      4.000      0.000    604.360      0.000     83.000    604.360    600.760    117.000    604.360    600.760
BT    200.000    604.360      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000

                BRIDGE SECTION 24+56 21 MILE ROAD    (AE&W)         SECT. Z

X1  15054.000      0.000      0.000      0.000     72.000     72.000     72.000      0.000      0.000      0.000
X2      0.000      0.000      0.000      0.000      0.000      0.000      1.000      0.000      0.000      0.000
NC       .035       .035       .033      0.000      0.000      0.000      0.000      0.000      0.000      0.000

X1  15055.000      0.000      0.000      0.000      1.000      1.000      1.000      0.000      0.000      0.000
NC       .040       .040       .037      0.000      0.000      0.000      0.000      0.000      0.000      0.000
GT      4.000    465.000    690.000    755.000   1070.000      0.000      0.000      0.000      0.000      0.000

                VALLEY SECTION 25+33    (AE&W)                      SECT. AA

X1  15097.000     10.000    191.000    257.000     42.000     42.000     42.000      0.000      -.240      0.000
GR    601.900      0.000    600.900    100.000    600.900    191.000    592.100    217.000    592.100    232.000
GR    600.400    257.000    600.600    300.000    600.800    400.000    601.200    500.000    601.400    600.000

                VALLEY SECTION 26+83    (AE&W)                      SECT. AB

X1  15228.000      8.000    267.000    333.000    131.000    131.000    131.000      0.000      -.240      0.000
GR    600.900      0.000    600.900    267.000    592.200    293.000    592.200    308.000    600.600    333.000
GR    600.800    400.000    600.900    500.000    601.100    600.000      0.000      0.000      0.000      0.000

X1  15303.000     12.000    282.000    322.000     75.000     75.000     75.000      0.000      -.240      0.000
GR    600.900      0.000    600.900    267.000    599.500    271.000    596.800    290.000    592.300    293.000
GR    592.300    309.000    596.800    316.000    598.300    326.000    600.600    333.000    600.800    400.000
GR    600.900    500.000    601.100    600.000      0.000      0.000      0.000      0.000      0.000      0.000

X1  15325.000      0.000      0.000      0.000     22.000     22.000     22.000      0.000       .700      0.000
NC       .050       .050       .030      0.000      0.000      0.000      0.000      0.000      0.000      0.000

X1  15328.000     14.000    267.000    333.000      3.000      3.000      3.000      0.000      -.240      0.000
GR    600.900      0.000    600.900    267.000    599.500    271.000    596.800    290.000    596.800    296.000
GR    595.300    296.000    595.300    308.000    596.800    308.000    596.800    316.000    598.300    326.000
GR    600.600    333.000    600.800    400.000    600.900    500.000    601.100    600.000      0.000      0.000

                DAM SECTION 27+83       (AE&W)                      SECT. AC

X1  15329.000      0.000      0.000      0.000      1.000      1.000      1.000      0.000      0.000      0.000

X1  15332.000     12.000    282.000    322.000      3.000      3.000      3.000      0.000       .460      0.000
GR    600.900      0.000    600.900    267.000    599.500    271.000    596.800    290.000    592.300    293.000
GR    592.300    309.000    596.800    316.000    598.300    326.000    600.600    333.000    600.800    400.000
GR    600.900    500.000    601.100    600.000      0.000      0.000      0.000      0.000      0.000      0.000
NC       .040       .040       .037      0.000      0.000      0.000      0.000      0.000      0.000      0.000
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X1  15354.000     0.000     0.000     0.000    22.000    22.000    22.000     0.000     -.700     0.000

X1  15778.000     9.000   267.000   332.000   424.000   424.000   424.000     0.000     -.240     0.000
GR    600.900     0.000   600.900   100.000   600.900   267.000   592.500   292.000   592.200   307.000
GR    600.900   332.000   600.900   400.000   600.900   500.000   601.100   600.000     0.000     0.000

X1  15946.000    14.000   281.000   327.000   168.000   168.000   168.000     0.000     -.240     0.000
GR    600.300     0.000   600.100   100.000   600.100   200.000   600.300   281.000   598.300   284.000
GR    596.600   288.000   592.600   296.000   592.600   311.000   596.600   319.000   598.800   323.000
GR    600.600   327.000   600.600   400.000   600.800   500.000   601.200   600.000     0.000     0.000
NC       .035      .035      .030     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1  15947.000     0.000     0.000     0.000     1.000     1.000     1.000     0.000     0.000     0.000
SB      0.000     1.550     2.980     0.000    25.840     0.000   160.200     0.000   592.360   592.360

          BRIDGE SECTION 34+02 PRIVATE BRIDGE (AE&W)       SECT. AD

X1  15957.000     0.000     0.000     0.000    10.000    10.000    10.000     0.000     0.000     0.000
X2      0.000     0.000     1.000   598.560   599.860     0.000     0.000     0.000     0.000     0.000
BT     10.000     0.000   600.060     0.000   100.000   599.860     0.000   200.000   599.860     0.000
BT    281.000   600.060     0.000   284.000   600.160   598.060   323.000   600.260   598.560   327.000
BT    600.360     0.000   400.000   600.360     0.000   500.000   600.560     0.000   600.000   600.960
BT      0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
NC       .058      .060      .038     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1  15958.000     0.000     0.000     0.000     1.000     1.000     1.000     0.000     0.000     0.000

          VALLEY SECTION 42+07    (AE&W)                   SECT. AE

X1  16752.000     7.000     0.000    67.000   794.000   794.000   794.000     0.000     -.240     0.000
X3      0.000     0.000     0.000     0.000     0.000   225.000     0.000     0.000     0.000     0.000
GR    601.200     0.000   593.000    26.000   593.000    41.000   600.900    67.000   600.900   122.000
GR    600.900   322.000   601.100   422.000     0.000     0.000     0.000     0.000     0.000     0.000

          VALLEY SECTION 48+56    (AE&W)                   SECT. AF

X1  17401.000     7.000     0.000    69.000   649.000   649.000   649.000     0.000     -.240     0.000
GR    601.500     0.000   593.300    28.000   593.300    43.000   602.100    69.000   601.900   138.000
GR    602.200   238.000   602.000   338.000     0.000     0.000     0.000     0.000     0.000     0.000

          VALLEY SECTION 52+66    (AE&W)                   SECT. AG

X1  17811.000     7.000     0.000    78.000   410.000   410.000   410.000     0.000     -.240     0.000
GR    601.800     0.000   593.500    30.000   593.500    45.000   604.700    78.000   602.000   130.000
GR    602.100   230.000   602.200   330.000     0.000     0.000     0.000     0.000     0.000     0.000
NC       .060      .060      .044     0.000     0.000     0.000     0.000     0.000     0.000     0.000

          VALLEY SECTION 53+66    (AE&W)                   SECT. AH

X1  17911.000    10.000   283.000   333.000   100.000   100.000   100.000     0.000     -.240     0.000
GR    602.200     0.000   602.400   100.000   602.000   217.000   603.400   283.000   595.900   300.000
GR    595.900   314.000   604.700   333.000   602.000   400.000   602.100   500.000   602.200   600.000

          VALLEY SECTIO' 54+6'    (AE&W)                   SECT  AI
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X1   18011.000    10.000   283.000   333.000   100.000   100.000   100.000     0.000     -.240     0.000
GR     602.200     0.000   602.400   100.000   602.000   217.000   602.400   283.000   595.900   300.000
GR     595.900   314.000   602.400   333.000   602.000   400.000   602.100   500.000   602.200   600.000

          VALLEY SECTION 57+66 (AE&W)                      SECT.AJ
X1   18311.000    10.000   283.000   333.000   350.000   250.000   300.000     0.000     -.240     0.000
GR     602.200     0.000   602.400   100.000   602.000   217.000   603.300   283.000   595.900   300.000
GR     595.900   314.000   603.300   333.000   602.000   400.000   602.100   500.000   602.200   600.000

          VALLEY SECTION NO. 2 (J&A)                       SECT.AK
X1   19536.000    17.000   500.000   542.000  1050.000  1350.000  1225.000     0.000     0.000     0.000
X3       0.000     0.000     0.000   174.000     0.000   869.000     0.000     0.000     0.000     0.000
GR     603.600     0.000   603.200   100.000   603.400   200.000   603.500   300.000   603.600   400.000
GR     604.700   500.000   596.700   515.000   595.800   520.000   595.900   523.000   596.600   527.000
GR     597.100   530.000   606.400   542.000   604.400   600.000   604.100   700.000   602.900   800.000
GR     603.000   900.000   603.000  1000.000     0.000     0.000     0.000     0.000     0.000     0.000

          VALLEY SECTION NO. 1 (J&A)                       SECT.AL
X1   20836.000    17.000   500.000   532.000  1300.000  1300.000  1300.000     0.000     0.000     0.000
X3       0.000     0.000     0.000   494.000     0.000   539.000     0.000     0.000     0.000     0.000
GR     603.300     0.000   604.300   100.000   604.300   200.000   604.500   300.000   604.600   400.000
GR     604.700   500.000   598.100   508.000   597.000   511.000   596.800   516.000   596.900   520.000
GR     597.900   524.000   604.900   532.000   604.600   600.000   605.400   700.000   604.800   800.000
GR     604.600   900.000   605.200  1000.000     0.000     0.000     0.000     0.000     0.000     0.000
EJ       0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
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*PROF 1

CCHV=     .300 CEHV=     .500
*SECNO 7786.000
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

  7786.00      9.74    594.74      0.00    594.74    595.48       .74      0.00      0.00    601.00
    1370.        0.     1370.        0.        0.      199.        0.        0.        0.    601.10
     0.00      0.00      6.88      0.00      .035      .080      .035     0.000    585.00    230.64
  .017123        0.        0.        0.         0         0         0      0.00     35.78    266.42

*SECNO 7787.000

3265 DIVIDED FLOW

3370 NORMAL BRIDGE,NRD= 15 MIN ELTRD=  600.90 MAX ELLC=  598.80                TW. due to

  7787.00      9.63    594.63      0.00      0.00    595.60       .96       .01       .11    601.00   skew,
    1370.        0.     1370.        0.        0.      174.        0.        0.        0.    601.10
      .00      0.00      7.87      0.00      .040      .020      .040      .010    585.00    230.77
  .003184        1.        1.        1.         2         0         0      0.00     32.57    266.25

*SECNO 7860.000

3265 DIVIDED FLOW

3370 NORMAL BRIDGE,NRD= 15 MIN ELTRD=  600.90 MAX ELLC=  598.80


                  BRIDGE SECTION NO.1 HALL ROAD (M-59)  (J&A)      SECT. A

  7860.00     10.01    595.01      0.00      0.00    595.85       .84       .21       .04    601.00
    1370.        0.     1370.        0.        0.      187.        0.        0.        0.    601.10
      .00      0.00      7.34      0.00      .040      .020      .040      .019    585.00    230.29
  .002663       73.       73.       73.         2         0         0      0.00     33.64    266.84


*SECNO 7861.000
  7861.00     10.32    595.32      0.00      0.00    595.92       .60       .00       .07    601.00
    1370.        0.     1370.        0.        0.      220.        0.        0.        0.    601.10
      .00      0.00      6.22      0.00      .050      .040      .050      .019    585.00    229.90
  .003246        1.        1.        1.         2         0         0      0.00     37.42    267.32


*SECNO 8050.000
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


3470 ENCROACHMENT STATIONS=       93.0      245.0  TYPE=      1  TARGET=       -93.000
```

VALLEY SECTION NO.2 (J&A) SECT. B

8050.00	10.55	596.15	0.00	0.00	596.26	.11	.20	.15	592.90
1345.	259.	1084.	2.	188.	367.	3.	2.	0.	594.60
.02	1.38	2.95	.52	.050	.040	.050	.033	585.60	93.00
.000470	275.	190.	190.	2	0	0	0.00	110.51	203.51

*SECNO 8198.000

8198.00	10.56	596.16	0.00	0.00	596.45	.29	.10	.09	598.80
1345.	0.	1345.	0.	0.	310.	0.	4.	1.	598.80
.03	0.00	4.34	0.00	.050	.040	.050	.035	585.60	200.00
.001142	148.	148.	148.	2	0	0	0.00	34.00	234.00

*SECNO 8199.000

3370 NORMAL BRIDGE,NRD= 5 MIN ELTRD= 596.60 MAX ELLC= 596.60

8199.00	10.56	596.16	0.00	0.00	596.45	.29	.00	.00	598.80
1345.	0.	1345.	0.	0.	310.	0.	4.	1.	598.80
.03	0.00	4.34	0.00	.035	.020	.035	.035	585.60	200.00
.000286	1.	1.	1.	0	0	0	0.00	34.00	234.00

*SECNO 8215.000

3370 NORMAL BRIDGE,NRD= 5 MIN ELTRD= 596.60 MAX ELLC= 596.60

BRIDGE SECTION NO.3 PRIVATE BRIDGE (J&A) SECT. C

8215.00	10.57	596.17	0.00	0.00	596.46	.29	.00	.00	598.80
1345.	0.	1345.	0.	0.	310.	0.	4.	1.	598.80
.03	0.00	4.33	0.00	.035	.020	.035	.035	585.60	200.00
.000285	16.	16.	16.	0	0	0	0.00	34.00	234.00

*SECNO 8216.000

8216.00	10.57	596.17	0.00	0.00	596.46	.29	.00	.00	598.80
1345.	0.	1345.	0.	0.	310.	0.	4.	1.	598.80
.03	0.00	4.34	0.00	.050	.040	.050	.034	585.60	200.00
.001140	1.	1.	1.	0	0	0	0.00	34.00	234.00

*SECNO 8885.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

VALLEY SECTION NO.4 (J&A) SECT. D

8885.00	10.37	596.87	0.00	0.00	596.94	.07	.41	.07	596.20
1345.	1.	874.	470.	6.	358.	470.	13.	3.	593.60
.13	.23	2.44	1.00	.060	.042	.060	.039	586.50	181.91
.000378	669.	669.	669.	2	0	0	0.00	235.04	416.95

*SECNO 9086.000

3470 ENCROACHMENT STATIONS= .0 989.0 TYPE= 1 TARGET= 1149.999

9086.00	10.45	596.95	0.00	0.00	597.04	.09	.09	.01	586.70
1345	495	579	267	523	168	245	18	5	586.50

```
        .16        .95      3.45      1.09      .060      .042      .060      .039    586.50    604.04
    .000426       350.      201.      201.         2         0         0      0.00    384.96    989.00

 *SECNO 9091.000

 3470 ENCROACHMENT STATIONS=         .0     989.0   TYPE=      1  TARGET=    1149.999
    9091.00      10.53    597.03      0.00      0.00    597.06       .03       .00       .02    586.70
      1345.       718.      246.      382.      542.      169.      253.       18.        5.    586.50
        .16       1.32      1.45      1.51      .035      .080      .035      .039    586.50    600.83
    .000271         5.        5.        5.         2         0         0      0.00    388.16    989.00

 SPECIAL BRIDGE

 SB  XK          XKOR      COFQ      RDLEN      BWC       BWP      BAREA       SS       ELCHU     ELCHD
        0.00      1.75      2.98      0.00     16.50      0.00    130.20      0.00    586.50    586.50

 *SECNO 9107.000
 PRESSURE AND WEIR FLOW

   EGPRS      EGLWC         H3     QWEIR       QPR      BAREA   TRAPEZOID      ELLC      ELTRD
                                                                  AREA
    599.93    597.06      0.00     1116.      233.      130.      130.      594.40    594.50

 3470 ENCROACHMENT STATIONS=         .0     989.0   TYPE=      1  TARGET=    1149.999

                  BRIDGE SECT. NO.5 GARFIELD ROAD(ABANDONED) (J8A)     SECT.E

    9107.00      10.58    597.08      0.00      0.00    597.11       .03       .06      0.00    586.70
      1345.       723.      240.      382.      557.      170.      260.       18.        5.    586.50
        .17       1.30      1.41      1.47      .035      .080      .035      .039    586.50    598.36
    .000255        16.       16.       16.         2         0         7      0.00    390.64    989.00

 *SECNO 9110.000

 3470 ENCROACHMENT STATIONS=         .0     989.0   TYPE=      1  TARGET=    1149.999
    9110.00      10.56    597.06      0.00      0.00    597.14       .07       .00       .02    586.70
      1345.       527.      539.      279.      552.      170.      257.       18.        5.    586.50
        .17        .95      3.18      1.08      .060      .045      .060      .039    586.50    599.24
    .000409         3.        3.        3.         2         0         0      0.00    389.76    989.00

 *SECNO 9155.000
    SECNO     DEPTH     CWSEL     CRIWS     WSELK       EG        HV        HL      OLOSS   BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN      ELMIN      SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR    TOPWID     ENDST

 3470 ENCROACHMENT STATIONS=      100.0     602.0   TYPE=      1  TARGET=    -100.000

                  VALLEY SECTION NO.1    (AE8W)                         SECT. F

    9155.00      11.47    597.15      0.00      0.00    597.16       .01       .01       .02    592.08
      1345.       702.      560.       83.     1033.      431.      209.       19.        5.    593.68
        .18        .68      1.30       .40      .060      .045      .060      .039    585.68    100.00
    .000104        45.       45.       45.         2         0         0      0.00    423.29    523.29
```

skew .86

Weir length = 950 ft has not been skew

1150 × 86 ?

1116 × 86 - 365

'n' values adjusted to obtain better continuity ?

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*SECNO 9550.000
                     VALLEY SECTION NO.4    (AE&W)                        SECT. G

    9550.00     10.80    597.18      0.00      0.00    597.31       .13       .09       .06    594.58
      1345.      395.      825.      125.      302.      235.      110.       30.        8.    594.58
        .22      1.31      3.52      1.13      .060      .045      .060      .041    586.38     87.09
    .001026      395.      395.      395.         2         0         0      0.00    261.86    348.95

*SECNO 9609.000
    9609.00     10.65    597.33      0.00      0.00    597.39       .06       .06       .02    593.58
      1345.      797.      377.      170.      504.      137.      138.       31.        9.    593.58
        .23      1.58      2.75      1.23      .060      .045      .060      .041    586.68     92.59
    .000895       59.       59.       59.         2         0         0      0.00    262.30    354.89

*SECNO 9610.000

3370 NORMAL BRIDGE,NRD= 19 MIN ELTRD=  593.58 MAX ELLC=  592.68

    9610.00     10.66    597.34      0.00      0.00    597.39       .05       .00       .00    593.58
      1345.      945.      197.      202.      505.      111.      139.       31.        9.    593.58
        .23      1.87      1.78      1.46      .050      .038      .050      .041    586.68     92.55
    .000868        1.        1.        1.         1         0         0    -26.60    262.49    355.05

*SECNO 9625.000

3370 NORMAL BRIDGE,NRD= 19 MIN ELTRD=  593.58 MAX ELLC=  592.68

                     BRIDGE SECTION NO.5 PRIVATE BRIDGE    (AE&W)       SECT. H

    9625.00     10.68    597.36      0.00      0.00    597.41       .05       .01       .00    593.58
      1345.      946.      196.      203.      503.      111.      140.       31.        9.    593.58
        .23      1.86      1.77      1.45      .050      .038      .050      .041    586.68     92.44
    .000852       15.       15.       15.         0         0         0    -26.60    263.09    355.53

*SECNO 9626.000
      SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS   BANK ELEV
      Q          QLOB       QCH      QROB      ALOB       ACH      AROB       VOL       TWA   LEFT/RIGHT
      TIME       VLOB       VCH      VROB       XNL      XNCH       XNR       WTN     ELMIN        SSTA
      SLOPE     XLOBL      XLCH     XLOBR    ITRIAL       IDC     ICONT     CORAR    TOPWID       ENDST

    9626.00     10.67    597.35      0.00      0.00    597.41       .06       .00       .00    593.58
      1345.      802.      371.      172.      508.      137.      140.       31.        9.    593.58
        .23      1.58      2.70      1.23      .050      .038      .050      .041    586.68     92.43
    .000611        1.        1.        1.         0         0         0      0.00    263.14    355.56

*SECNO 9700.000

                     VALLEY SECTION NO.6    (AE&W)                        SECT. I

    9700.00     10.82    597.40      0.00      0.00    597.45       .06       .04       .00    594.28
      1345.      627.      371.      347.      467.      139.      187.       32.        9.    594.28
        .24      1.34      2.66      1.85      .060      .046      .035      .041    586.58     92.15
    .000723       50.       74.      100.         1         0         0      0.00    294.18    386.34

*SECNO 9965.000

                     VALLEY SECTION NO.8    (AE&W)                        SECT. J
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9965.00	10.16	597.54	0.00	0.00	597.56	.02	.10	.01	595.38
1345.	404.	224.	717.	568.	154.	555.	39.	12.	595.38
.31	.71	1.45	1.29	.060	.046	.035	.041	587.38	58.62
.000227	265.	265.	265.	2	0	0	0.00	463.91	522.53

1490 NH CARD USED
*SECNO 10245.000

VALLEY SECTION NO.9 (AE&W) SECT. K

10245.00	10.61	597.59	0.00	0.00	597.69	.11	.09	.04	594.88
1345.	410.	805.	130.	366.	245.	153.	45.	15.	595.98
.34	1.12	3.23	.85	.043	.033	.035	.042	586.98	400.37
.000474	320.	280.	220.	2	0	0	0.00	523.85	924.22

1490 NH CARD USED
*SECNO 10445.000

3470 ENCROACHMENT STATIONS= 260.0 660.0 TYPE= 1 TARGET= -260.000

VALLEY SECTION NO.11 (AE&W) SECT. L

10445.00	10.15	597.73	0.00	0.00	597.75	.02	.03	.03	589.48
1345.	654.	250.	441.	923.	157.	441.	50.	17.	589.38
.40	.71	1.60	1.00	.043	.033	.035	.042	587.58	260.00
.000066	200.	200.	200.	2	0	0	0.00	392.93	652.93

*SECNO 10845.000
3280 CROSS SECTION 10845.00 EXTENDED .36 FEET

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
10845.00	10.06	597.76	0.00	0.00	597.81	.06	.04	.02	591.00
1345.	573.	343.	429.	348.	133.	262.	61.	19.	590.90
.45	1.65	2.57	1.64	.035	.033	.035	.041	587.70	0.00
.000234	400.	400.	400.	2	0	0	0.00	174.42	174.42

*SECNO 10945.000
3280 CROSS SECTION 10945.00 EXTENDED .14 FEET
u/s of Lewis Drain confluence

VALLEY SECTION NO.12 (AE&W) SECT. M

10945.00	9.84	597.82	0.00	0.00	597.84	.02	.02	.01	591.28
765.	320.	202.	243.	328.	130.	247.	63.	20.	591.18
.48	.98	1.55	.98	.035	.033	.035	.041	587.98	0.00
.000088	100.	100.	100.	2	0	0	0.00	172.45	172.45

*SECNO 11445.000
VALLEY SECTION NO.13 (AE&W) SECT. N

11445.00	8.68	597.86	0.00	0.00	597.89	.03	.05	.00	592.08
765.	306.	261.	198.	301.	151.	197.	70.	22.	592.08

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            .59      1.02      1.73      1.00      .035      .033      .035      .040    589.18      .21
        .000104      500.      500.      500.         2         0         0      0.00    169.95    170.16

 *SECNO 11945.000

                          VALLEY SECTION NO.14    (AE&W)                          SECT. O

       11945.00      8.64    597.92      0.00      0.00    597.95       .03       .06       .00    592.28
           765.      289.      276.      199.      257.      143.      181.       77.       24.    592.28
            .69      1.12      1.93      1.10      .035      .033      .035      .039    589.28     11.80
        .000133      500.      500.      500.         0         0         0      0.00    155.38    167.18

 *SECNO 12445.000

                          VALLEY SECTION NO.15    (AE&W)                          SECT. P

       12445.00      8.21    597.99      0.00      0.00    598.02       .03       .06       .00    592.58
           765.      255.      250.      261.      247.      140.      253.       84.       26.    592.58
            .80      1.03      1.78      1.03      .035      .033      .035      .038    589.78     11.27
        .000118      500.      500.      500.         1         0         0      0.00    180.90    192.23

 *SECNO 12545.000
          SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS  BANK ELEV
              Q      QLOB       QCH      QROB      ALOB       ACH      AROB       VOL       TWA  LEFT/RIGHT
           TIME      VLOB       VCH      VROB       XNL      XNCH       XNR       WTN     ELMIN      SSTA
          SLOPE     XLOBL      XLCH     XLOBR    ITRIAL       IDC     ICONT     CORAR    TOPWID     ENDST

                          VALLEY SECTION NO.16    (AE&W)                          SECT. Q

       12545.00      8.32    598.00      0.00      0.00    598.03       .03       .01       .00    592.48
           765.      306.      198.      261.      265.      107.      235.       86.       26.    592.48
            .82      1.15      1.86      1.12      .035      .033      .035      .038    589.68     12.52
        .000142      100.      100.      100.         0         0         0      0.00    173.20    185.73

 *SECNO 12645.000

                          VALLEY SECTION 1+00     (AE&W)                          SECT. R

       12645.00      8.56    598.02      0.00      0.00    598.04       .03       .01       .00    593.46
           765.      157.      451.      157.      180.      295.      180.       87.       26.    593.46
            .84       .87      1.53       .87      .035      .033      .035      .038    589.46     16.13
        .000088      100.      100.      100.         0         0         0      0.00    167.74    183.87

 *SECNO 13453.000

                          VALLEY SECTION 9+08     (AE&W)                          SECT. S

       13453.00      7.86    598.12      0.00      0.00    598.16       .04       .11       .01    594.26
           765.      128.      507.      130.      136.      266.      138.       98.       29.    594.26
            .98       .94      1.91       .94      .050      .042      .050      .039    590.26     24.45
        .000256      808.      808.      808.         1         0         0      0.00    152.95    177.40

 *SECNO 13653.000

                          VALLEY SECTION 11+08    (AE&W)                          SECT. T

       13653.00      7.71    598.17      0.00      0.00    598.24       .07       .06       .01    594.46
           765.       37.      507.      131.       42.      260.      110.      101.       30.    594.46
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      1.01       .87     2.30     1.20      .050      .042      .050      .039    590.46    15.30
   .000385      200.     200.     200.         1         0         0      0.00    104.77   120.07

 *SECNO 13753.000

                 VALLEY SECTION 12+08    (AE&W)                        SECT. U

  13753.00      7.65   598.21     0.00      0.00    598.28       .07       .04       .00   594.56
      765.       36.     591.     138.       41.      257.      121.      101.       30.   594.56
      1.02       .87     2.30     1.13      .050      .042      .050      .039    590.56    15.31
   .000390      100.     100.     100.         0         0         0      0.00    115.30   130.61

 *SECNO 14128.000
     SECNO     DEPTH    CWSEL    CRIWS     WSELK        EG        HV        HL     OLOSS   BANK ELEV
         Q      QLOB      QCH     QROB      ALOB       ACH      AROB       VOL       TWA  LEFT/RIGHT
      TIME      VLOB      VCH     VROB       XNL      XNCH       XNR       WTN     ELMIN      SSTA
     SLOPE     XLOBL     XLCH    XLOBR    ITRIAL       IDC     ICONT     CORAR    TOPWID     ENDST

                 VALLEY SECTION 15+83    (AE&W)                        SECT. V

  14128.00      7.41   598.37     0.00      0.00    598.45       .08       .16       .01   594.96
      765.       20.     611.     134.       22.      247.      113.      105.       31.   594.96
      1.07       .90     2.48     1.18      .050      .042      .050      .039    590.96    24.97
   .000478      375.     375.     375.         0         0         0      0.00    106.76   131.73

 *SECNO 14328.000

                 VALLEY SECTION 17+83    (AE&W)                        SECT. W

  14328.00      7.32   598.48     0.00      0.00    598.54       .06       .08       .01   595.16
      765.      118.     530.     118.      117.      244.      117.      107.       32.   595.16
      1.10      1.01     2.18     1.01      .050      .042      .050      .039    591.16    21.25
   .000374      200.     200.     200.         2         0         0      0.00    157.49   178.75

 *SECNO 14801.000

 3470 ENCROACHMENT STATIONS=       38.0      163.0  TYPE=      1  TARGET=      125.000

                 VALLEY SECTION 22+56    (AE&W)                        SECT. X

  14801.00      7.02   598.68     0.00      0.00    598.74       .07       .20       .01   595.66
      765.      107.     551.     107.       94.      231.       95.      112.       33.   595.66
      1.17      1.14     2.39     1.13      .050      .042      .050      .039    591.66    38.00
   .000483      473.     473.     473.         0         0         0      0.00    125.00   163.00

 *SECNO 14886.000

 3470 ENCROACHMENT STATIONS=       41.0      130.0  TYPE=      1  TARGET=      -41.000

                 VALLEY SECTION 23+41    (AE&W)                        SECT. Y

  14886.00      6.94   598.70     0.00      0.00    598.81       .11       .05       .02   595.76
      765.        9.     646.     110.        9.      228.       81.      112.       34.   595.76
      1.17      1.02     2.83     1.36      .050      .042      .050      .039    591.76    41.00
   .000693       85.      85.      85.         0         0         0      0.00     82.81   123.81

 *SECNO 14981.000
  14981.00      6.85   598.71     0.00      0.00    599.03       .33       .11       .11   604.36
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      765.        0.       765.        0.        0.       167.        0.       113.        34.     604.36
      1.18      0.00       4.59      0.00      .050       .042      .050      .039     591.86      83.00
   .002428       95.        95.       95.         2          0         0      0.00      34.00     117.00

*SECNO 14982.000
    SECNO     DEPTH      CWSEL     CRIWS     WSELK       EG        HV         HL       OLOSS    BANK ELEV
    Q         QLOB       QCH       QROB      ALOB        ACH       AROB       VOL      TWA    LEFT/RIGHT
    TIME      VLOB       VCH       VROB      XNL         XNCH      XNR        WTN      ELMIN       SSTA
    SLOPE     XLOBL      XLCH      XLOBR     ITRIAL      IDC       ICONT      CORAR    TOPWID      ENDST


3370 NORMAL BRIDGE,NRD=  4 MIN ELTRD=  604.36 MAX ELLC=  600.76

  14982.00      6.85     598.71      0.00      0.00     599.03       .33       .00       .00     604.36
      765.        0.       765.        0.        0.       167.        0.       113.        34.     604.36
      1.18      0.00       4.58      0.00      .040       .021      .040      .039     591.86      83.00
   .000606        1.         1.        1.         0          0         0      0.00      34.00     117.00

*SECNO 15054.000

3370 NORMAL BRIDGE,NRD=  4 MIN ELTRD=  604.36 MAX ELLC=  600.76

                BRIDGE SECTION 24+56 21 MILE ROAD    (AE&W)        SECT. Z

  15054.00      6.90     598.76      0.00      0.00     599.08       .32       .04       .00     604.36
      765.        0.       765.        0.        0.       169.        0.       113.        34.     604.36
      1.18      0.00       4.54      0.00      .040       .021      .040      .039     591.86      83.00
   .000588       72.        72.       72.         2          0         0      0.00      34.00     117.00

*SECNO 15055.000
  15055.00      6.90     598.76      0.00      0.00     599.08       .32       .00       .00     604.36
      765.        0.       765.        0.        0.       169.        0.       113.        34.     604.36
      1.18      0.00       4.54      0.00      .035       .033      .035      .039     591.86      83.00
   .001451        1.         1.        1.         0          0         0      0.00      34.00     117.00

*SECNO 15097.000

                VALLEY SECTION 25+33    (AE&W)                     SECT. AA

  15097.00      7.19     599.05      0.00      0.00     599.18       .13       .04       .05     600.66
      755.        0.       755.        0.        0.       262.        0.       114.        34.     600.16
      1.19      0.00       2.88      0.00      .040       .037      .040      .039     591.86     195.75
   .000724       42.        42.       42.         2          0         0      0.00      57.91     253.66

*SECNO 15228.000

                VALLEY SECTION 26+83    (AE&W)                     SECT. AB

  15228.00      7.19     599.15      0.00      0.00     599.28       .13       .09       .00     600.66
      755.        0.       755.        0.        0.       262.        0.       114.        34.     600.36
      1.20      0.00       2.88      0.00      .040       .037      .040      .039     591.96     271.53
   .000727      131.       131.      131.         2          0         0      0.00      57.86     329.39

*SECNO 15303.000
    SECNO     DEPTH      CWSEL     CRIWS     WSELK       EG        HV         HL       OLOSS    BANK ELEV
    Q         QLOB       QCH       QROB      ALOB        ACH       AROB       VOL      TWA    LEFT/RIGHT
    TIME      VLOB       VCH       VROB      XNL         XNCH      XNR        WTN      ELMIN       SSTA
    SLOPE     XLOBL      XLCH      XLOBR     ITRIAL      IDC       ICONT      CORAR    TOPWID      ENDST
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  15303.00      7.13    599.19      0.00      0.00    599.39       .20       .08       .04    650.90
      755.        0.      755.        0.        0.      208.      208.      115.       34.    650.90
      1.21      0.00      3.63      0.00      .040      .037      .040      .039    592.06    271.47
   .001629       75.       75.       75.         1         0         0      0.00     57.98    329.45

 *SECNO 15325.000
  15325.00      6.42    599.18      0.00      0.00    599.49       .31       .05       .05    601.36
      755.        0.      755.        0.        0.      169.      169.      115.       34.    601.36
      1.21      0.00      4.46      0.00      .040      .037      .040      .039    592.76    276.49
   .002738       22.       22.       22.         2         0         0      0.00     50.79    327.28

 *SECNO 15328.000
  15328.00      4.00    599.06      0.00      0.00    599.63       .58       .01       .13    600.66
      755.        0.      755.        0.        0.      124.        0.      115.       34.    600.36
      1.21      0.00      6.09      0.00      .050      .030      .050      .039    595.06    272.41
   .005751        3.        3.        3.         2         0         0      0.00     56.63    329.04

 *SECNO 15329.000

                DAM SECTION 27+83      (AE&W)                    SECT. AC

  15329.00      4.01    599.07      0.00      0.00    599.64       .57       .01       .00    600.66
      755.        0.      755.        0.        0.      124.        0.      115.       34.    600.36
      1.21      0.00      6.08      0.00      .050      .030      .050      .039    595.06    272.39
   .005730        1.        1.        1.         0         0         0      0.00     56.66    329.05

 *SECNO 15332.000
  15332.00      6.73    599.49      0.00      0.00    599.74       .26       .01       .10    650.90
      755.        0.      755.        0.        0.      186.      186.      115.       34.    650.90
      1.21      0.00      4.06      0.00      .050      .030      .050      .039    592.76    274.27
   .001426        3.        3.        3.         2         0         0      0.00     53.97    328.24

 *SECNO 15354.000
     SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS  BANK ELEV
         Q      QLOB       QCH      QROB      ALOB       ACH      AROB       VOL       TWA LEFT/RIGHT
      TIME      VLOB       VCH      VROB       XNL      XNCH       XNR       WTN     ELMIN      SSTA
     SLOPE     XLOBL      XLCH     XLOBR    ITRIAL       IDC     ICONT     CORAR    TOPWID     ENDST

  15354.00      7.58    599.64      0.00      0.00    599.80       .16       .03       .03    600.66
      755.        0.      755.        0.        0.      235.      235.      115.       34.    600.66
      1.21      0.00      3.22      0.00      .040      .037      .040      .039    592.06    269.92
   .001163       22.       22.       22.         2         0         0      0.00     60.89    330.81

 *SECNO 15778.000
  15778.00      8.07    600.03      0.00      0.00    600.12       .10       .31       .02    600.66
      755.        0.      755.        0.        0.      302.        0.      119.       35.    600.66
      1.26      0.00      2.50      0.00      .040      .037      .040      .039    591.96    268.88
   .000489      424.      424.      424.         2         0         0      0.00     61.30    330.18

 *SECNO 15946.000
 3280 CROSS SECTION  15946.00 EXTENDED       .04 FEET

  15946.00      7.74    600.10      0.00      0.00    600.25       .15       .10       .03    600.06
      755.       17.      738.        0.       50.      236.        0.      120.       35.    600.36
      1.27       .33      3.13      0.00      .040      .037      .040      .039    592.36      0.00
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   .000750     168.     168.     168.      2       0       0      0.00   326.43   326.43

 *SECNO 15947.000
 3280 CROSS SECTION  15947.00 EXTENDED        .07 FEET

   15947.00     7.77    600.13    0.00     0.00   600.26     .13     .00      .01   600.06
       755.      49.      706.      0.      57.     237.      0.     120.      35.   600.36
       1.27      .85      2.98    0.00     .035     .080    .035    .039   592.36     0.00
    .003161       1.        1.      1.       2        0       0    0.00   326.49   326.49

 SPECIAL BRIDGE

 SB   XK          XKOR       COFQ       RDLEN      BWC        BWP       BAREA      SS        ELCHU     ELCHD
      0.00        1.55       2.98       0.00       25.84      0.00      160.20     0.00      592.36    592.36

 *SECNO 15957.000
 3280 CROSS SECTION  15957.00 EXTENDED        .21 FEET

 PRESSURE AND WEIR FLOW

   EGPRS      EGLWC       H3        QWEIR       QPR       BAREA   TRAPEZOID     ELLC      ELTRD
                                                                     AREA
    600.66     600.25     0.00      252.       507.       160.      160.      598.56    599.86

                BRIDGE SECTION 34+02 PRIVATE BRIDGE (AE&W)         SECT. AD

   15957.00     7.91    600.27    0.00     0.00   600.37     .10     .11     0.00   600.06
       755.     103.      652.      0.      98.     244.      0.     120.      36.   600.36
       1.27     1.06      2.68    0.00     .035     .080    .035    .039   592.36     0.00
    .002484      10.       10.     10.       2        0       3    0.00   326.80   326.80
                                              higher to force
                                              flow into O.B.?

 *SECNO 15958.000
 3280 CROSS SECTION  15958.00 EXTENDED        .20 FEET

     SECNO     DEPTH     CWSEL     CRIWS     WSELK      EG       HV       HL     OLOSS   BANK ELEV
     Q         QLOB      QCH       QROB      ALOB       ACH      AROB     VOL    TWA     LEFT/RIGHT
     TIME      VLOB      VCH       VROB      XNL        XNCH     XNR      WTN    ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL     IDC      ICONT    CORAR  TOPWID    ENDST
                                                                                               Dup

   15958.00     7.90    600.26    0.00     0.00   600.39     .13     .00      .02   600.06
       755.      32.      723.      0.      96.     243.      0.     120.      36.   600.36
       1.27      .33      2.97    0.00     .058     .038    .060    .039   592.36     0.00
    .000692       1.        1.      1.       1        0       0    0.00   326.79   326.79

 *SECNO 16752.000

 3470 ENCROACHMENT STATIONS=          .0      225.0  TYPE=      1  TARGET=      224.999

                VALLEY SECTION 42+07    (AE&W)                  SECT. AE

   16752.00     7.99    600.75    0.00     0.00   600.83     .08     .43      .01 99999.76
       755.       0.      754.      1.       0.     326.     14.     126.      41.   600.66
       1.37     0.00      2.31     .10     .058     .038    .060    .039   592.76      .67
    .000438     796.      796.    796.       2        0       0    0.00   224.33   225.00
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*SECNO 17401.000

VALLEY SECTION 48+56 (AE&W) SECT. AF

17401.00	7.98	601.04	0.00	0.00	601.12	.09	.29	.00	601.26
755.	0.	755.	0.	0.	322.	0.	131.	43.	601.86
1.45	0.00	2.34	0.00	.058	.038	.060	.039	593.06	.76
.000453	649.	649.	649.	2	0	0	0.00	65.81	66.57

*SECNO 17811.000

VALLEY SECTION 52+66 (AE&W) SECT. AG

17811.00	7.96	601.22	0.00	0.00	601.31	.08	.18	.00	601.56
755.	0.	755.	0.	0.	327.	0.	134.	43.	604.46
1.50	0.00	2.31	0.00	.058	.038	.060	.039	593.26	1.23
.000442	410.	410.	410.	0	0	0	0.00	67.23	68.46

*SECNO 17911.000

VALLEY SECTION 53+66 (AE&W) SECT. AH

17911.00	5.49	601.15	0.00	0.00	601.58	.43	.10	.17	603.16
755.	0.	755.	0.	0.	144.	0.	135.	43.	604.46
1.50	0.00	5.25	0.00	.060	.044	.060	.039	595.66	287.55
.004496	100.	100.	100.	2	0	0	0.00	38.32	325.86

*SECNO 18011.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

VALLEY SECTION 54+66 (AE&W) SECT. AI

18011.00	6.05	601.71	0.00	0.00	601.96	.26	.33	.05	602.16
755.	0.	755.	0.	0.	186.	0.	135.	44.	602.16
1.51	0.00	4.06	0.00	.060	.044	.060	.039	595.66	234.18
.002484	100.	100.	100.	2	0	0	0.00	47.49	331.68

*SECNO 18311.000

3265 DIVIDED FLOW

3280 CROSS SECTION 18311.00 EXTENDED .44 FEET

VALLEY SECTION 57+66 (AE&W) SECT. AJ

18311.00	6.73	602.39	0.00	0.00	602.52	.13	.52	.04	603.06
755.	45.	642.	68.	95.	205.	118.	137.	46.	603.06
1.54	.47	3.14	.58	.060	.044	.060	.039	595.66	0.00
.001299	350.	300.	250.	2	0	0	0.00	528.86	600.00

*SECNO 19536.000

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3265 DIVIDED FLOW

3280 CROSS SECTION  19536.00 EXTENDED       .91 FEET

3470 ENCROACHMENT STATIONS=      174.0      869.0  TYPE=      1  TARGET=      695.000

               VALLEY SECTION NO. 2 (J&A)                                 SECT.AK

   19536.00      8.12    603.92      0.00      0.00    604.05       .14      1.53       .00    604.70
       755.       48.      627.       80.      101.      193.      110.      149.       59.    606.40
       1.66       .48      3.25       .72      .060      .044      .060      .039    595.80    174.00
    .001197     1050.     1225.     1350.         2         0         0      0.00    444.95    869.00

*SECNO 20836.000
3280 CROSS SECTION  20836.00 EXTENDED       .31 FEET

3470 ENCROACHMENT STATIONS=      494.0      539.0  TYPE=      1  TARGET=       45.000

               VALLEY SECTION NO. 1 (J&A)                                 SECT.AL

   20836.00      8.71    605.51      0.00      0.00    605.73       .22      1.63       .04    604.70
       755.        3.      749.        3.        5.      200.        4.      158.       66.    604.90
       1.76       .72      3.75       .62      .060      .044      .060      .040    596.80    494.00
    .001317     1300.     1300.     1300.         2         0         0      0.00     45.00    539.00
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  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

GLOEDE DITCH

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
7786.000	0.00	0.00	0.00	585.00	850.00	593.89	0.00	594.28	101.89	5.01	169.62	84.21
7786.000	0.00	0.00	0.00	585.00	1250.00	594.60	0.00	595.24	152.73	6.44	194.03	101.15
7786.000	0.00	0.00	0.00	585.00	1370.00	594.74	0.00	595.48	171.23	6.88	199.01	104.69
7786.000	0.00	0.00	0.00	585.00	1935.00	595.32	0.00	596.52	259.39	8.79	220.24	120.14
7787.000	1.00	600.90	598.80	585.00	850.00	593.84	0.00	594.34	18.21	5.71	148.92	199.18
7787.000	1.00	600.90	598.80	585.00	1250.00	594.51	0.00	595.35	28.15	7.36	169.94	235.61
7787.000	1.00	600.90	598.80	585.00	1370.00	594.63	0.00	595.60	31.84	7.87	174.00	242.79
7787.000	1.00	600.90	598.80	585.00	1935.00	595.13	0.00	596.73	50.40	10.16	190.52	272.56
7860.000	73.00	600.90	598.80	585.00	850.00	594.01	0.00	594.48	16.66	5.51	154.23	208.25
7860.000	73.00	600.90	598.80	585.00	1250.00	594.82	0.00	595.57	24.21	6.93	180.30	254.05
7860.000	73.00	600.90	598.80	585.00	1370.00	595.01	0.00	595.85	26.63	7.34	186.64	265.49
7860.000	73.00	600.90	598.80	585.00	1935.00	595.94	0.00	597.15	35.17	8.82	219.33	326.26
7861.000	1.00	0.00	0.00	585.00	850.00	594.17	0.00	594.52	21.99	4.75	179.00	181.25
7861.000	1.00	0.00	0.00	585.00	1250.00	595.09	0.00	595.63	30.09	5.90	211.79	227.87
7861.000	1.00	0.00	0.00	585.00	1370.00	595.32	0.00	595.92	32.46	6.22	220.35	240.45
7861.000	1.00	0.00	0.00	585.00	1935.00	596.43	0.00	597.27	39.65	7.35	263.42	307.28
8050.000	190.00	0.00	0.00	585.60	835.00	594.68	0.00	594.76	4.51	2.50	399.87	393.13
8050.000	190.00	0.00	0.00	585.60	1230.00	595.84	0.00	595.95	4.67	2.86	525.72	569.30
8050.000	190.00	0.00	0.00	585.60	1345.00	596.15	0.00	596.26	4.70	2.95	559.26	620.56
8050.000	190.00	0.00	0.00	585.60	1905.00	597.55	0.00	597.69	4.66	3.29	716.93	882.29
8198.000	148.00	0.00	0.00	585.60	835.00	594.72	0.00	594.88	7.19	3.20	261.11	311.44
8198.000	148.00	0.00	0.00	585.60	1230.00	595.87	0.00	596.13	10.49	4.10	299.94	379.76
8198.000	148.00	0.00	0.00	585.60	1345.00	596.16	0.00	596.45	11.42	4.34	310.01	397.94
8198.000	148.00	0.00	0.00	585.60	1905.00	597.53	0.00	597.93	14.43	5.16	439.20	501.47
8199.000	1.00	596.60	596.60	585.60	835.00	594.72	0.00	594.88	1.80	3.20	261.13	622.94
8199.000	1.00	596.60	596.60	585.60	1230.00	595.87	0.00	596.13	2.62	4.10	299.97	759.60
8199.000	1.00	596.60	596.60	585.60	1345.00	596.16	0.00	596.45	2.86	4.34	310.03	795.97
8199.000	1.00	596.60	596.60	585.60	1905.00	597.49	0.00	597.97	9.67	5.65	402.08	612.63
8215.000	16.00	596.60	596.60	585.60	835.00	594.73	0.00	594.89	1.79	3.19	261.37	623.75
8215.000	16.00	596.60	596.60	585.60	1230.00	595.87	0.00	596.13	2.61	4.10	300.31	760.85
8215.000	16.00	596.60	596.60	585.60	1345.00	596.17	0.00	596.46	2.85	4.33	310.41	797.35
8215.000	16.00	596.60	596.60	585.60	1905.00	597.51	0.00	597.99	9.64	5.64	404.80	613.68

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
8216.000	1.00	0.00	0.00	585.60	835.00	594.73	0.00	594.89	7.18	3.20	261.24	311.66
8216.000	1.00	0.00	0.00	585.60	1230.00	595.87	0.00	596.13	10.47	4.10	300.14	380.11
8216.000	1.00	0.00	0.00	585.60	1345.00	596.17	0.00	596.46	11.40	4.34	310.22	398.33
8216.000	1.00	0.00	0.00	585.60	1905.00	597.64	0.00	598.02	13.77	5.06	457.97	513.41
8885.000	669.00	0.00	0.00	586.50	835.00	595.23	0.00	595.31	5.08	2.46	487.51	370.43
8885.000	669.00	0.00	0.00	586.50	1230.00	596.53	0.00	596.60	4.02	2.44	756.95	613.28
8885.000	669.00	0.00	0.00	586.50	1345.00	596.87	0.00	596.94	3.78	2.44	833.83	691.79
8885.000	669.00	0.00	0.00	586.50	1905.00	598.41	0.00	598.47	2.84	2.41	1242.38	1130.04
9086.000	201.00	0.00	0.00	586.50	835.00	595.32	0.00	595.47	6.23	3.72	395.18	334.58
9086.000	201.00	0.00	0.00	586.50	1230.00	596.62	0.00	596.72	4.74	3.56	808.50	565.14
9086.000	201.00	0.00	0.00	586.50	1345.00	596.95	0.00	597.04	4.26	3.45	934.98	651.71
9086.000	201.00	0.00	0.00	586.50	1905.00	598.49	0.00	598.54	2.57	2.94	1577.92	1187.46
9091.000	5.00	0.00	0.00	586.50	835.00	595.42	0.00	595.49	6.10	1.95	416.42	338.19
9091.000	5.00	0.00	0.00	586.50	1230.00	596.70	0.00	596.74	3.21	1.55	841.81	686.33
9091.000	5.00	0.00	0.00	586.50	1345.00	597.03	0.00	597.06	2.71	1.45	964.72	816.28
9091.000	5.00	0.00	0.00	586.50	1905.00	598.53	0.00	598.55	1.35	1.12	1594.70	1639.10
9107.000	16.00	594.50	594.40	586.50	835.00	595.65	0.00	595.70	4.95	1.78	472.83	375.40
9107.000	16.00	594.50	594.40	586.50	1230.00	596.76	0.00	596.80	3.01	1.50	863.93	708.86
9107.000	16.00	594.50	594.40	586.50	1345.00	597.08	0.00	597.11	2.55	1.41	987.16	841.78
9107.000	16.00	594.50	594.40	586.50	1905.00	598.59	0.00	598.61	1.28	1.10	1623.71	1681.58
9110.000	3.00	0.00	0.00	586.50	835.00	595.62	0.00	595.73	5.51	3.34	465.32	355.76
9110.000	3.00	0.00	0.00	586.50	1230.00	596.74	0.00	596.82	4.53	3.27	854.97	578.09
9110.000	3.00	0.00	0.00	586.50	1345.00	597.06	0.00	597.14	4.09	3.18	979.12	664.85
9110.000	3.00	0.00	0.00	586.50	1905.00	598.58	0.00	598.62	2.50	2.72	1621.54	1204.05
9155.000	45.00	0.00	0.00	585.68	835.00	595.75	0.00	595.77	1.13	1.19	1119.48	783.77
9155.000	45.00	0.00	0.00	585.68	1230.00	596.84	0.00	596.85	1.07	1.29	1544.01	1187.08
9155.000	45.00	0.00	0.00	585.68	1345.00	597.15	0.00	597.16	1.04	1.30	1674.21	1321.39
9155.000	45.00	0.00	0.00	585.68	1905.00	598.62	0.00	598.64	.85	1.32	2333.75	2066.01
9550.000	395.00	0.00	0.00	586.38	835.00	595.78	0.00	595.96	15.53	3.70	330.29	211.86
9550.000	395.00	0.00	0.00	586.38	1230.00	596.87	0.00	597.01	11.60	3.62	566.86	361.10
9550.000	395.00	0.00	0.00	586.38	1345.00	597.18	0.00	597.31	10.26	3.52	647.27	419.91
9550.000	395.00	0.00	0.00	586.38	1905.00	598.66	0.00	598.74	6.03	3.08	1068.85	775.75
9609.000	59.00	0.00	0.00	586.68	835.00	595.99	0.00	596.08	14.23	3.15	456.77	221.33
9609.000	59.00	0.00	0.00	586.68	1230.00	597.04	0.00	597.10	9.86	2.83	703.95	391.67
9609.000	59.00	0.00	0.00	586.68	1345.00	597.33	0.00	597.39	8.95	2.75	779.24	449.63
9609.000	59.00	0.00	0.00	586.68	1905.00	598.74	0.00	598.79	5.74	2.41	1180.53	794.92
9610.000	1.00	593.58	592.68	586.68	835.00	596.03	0.00	596.09	17.19	2.22	437.77	201.39
9610.000	1.00	593.58	592.68	586.68	1230.00	597.05	0.00	597.11	9.92	1.86	679.27	390.47
9610.000	1.00	593.58	592.68	586.68	1345.00	597.34	0.00	597.39	8.68	1.78	754.26	456.45
9610.000	1.00	593.58	592.68	586.68	1905.00	598.74	0.00	598.79	4.99	1.51	1154.11	852.54
9625.000	15.00	593.58	592.68	586.68	835.00	596.05	0.00	596.11	16.59	2.19	442.98	205.03
9625.000	15.00	593.58	592.68	586.68	1230.00	597.07	0.00	597.12	9.68	1.84	684.85	395.28
9625.000	15.00	593.58	592.68	586.68	1345.00	597.36	0.00	597.41	8.52	1.77	759.21	460.92
9625.000	15.00	593.58	592.68	586.68	1905.00	598.75	0.00	598.80	4.95	1.50	1157.65	856.34

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
9626.000	1.00	0.00	0.00	586.68	835.00	596.05	0.00	596.12	9.32	3.03	469.57	273.56
9626.000	1.00	0.00	0.00	586.68	1230.00	597.07	0.00	597.13	6.70	2.77	711.94	475.34
9626.000	1.00	0.00	0.00	586.68	1345.00	597.35	0.00	597.41	6.11	2.70	786.18	544.11
9626.000	1.00	0.00	0.00	586.68	1905.00	598.75	0.00	598.80	3.97	2.38	1184.33	955.63
9700.000	74.00	0.00	0.00	586.58	835.00	596.11	0.00	596.21	14.69	3.31	439.27	217.90
9700.000	74.00	0.00	0.00	586.58	1230.00	597.11	0.00	597.18	8.30	2.77	711.62	427.04
9700.000	74.00	0.00	0.00	586.58	1345.00	597.40	0.00	597.45	7.23	2.66	793.60	500.38
9700.000	74.00	0.00	0.00	586.58	1905.00	598.78	0.00	598.83	4.00	2.23	1228.80	952.56
9965.000	265.00	0.00	0.00	587.38	835.00	596.38	0.00	596.40	3.59	1.59	778.46	440.55
9965.000	265.00	0.00	0.00	587.38	1230.00	597.28	0.00	597.30	2.53	1.49	1156.56	772.72
9965.000	265.00	0.00	0.00	587.38	1345.00	597.54	0.00	597.56	2.27	1.45	1277.02	893.20
9965.000	265.00	0.00	0.00	587.38	1905.00	598.87	0.00	598.89	1.35	1.28	1966.97	1642.15
10245.000	280.00	0.00	0.00	586.98	835.00	596.44	0.00	596.59	6.16	3.32	358.49	336.50
10245.000	280.00	0.00	0.00	586.98	1230.00	597.32	0.00	597.45	5.37	3.40	635.12	530.78
10245.000	280.00	0.00	0.00	586.98	1345.00	597.59	0.00	597.69	4.74	3.28	764.55	617.55
10245.000	280.00	0.00	0.00	586.98	1905.00	598.90	0.00	598.95	2.29	2.56	1666.09	1257.98
10445.000	200.00	0.00	0.00	587.58	835.00	596.64	0.00	596.65	.53	1.32	1096.35	1150.63
10445.000	200.00	0.00	0.00	587.58	1230.00	597.49	0.00	597.51	.64	1.55	1426.69	1535.50
10445.000	200.00	0.00	0.00	587.59	1345.00	597.73	0.00	597.75	.66	1.60	1520.60	1661.06
10445.000	200.00	0.00	0.00	587.58	1905.00	598.96	0.00	598.98	.64	1.70	2010.35	2383.90
10845.000	400.00	0.00	0.00	587.70	835.00	596.66	0.00	596.70	1.90	2.13	560.56	604.99
10845.000	400.00	0.00	0.00	587.70	1230.00	597.52	0.00	597.57	2.30	2.51	701.30	810.90
10845.000	400.00	0.00	0.00	587.70	1345.00	597.76	0.00	597.81	2.34	2.57	742.78	879.67
10845.000	400.00	0.00	0.00	587.70	1905.00	598.98	0.00	599.05	2.21	2.73	963.25	1282.43
10945.000	100.00	0.00	0.00	587.98	475.00	596.71	0.00	596.72	.73	1.29	524.78	555.68
10945.000	100.00	0.00	0.00	587.98	700.00	597.58	0.00	597.60	.87	1.51	663.73	752.58
10945.000	100.00	0.00	0.00	587.98	765.00	597.82	0.00	597.84	.88	1.55	705.17	817.24
10945.000	100.00	0.00	0.00	587.98	1085.00	599.05	0.00	599.08	.81	1.63	924.82	1204.88
11445.000	500.00	0.00	0.00	589.18	475.00	596.74	0.00	596.76	.91	1.46	472.52	499.14
11445.000	500.00	0.00	0.00	589.18	700.00	597.62	0.00	597.65	1.03	1.69	608.32	689.61
11445.000	500.00	0.00	0.00	589.18	765.00	597.86	0.00	597.89	1.04	1.73	648.92	749.23
11445.000	500.00	0.00	0.00	589.18	1085.00	599.09	0.00	599.12	.94	1.81	864.99	1121.61
11945.000	500.00	0.00	0.00	589.28	475.00	596.79	0.00	596.82	1.17	1.64	419.53	438.91
11945.000	500.00	0.00	0.00	589.28	700.00	597.68	0.00	597.71	1.31	1.88	544.14	610.54
11945.000	500.00	0.00	0.00	589.28	765.00	597.92	0.00	597.95	1.33	1.93	581.33	664.21
11945.000	500.00	0.00	0.00	589.28	1085.00	599.14	0.00	599.18	1.21	2.03	787.17	985.27
12445.000	500.00	0.00	0.00	589.78	475.00	596.85	0.00	596.88	1.12	1.54	451.38	449.36
12445.000	500.00	0.00	0.00	589.78	700.00	597.75	0.00	597.77	1.19	1.74	596.88	642.44
12445.000	500.00	0.00	0.00	589.78	765.00	597.99	0.00	598.02	1.18	1.78	640.27	702.99
12445.000	500.00	0.00	0.00	589.78	1085.00	599.21	0.00	599.24	1.01	1.82	876.66	1077.64
12545.000	100.00	0.00	0.00	589.68	475.00	596.87	0.00	596.89	1.37	1.64	423.82	405.67
12545.000	100.00	0.00	0.00	589.68	700.00	597.76	0.00	597.79	1.43	1.82	563.09	584.97
12545.000	100.00	0.00	0.00	589.68	765.00	598.00	0.00	598.03	1.42	1.86	604.62	641.34
12545.000	100.00	0.00	0.00	589.68	1085.00	599.22	0.00	599.25	1.23	1.90	833.57	979.42

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
12645.000	100.00	0.00	0.00	589.46	475.00	596.88	0.00	596.90	.79	1.28	476.71	535.90
12645.000	100.00	0.00	0.00	589.46	700.00	597.77	0.00	597.80	.87	1.48	615.10	749.94
12645.000	100.00	0.00	0.00	589.46	765.00	598.02	0.00	598.04	.88	1.53	655.47	815.73
12645.000	100.00	0.00	0.00	589.46	1085.00	599.23	0.00	599.26	.83	1.65	872.93	1192.15
13453.000	808.00	0.00	0.00	590.26	475.00	596.98	0.00	597.01	2.49	1.65	376.22	300.89
13453.000	808.00	0.00	0.00	590.26	700.00	597.88	0.00	597.92	2.57	1.86	503.25	436.77
13453.000	808.00	0.00	0.00	590.26	765.00	598.12	0.00	598.16	2.56	1.91	540.01	478.48
13453.000	808.00	0.00	0.00	590.26	1085.00	599.33	0.00	599.37	2.29	2.03	737.06	717.07
13653.000	200.00	0.00	0.00	590.46	475.00	597.03	0.00	597.08	3.49	1.91	297.88	254.28
13653.000	200.00	0.00	0.00	590.46	700.00	597.93	0.00	597.99	3.81	2.23	386.04	358.46
13653.000	200.00	0.00	0.00	590.46	765.00	598.17	0.00	598.24	3.85	2.30	411.25	390.02
13653.000	200.00	0.00	0.00	590.46	1085.00	599.37	0.00	599.45	3.67	2.53	543.40	566.11
13753.000	100.00	0.00	0.00	590.56	475.00	597.06	0.00	597.11	3.63	1.94	297.06	249.14
13753.000	100.00	0.00	0.00	590.56	700.00	597.97	0.00	598.03	3.89	2.24	392.18	355.07
13753.000	100.00	0.00	0.00	590.56	765.00	598.21	0.00	598.28	3.90	2.30	419.80	387.45
13753.000	100.00	0.00	0.00	590.56	1085.00	599.41	0.00	599.48	3.60	2.49	568.18	571.71
14128.000	375.00	0.00	0.00	590.96	475.00	597.21	0.00	597.27	4.60	2.10	267.25	221.43
14128.000	375.00	0.00	0.00	590.96	700.00	598.12	0.00	598.20	4.77	2.41	356.43	320.39
14128.000	375.00	0.00	0.00	590.96	765.00	598.37	0.00	598.45	4.78	2.48	381.61	349.90
14128.000	375.00	0.00	0.00	590.96	1085.00	599.55	0.00	599.64	4.37	2.68	517.66	519.08
14328.000	200.00	0.00	0.00	591.16	475.00	597.31	0.00	597.36	4.21	1.98	308.16	231.41
14328.000	200.00	0.00	0.00	591.16	700.00	598.23	0.00	598.29	3.85	2.14	439.11	356.54
14328.000	200.00	0.00	0.00	591.16	765.00	598.48	0.00	598.54	3.74	2.18	477.22	395.33
14328.000	200.00	0.00	0.00	591.16	1085.00	599.67	0.00	599.72	3.09	2.24	680.72	616.93
14801.000	473.00	0.00	0.00	591.66	475.00	597.53	0.00	597.60	5.58	2.19	274.73	201.04
14801.000	473.00	0.00	0.00	591.66	700.00	598.43	0.00	598.50	4.98	2.35	388.64	313.56
14801.000	473.00	0.00	0.00	591.66	765.00	598.68	0.00	598.74	4.83	2.39	419.16	348.08
14801.000	473.00	0.00	0.00	591.66	1085.00	599.83	0.00	599.90	4.15	2.51	563.11	532.80
14886.000	85.00	0.00	0.00	591.76	475.00	597.58	0.00	597.66	6.82	2.40	226.35	181.85
14886.000	85.00	0.00	0.00	591.76	700.00	598.47	0.00	598.57	6.95	2.75	298.15	265.58
14886.000	85.00	0.00	0.00	591.76	765.00	598.70	0.00	598.81	6.93	2.83	317.84	290.59
14886.000	85.00	0.00	0.00	591.76	1085.00	599.84	0.00	599.97	6.53	3.12	414.67	424.53
14981.000	95.00	0.00	0.00	591.86	475.00	597.62	0.00	597.83	19.88	3.65	130.08	106.55
14981.000	95.00	0.00	0.00	591.86	700.00	598.48	0.00	598.78	23.45	4.40	159.05	144.54
14981.000	95.00	0.00	0.00	591.86	765.00	598.71	0.00	599.03	24.28	4.59	166.80	155.26
14981.000	95.00	0.00	0.00	591.86	1085.00	599.80	0.00	600.24	26.89	5.32	203.90	209.25
14982.000	1.00	604.36	600.76	591.86	475.00	597.62	0.00	597.83	5.00	3.66	129.82	212.43
14982.000	1.00	604.36	600.76	591.86	700.00	598.48	0.00	598.78	5.86	4.40	159.10	289.22
14982.000	1.00	604.36	600.76	591.86	765.00	598.71	0.00	599.03	6.06	4.58	166.86	310.66
14982.000	1.00	604.36	600.76	591.86	1085.00	599.80	0.00	600.24	6.72	5.32	203.95	418.67
15054.000	72.00	604.36	600.76	591.86	475.00	597.66	0.00	597.86	4.84	3.62	131.19	215.86
15054.000	72.00	604.36	600.76	591.86	700.00	598.53	0.00	598.82	5.68	4.35	160.78	293.83
15054.000	72.00	604.36	600.76	591.86	765.00	598.76	0.00	599.08	5.88	4.54	168.61	315.58
15054.000	72.00	604.36	600.76	591.86	1085.00	599.86	0.00	600.29	6.53	5.27	205.94	424.70

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
15055.000	1.00	0.00	0.00	591.86	475.00	597.66	0.00	597.86	11.95	3.62	131.20	137.39
15055.000	1.00	0.00	0.00	591.86	700.00	598.53	0.00	598.83	14.01	4.35	160.80	187.01
15055.000	1.00	0.00	0.00	591.86	765.00	598.76	0.00	599.08	14.51	4.54	168.63	200.85
15055.000	1.00	0.00	0.00	591.86	1085.00	599.86	0.00	600.29	16.11	5.27	205.96	270.30
15097.000	42.00	0.00	0.00	591.86	465.00	597.85	0.00	597.93	5.98	2.36	196.74	190.22
15097.000	42.00	0.00	0.00	591.86	690.00	598.80	0.00	598.92	7.05	2.79	247.67	259.86
15097.000	42.00	0.00	0.00	591.86	755.00	599.05	0.00	599.18	7.24	2.88	262.18	280.65
15097.000	42.00	0.00	0.00	591.86	1070.00	600.26	0.00	600.42	7.36	3.18	337.66	394.40
15228.000	131.00	0.00	0.00	591.96	465.00	597.93	0.00	598.01	6.07	2.38	195.57	188.70
15228.000	131.00	0.00	0.00	591.96	690.00	598.89	0.00	599.01	7.09	2.79	247.14	259.13
15228.000	131.00	0.00	0.00	591.96	755.00	599.15	0.00	599.28	7.27	2.88	261.77	280.09
15228.000	131.00	0.00	0.00	591.96	1070.00	600.36	0.00	600.51	7.43	3.18	336.18	392.54
15303.000	75.00	0.00	0.00	592.06	465.00	597.96	0.00	598.12	15.25	3.22	289.01	119.08
15303.000	75.00	0.00	0.00	592.06	690.00	598.93	0.00	599.13	16.35	3.56	387.13	170.62
15303.000	75.00	0.00	0.00	592.06	755.00	599.19	0.00	599.39	16.29	3.63	416.35	187.09
15303.000	75.00	0.00	0.00	592.06	1070.00	600.41	0.00	600.63	18.25	3.77	567.92	250.47
15325.000	22.00	0.00	0.00	592.76	465.00	597.95	0.00	598.20	23.67	4.01	231.67	95.58
15325.000	22.00	0.00	0.00	592.76	690.00	598.92	0.00	599.22	27.78	4.40	313.29	130.91
15325.000	22.00	0.00	0.00	592.76	755.00	599.18	0.00	599.49	27.38	4.46	338.75	144.28
15325.000	22.00	0.00	0.00	592.76	1070.00	600.41	0.00	600.72	22.25	4.48	477.63	226.85
* 15328.000	3.00	0.00	0.00	595.06	465.00	597.94	597.94	598.69	127.74	6.97	66.73	41.14
15328.000	3.00	0.00	0.00	595.06	690.00	598.77	0.00	599.40	70.76	6.38	108.18	82.03
15328.000	3.00	0.00	0.00	595.06	755.00	599.06	0.00	599.63	57.51	6.09	123.99	99.55
15328.000	3.00	0.00	0.00	595.05	1070.00	600.35	0.00	600.78	26.72	5.26	203.28	207.00
15329.000	1.00	0.00	0.00	595.06	465.00	598.30	0.00	598.78	67.81	5.58	83.37	56.47
15329.000	1.00	0.00	0.00	595.06	690.00	598.78	0.00	599.41	70.54	6.37	108.30	82.15
15329.000	1.00	0.00	0.00	595.06	755.00	599.07	0.00	599.64	57.30	6.08	124.15	99.74
15329.000	1.00	0.00	0.00	595.06	1070.00	600.36	0.00	600.79	26.66	5.26	203.43	207.23
15332.000	3.00	0.00	0.00	592.76	465.00	598.73	0.00	598.88	9.56	3.15	295.54	150.42
15332.000	3.00	0.00	0.00	592.76	690.00	599.29	0.00	599.53	13.82	3.94	350.34	185.59
15332.000	3.00	0.00	0.00	592.76	755.00	599.49	0.00	599.74	14.26	4.06	371.73	199.93
15332.000	3.00	0.00	0.00	592.76	1070.00	600.56	0.00	600.83	13.23	4.32	494.81	294.17
15354.000	22.00	0.00	0.00	592.06	465.00	598.83	0.00	598.92	8.10	2.49	374.00	163.35
15354.000	22.00	0.00	0.00	592.06	690.00	599.44	0.00	599.59	11.28	3.10	445.43	205.42
15354.000	22.00	0.00	0.00	592.06	755.00	599.64	0.00	599.80	11.63	3.22	469.46	221.36
15354.000	22.00	0.00	0.00	592.06	1070.00	600.85	0.00	600.95	65.03	2.56	837.17	132.69
15778.000	424.00	0.00	0.00	591.96	465.00	599.08	0.00	599.14	3.20	1.88	246.78	259.96
15778.000	424.00	0.00	0.00	591.96	690.00	599.81	0.00	599.90	4.60	2.39	288.84	321.56
15778.000	424.00	0.00	0.00	591.96	755.00	600.03	0.00	600.12	4.89	2.50	302.04	341.55
15778.000	424.00	0.00	0.00	591.96	1070.00	601.27	0.00	601.35	3.53	2.39	700.74	569.43
15946.000	168.00	0.00	0.00	592.36	465.00	599.13	0.00	599.22	5.13	2.40	193.58	205.25
15946.000	168.00	0.00	0.00	592.36	690.00	599.88	0.00	600.02	7.40	3.06	227.78	253.67
15946.000	168.00	0.00	0.00	592.36	755.00	600.10	0.00	600.25	7.50	3.13	285.79	275.64
15946.000	168.00	0.00	0.00	592.36	1070.00	601.36	0.00	601.41	2.68	2.15	925.00	653.31

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
15947.000	1.00	0.00	0.00	592.36	465.00	599.13	0.00	599.22	23.99	2.40	193.60	94.94
15947.000	1.00	0.00	0.00	592.36	690.00	599.88	0.00	600.02	34.55	3.05	227.88	117.38
~~15947.000~~	~~1.00~~	~~0.00~~	~~0.00~~	~~592.36~~	~~755.00~~	~~600.13~~	~~0.00~~	~~600.26~~	~~31.61~~	~~2.98~~	~~294.38~~	~~134.29~~
15947.000	1.00	0.00	0.00	592.36	1070.00	601.39	0.00	601.42	4.64	1.31	941.10	496.72
~~15957.000~~	~~10.00~~	~~599.86~~	~~598.56~~	~~592.36~~	~~465.00~~	~~599.25~~	~~0.00~~	~~599.34~~	~~22.37~~	~~2.34~~	~~198.58~~	~~98.32~~
15957.000	10.00	599.86	598.56	592.36	690.00	600.07	0.00	600.19	28.79	2.83	275.33	128.60
15957.000	10.00	599.86	598.56	592.36	755.00	600.27	0.00	600.37	24.84	2.68	341.22	151.50
~~15957.000~~	~~10.00~~	~~599.86~~	~~598.56~~	~~592.36~~	~~1070.00~~	~~601.43~~	~~0.00~~	~~601.45~~	~~4.34~~	~~1.27~~	~~962.25~~	~~513.62~~
15958.000	1.00	0.00	0.00	592.36	465.00	599.25	0.00	599.34	5.04	2.34	198.67	207.13
~~15958.000~~	~~1.00~~	~~0.00~~	~~0.00~~	~~592.36~~	~~690.00~~	~~600.07~~	~~0.00~~	~~600.20~~	~~6.86~~	~~2.91~~	~~276.29~~	~~263.43~~
15958.000	1.00	0.00	0.00	592.36	755.00	600.26	0.00	600.39	6.92	2.97	338.94	286.95
15958.000	1.00	0.00	0.00	592.36	1070.00	601.41	0.00	601.47	3.48	2.40	950.39	573.35
16752.000	794.00	0.00	0.00	592.76	465.00	599.61	0.00	599.67	3.28	1.83	254.50	256.95
16752.000	794.00	0.00	0.00	592.76	690.00	600.55	0.00	600.63	4.12	2.20	313.24	340.04
~~16752.000~~	~~794.00~~	~~0.00~~	~~0.00~~	~~592.76~~	~~755.00~~	~~600.75~~	~~0.00~~	~~600.83~~	~~4.38~~	~~2.31~~	~~340.25~~	~~360.73~~
16752.000	794.00	0.00	0.00	592.76	1070.00	601.70	0.00	601.79	4.24	2.53	553.91	519.39
~~17401.000~~	~~649.00~~	~~0.00~~	~~0.00~~	~~593.06~~	~~465.00~~	~~599.83~~	~~0.00~~	~~599.89~~	~~3.50~~	~~1.88~~	~~247.68~~	~~248.64~~
17401.000	649.00	0.00	0.00	593.06	690.00	600.82	0.00	600.90	4.26	2.24	308.30	334.12
17401.000	649.00	0.00	0.00	593.06	755.00	601.04	0.00	601.12	4.53	2.34	322.35	354.81
~~17401.000~~	~~649.00~~	~~0.00~~	~~0.00~~	~~593.06~~	~~1070.00~~	~~601.99~~	~~0.00~~	~~602.11~~	~~5.25~~	~~2.74~~	~~434.85~~	~~467.04~~
17811.000	410.00	0.00	0.00	593.26	465.00	599.98	0.00	600.03	3.53	1.87	248.46	247.66
~~17811.000~~	~~410.00~~	~~0.00~~	~~0.00~~	~~593.26~~	~~690.00~~	~~601.00~~	~~0.00~~	~~601.07~~	~~4.19~~	~~2.21~~	~~312.24~~	~~337.10~~
17811.000	410.00	0.00	0.00	593.26	755.00	601.22	0.00	601.31	4.42	2.31	327.30	359.19
17811.000	410.00	0.00	0.00	593.26	1070.00	602.21	0.00	602.32	4.95	2.65	469.14	481.10
17911.000	100.00	0.00	0.00	595.66	465.00	599.92	0.00	600.26	46.38	4.65	99.91	68.28
17911.000	100.00	0.00	0.00	595.66	690.00	600.93	0.00	601.34	44.29	5.10	135.33	103.69
~~17911.000~~	~~100.00~~	~~0.00~~	~~0.00~~	~~595.66~~	~~755.00~~	~~601.15~~	~~0.00~~	~~601.58~~	~~44.96~~	~~5.25~~	~~143.73~~	~~112.60~~
17911.000	100.00	0.00	0.00	595.66	1070.00	602.16	600.09	602.59	40.71	5.47	282.16	167.71
~~18011.000~~	~~100.00~~	~~0.00~~	~~0.00~~	~~595.66~~	~~465.00~~	~~600.43~~	~~0.00~~	~~600.63~~	~~24.96~~	~~3.58~~	~~130.01~~	~~93.07~~
18011.000	100.00	0.00	0.00	595.66	690.00	601.46	0.00	601.71	24.58	3.95	174.65	139.16
18011.000	100.00	0.00	0.00	595.66	755.00	601.71	0.00	601.96	24.84	4.06	185.92	151.50
~~18011.000~~	~~100.00~~	~~0.00~~	~~0.00~~	~~595.66~~	~~1070.00~~	~~602.78~~	~~0.00~~	~~602.88~~	~~10.89~~	~~3.07~~	~~700.22~~	~~324.24~~
18311.000	300.00	0.00	0.00	595.66	465.00	601.09	0.00	601.25	16.48	3.14	147.90	114.55
~~18311.000~~	~~300.00~~	~~0.00~~	~~0.00~~	~~595.66~~	~~690.00~~	~~602.14~~	~~0.00~~	~~602.33~~	~~16.71~~	~~3.49~~	~~229.86~~	~~168.78~~
18311.000	300.00	0.00	0.00	595.66	755.00	602.40	0.00	602.57	15.84	3.47	277.10	189.72
18311.000	300.00	0.00	0.00	595.66	1070.00	603.13	0.00	603.30	15.08	3.60	451.58	275.55
19536.000	1225.00	0.00	0.00	595.80	465.00	602.83	0.00	602.97	12.06	3.01	154.45	133.89
19536.000	1225.00	0.00	0.00	595.80	690.00	603.85	0.00	603.98	10.86	3.08	376.62	209.35
~~19536.000~~	~~1225.00~~	~~0.00~~	~~0.00~~	~~595.80~~	~~755.00~~	~~604.02~~	~~0.00~~	~~604.14~~	~~10.33~~	~~3.04~~	~~452.53~~	~~234.96~~
19536.000	1225.00	0.00	0.00	595.80	1070.00	604.60	0.00	604.68	8.63	2.89	781.40	364.18
~~20836.000~~	~~1300.00~~	~~0.00~~	~~0.00~~	~~596.80~~	~~465.00~~	~~604.26~~	~~0.00~~	~~604.39~~	~~9.97~~	~~2.90~~	~~160.16~~	~~147.24~~
20836.000	1300.00	0.00	0.00	596.80	690.00	605.32	0.00	605.51	12.28	3.55	200.30	196.90
20836.000	1300.00	0.00	0.00	596.80	755.00	605.49	0.00	605.71	13.31	3.76	208.10	206.95
~~20836.000~~	~~1300.00~~	~~0.00~~	~~0.00~~	~~596.80~~	~~1070.00~~	~~606.08~~	~~0.00~~	~~606.44~~	~~19.36~~	~~4.82~~	~~234.72~~	~~243.19~~

GLOFDE DITCH

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
7785.000	850.00	593.89	0.00	0.00	0.00	33.39	0.00
7786.000	1250.00	594.60	.71	0.00	0.00	35.38	0.00
7786.000	1370.00	594.74	.14	0.00	0.00	35.78	0.00
7786.000	1935.00	595.32	.58	0.00	0.00	37.41	0.00
7787.000	850.00	593.84	0.00	-.05	0.00	30.32	1.00
7787.000	1250.00	594.51	.67	-.09	0.00	32.21	1.00
7787.000	1370.00	594.63	.13	-.11	0.00	32.57	1.00
7787.000	1935.00	595.13	.50	-.19	0.00	33.96	1.00
7860.000	850.00	594.01	0.00	.17	0.00	30.81	73.00
7860.000	1250.00	594.82	.81	.31	0.00	33.11	73.00
7860.000	1370.00	595.01	.19	.38	0.00	33.64	73.00
7860.000	1935.00	595.94	.94	.82	0.00	36.27	73.00
7861.000	850.00	594.17	0.00	.16	0.00	34.17	1.00
7861.000	1250.00	595.09	.92	.27	0.00	36.77	1.00
7861.000	1370.00	595.32	.23	.31	0.00	37.42	1.00
7861.000	1935.00	596.43	1.11	.49	0.00	40.04	1.00
8050.000	835.00	594.68	0.00	.51	0.00	106.22	190.00
8050.000	1230.00	595.84	1.17	.75	0.00	109.62	190.00
8050.000	1345.00	596.15	.30	.83	0.00	110.51	190.00
8050.000	1905.00	597.55	1.40	1.12	0.00	114.60	190.00
8198.000	835.00	594.72	0.00	.05	0.00	34.00	148.00
8198.000	1230.00	595.87	1.14	.02	0.00	34.00	148.00
8198.000	1345.00	596.16	.30	.01	0.00	34.00	148.00
8198.000	1905.00	597.53	1.37	-.02	0.00	176.28	148.00
8199.000	835.00	594.72	0.00	.00	0.00	34.00	1.00
8199.000	1230.00	595.87	1.14	.00	0.00	34.00	1.00
8199.000	1345.00	596.16	.30	.00	0.00	34.00	1.00
8199.000	1905.00	597.49	1.33	-.04	0.00	176.51	1.00
8215.000	835.00	594.73	0.00	.00	0.00	34.00	16.00
8215.000	1230.00	595.87	1.14	.00	0.00	34.00	16.00
8215.000	1345.00	596.17	.30	.01	0.00	34.00	16.00
8215.000	1905.00	597.51	1.34	.02	0.00	175.39	16.00
8216.000	835.00	594.73	0.00	.00	0.00	34.00	1.00
8216.000	1230.00	595.87	1.14	.00	0.00	34.00	1.00
8216.000	1345.00	596.17	.30	.00	0.00	34.00	1.00
8216.000	1905.00	597.64	1.47	.12	0.00	181.05	1.00
8885.000	835.00	595.23	0.00	.51	0.00	198.15	669.00
8885.000	1230.00	596.53	1.30	.66	0.00	222.55	669.00
8885.000	1345.00	596.87	.34	.70	0.00	235.04	669.00
8885.000	1905.00	598.41	1.54	.78	0.00	292.61	669.00
9086.000	835.00	595.32	0.00	.09	0.00	204.73	201.00
9086.000	1230.00	596.62	1.29	.08	0.00	371.26	201.00
9086.000	1345.00	596.95	.33	.08	0.00	384.96	201.00
9086.000	1905.00	598.49	1.54	.07	0.00	451.01	201.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
9091.000	835.00	595.42	0.00	.10	0.00	219.21	5.00
9091.000	1230.00	596.70	1.28	.09	0.00	374.92	5.00
9091.000	1345.00	597.03	.32	.08	0.00	388.16	5.00
9091.000	1905.00	598.53	1.50	.04	0.00	452.60	5.00
9107.000	835.00	595.65	0.00	.22	0.00	285.78	16.00
9107.000	1230.00	596.76	1.12	.06	0.00	377.32	16.00
9107.000	1345.00	597.08	.32	.06	0.00	390.64	16.00
9107.000	1905.00	598.59	1.50	.06	0.00	455.35	16.00
9110.000	835.00	595.62	0.00	-.03	0.00	277.84	3.00
9110.000	1230.00	596.74	1.12	-.02	0.00	376.35	3.00
9110.000	1345.00	597.06	.32	-.02	0.00	389.76	3.00
9110.000	1905.00	598.58	1.52	-.01	0.00	455.15	3.00
9155.000	835.00	595.75	0.00	.13	0.00	361.57	45.00
9155.000	1230.00	596.84	1.08	.10	0.00	413.22	45.00
9155.000	1345.00	597.15	.31	.08	0.00	423.29	45.00
9155.000	1905.00	598.62	1.48	.04	0.00	471.01	45.00
9550.000	835.00	595.78	0.00	.03	0.00	183.26	395.00
9550.000	1230.00	596.87	1.09	.04	0.00	251.35	395.00
9550.000	1345.00	597.18	.31	.04	0.00	261.86	395.00
9550.000	1905.00	598.66	1.47	.04	0.00	310.17	395.00
9609.000	835.00	595.99	0.00	.21	0.00	219.91	59.00
9609.000	1230.00	597.04	1.05	.17	0.00	253.04	59.00
9609.000	1345.00	597.33	.29	.15	0.00	262.30	59.00
9609.000	1905.00	598.74	1.41	.08	0.00	306.98	59.00
9610.000	835.00	596.03	0.00	.04	0.00	221.00	1.00
9610.000	1230.00	597.05	1.03	.02	0.00	253.28	1.00
9610.000	1345.00	597.34	.29	.01	0.00	262.49	1.00
9610.000	1905.00	598.74	1.40	.00	0.00	307.00	1.00
9625.000	835.00	596.05	0.00	.03	0.00	221.75	15.00
9625.000	1230.00	597.07	1.01	.02	0.00	253.98	15.00
9625.000	1345.00	597.36	.29	.01	0.00	263.09	15.00
9625.000	1905.00	598.75	1.40	.01	0.00	307.37	15.00
9626.000	835.00	596.05	0.00	-.01	0.00	221.75	1.00
9626.000	1230.00	597.07	1.02	-.00	0.00	254.04	1.00
9626.000	1345.00	597.35	.29	-.00	0.00	263.14	1.00
9626.000	1905.00	598.75	1.40	-.00	0.00	307.37	1.00
9700.000	835.00	596.11	0.00	.07	0.00	255.62	74.00
9700.000	1230.00	597.11	1.00	.05	0.00	285.73	74.00
9700.000	1345.00	597.40	.28	.04	0.00	294.18	74.00
9700.000	1905.00	598.78	1.38	.03	0.00	335.53	74.00
9965.000	835.00	596.38	0.00	.26	0.00	398.08	265.00
9965.000	1230.00	597.28	.90	.16	0.00	441.95	265.00
9965.000	1345.00	597.54	.27	.14	0.00	463.91	265.00
9965.000	1905.00	598.87	1.33	.09	0.00	550.00	265.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
10245.000	835.00	596.44	0.00	.07	0.00	217.91	280.00
10245.000	1230.00	597.32	.88	.05	0.00	459.43	280.00
10245.000	1345.00	597.59	.26	.04	0.00	523.85	280.00
10245.000	1905.00	598.90	1.32	.03	0.00	841.22	280.00
10445.000	835.00	596.64	0.00	.20	0.00	382.20	200.00
10445.000	1230.00	597.49	.85	.17	0.00	390.94	200.00
10445.000	1345.00	597.73	.24	.15	0.00	392.93	200.00
10445.000	1905.00	598.96	1.23	.06	0.00	400.00	200.00
10845.000	835.00	596.66	0.00	.02	0.00	155.06	400.00
10845.000	1230.00	597.52	.86	.02	0.00	172.24	400.00
10845.000	1345.00	597.76	.24	.02	0.00	174.42	400.00
10845.000	1905.00	598.98	1.23	.02	0.00	183.00	400.00
10945.000	475.00	596.71	0.00	.05	0.00	149.95	100.00
10945.000	700.00	597.58	.87	.06	0.00	168.94	100.00
10945.000	765.00	597.82	.24	.06	0.00	172.45	100.00
10945.000	1085.00	599.05	1.23	.07	0.00	183.00	100.00
11445.000	475.00	596.74	0.00	.04	0.00	144.92	500.00
11445.000	700.00	597.62	.88	.04	0.00	164.53	500.00
11445.000	765.00	597.86	.24	.04	0.00	169.95	500.00
11445.000	1085.00	599.09	1.23	.04	0.00	181.23	500.00
11945.000	475.00	596.79	0.00	.05	0.00	131.62	500.00
11945.000	700.00	597.68	.88	.05	0.00	150.25	500.00
11945.000	765.00	597.92	.24	.06	0.00	155.38	500.00
11945.000	1085.00	599.14	1.22	.05	0.00	178.07	500.00
12445.000	475.00	596.85	0.00	.06	0.00	151.86	500.00
12445.000	700.00	597.75	.89	.07	0.00	174.70	500.00
12445.000	765.00	597.99	.24	.07	0.00	180.96	500.00
12445.000	1085.00	599.21	1.22	.07	0.00	200.00	500.00
12545.000	475.00	596.87	0.00	.01	0.00	144.86	100.00
12545.000	700.00	597.76	.89	.01	0.00	167.12	100.00
12545.000	765.00	598.00	.24	.01	0.00	173.20	100.00
12545.000	1085.00	599.22	1.22	.01	0.00	200.00	100.00
12645.000	475.00	596.88	0.00	.02	0.00	146.71	100.00
12645.000	700.00	597.77	.89	.01	0.00	163.22	100.00
12645.000	765.00	598.02	.24	.01	0.00	167.74	100.00
12645.000	1085.00	599.23	1.21	.01	0.00	190.20	100.00
13453.000	475.00	596.98	0.00	.10	0.00	132.47	808.00
13453.000	700.00	597.88	.90	.10	0.00	148.60	808.00
13453.000	765.00	598.12	.24	.10	0.00	152.95	808.00
13453.000	1085.00	599.33	1.20	.10	0.00	174.43	808.00
13653.000	475.00	597.03	0.00	.05	0.00	93.50	200.00
13653.000	700.00	597.93	.90	.05	0.00	102.37	200.00
13653.000	765.00	598.17	.24	.05	0.00	104.77	200.00
13653.000	1085.00	599.37	1.20	.04	0.00	116.54	200.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
13753.000	475.00	597.06	0.00	.04	0.00	99.25	100.00
13753.000	700.00	597.97	.90	.04	0.00	111.89	100.00
13753.000	765.00	598.21	.24	.04	0.00	115.30	100.00
13753.000	1085.00	599.41	1.20	.04	0.00	132.13	100.00
14128.000	475.00	597.21	0.00	.15	0.00	91.90	375.00
14128.000	700.00	598.12	.91	.16	0.00	103.67	375.00
14128.000	765.00	598.37	.24	.16	0.00	106.76	375.00
14128.000	1085.00	599.55	1.18	.14	0.00	122.10	375.00
14328.000	475.00	597.31	0.00	.10	0.00	129.31	200.00
14328.000	700.00	598.23	.92	.11	0.00	151.60	200.00
14328.000	765.00	598.48	.25	.12	0.00	157.49	200.00
14328.000	1085.00	599.67	1.19	.12	0.00	185.83	200.00
14801.000	475.00	597.53	0.00	.22	0.00	124.81	473.00
14801.000	700.00	598.43	.90	.20	0.00	125.00	473.00
14801.000	765.00	598.68	.24	.19	0.00	125.00	473.00
14801.000	1085.00	599.83	1.15	.16	0.00	125.00	473.00
14886.000	475.00	597.58	0.00	.04	0.00	78.26	85.00
14886.000	700.00	598.47	.89	.03	0.00	81.85	85.00
14886.000	765.00	598.70	.24	.03	0.00	82.81	85.00
14886.000	1085.00	599.84	1.14	.02	0.00	87.36	85.00
14981.000	475.00	597.62	0.00	.04	0.00	34.00	95.00
14981.000	700.00	598.48	.86	.01	0.00	34.00	95.00
14981.000	765.00	598.71	.23	.00	0.00	34.00	95.00
14981.000	1085.00	599.80	1.09	-.04	0.00	34.00	95.00
14982.000	475.00	597.62	0.00	.00	0.00	34.00	1.00
14982.000	700.00	598.48	.86	.00	0.00	34.00	1.00
14982.000	765.00	598.71	.23	.00	0.00	34.00	1.00
14982.000	1085.00	599.80	1.09	.00	0.00	34.00	1.00
15054.000	475.00	597.66	0.00	.04	0.00	34.00	72.00
15054.000	700.00	598.53	.87	.05	0.00	34.00	72.00
15054.000	765.00	598.76	.23	.05	0.00	34.00	72.00
15054.000	1085.00	599.86	1.10	.06	0.00	34.00	72.00
15055.000	475.00	597.66	0.00	.00	0.00	34.00	1.00
15055.000	700.00	598.53	.87	.00	0.00	34.00	1.00
15055.000	765.00	598.76	.23	.00	0.00	34.00	1.00
15055.000	1085.00	599.86	1.10	.00	0.00	34.00	1.00
15097.000	465.00	597.85	0.00	.19	0.00	50.72	42.00
15097.000	690.00	598.80	.95	.27	0.00	56.40	42.00
15097.000	755.00	599.05	.25	.29	0.00	57.91	42.00
15097.000	1070.00	600.26	1.21	.40	0.00	86.56	42.00
15228.000	465.00	597.93	0.00	.08	0.00	50.58	131.00
15228.000	690.00	598.89	.96	.09	0.00	56.33	131.00
15228.000	755.00	599.15	.26	.09	0.00	57.86	131.00
15228.000	1070.00	600.36	1.21	.10	0.00	65.08	131.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
15303.000	465.00	597.96	0.00	.03	0.00	45.24	75.00
15303.000	690.00	598.93	.97	.04	0.00	55.39	75.00
15303.000	755.00	599.19	.26	.04	0.00	57.98	75.00
15303.000	1070.00	600.41	1.22	.05	0.00	82.65	75.00
15325.000	465.00	597.95	0.00	-.00	0.00	35.51	22.00
15325.000	690.00	598.92	.97	-.01	0.00	48.20	22.00
15325.000	755.00	599.18	.26	-.01	0.00	50.79	22.00
15325.000	1070.00	600.41	1.23	-.00	0.00	61.29	22.00
* 15328.000	465.00	597.94	0.00	-.02	0.00	44.85	3.00
15328.000	690.00	598.77	.83	-.15	0.00	53.75	3.00
15328.000	755.00	599.06	.29	-.12	0.00	56.63	3.00
15328.000	1070.00	600.35	1.30	-.05	0.00	65.11	3.00
15329.000	465.00	598.30	0.00	.36	0.00	48.87	1.00
15329.000	690.00	598.78	.48	.01	0.00	53.77	1.00
15329.000	755.00	599.07	.29	.01	0.00	56.66	1.00
15329.000	1070.00	600.36	1.29	.00	0.00	65.12	1.00
15332.000	465.00	598.73	0.00	.43	0.00	46.22	3.00
15332.000	690.00	599.29	.56	.51	0.00	51.93	3.00
15332.000	755.00	599.49	.19	.42	0.00	53.97	3.00
15332.000	1070.00	600.54	1.06	.19	0.00	62.11	3.00
15354.000	465.00	598.83	0.00	.09	0.00	54.18	22.00
15354.000	690.00	599.44	.61	.15	0.00	59.72	22.00
15354.000	755.00	599.64	.20	.15	0.00	60.89	22.00
15354.000	1070.00	600.85	1.21	.30	0.00	591.93	22.00
15778.000	465.00	599.08	0.00	.26	0.00	55.78	424.00
15778.000	690.00	599.81	.73	.37	0.00	60.03	424.00
15778.000	755.00	600.03	.22	.39	0.00	61.30	424.00
15778.000	1070.00	601.27	1.24	.43	0.00	600.00	424.00
15946.000	465.00	599.13	0.00	.05	0.00	41.88	168.00
15946.000	690.00	599.88	.75	.07	0.00	161.05	168.00
15946.000	755.00	600.10	.22	.07	0.00	326.43	163.00
15946.000	1070.00	601.36	1.26	.09	0.00	600.00	168.00
15947.000	465.00	599.13	0.00	.00	0.00	41.88	1.00
15947.000	690.00	599.88	.75	.00	0.00	161.66	1.00
15947.000	755.00	600.13	.25	.03	0.00	326.49	1.00
15947.000	1070.00	601.39	1.27	.03	0.00	600.00	1.00
15957.000	465.00	599.25	0.00	.12	0.00	42.32	10.00
15957.000	690.00	600.07	.82	.19	0.00	326.36	10.00
15957.000	755.00	600.27	.20	.14	0.00	326.80	10.00
15957.000	1070.00	601.43	1.16	.04	0.00	600.00	10.00
15958.000	465.00	599.25	0.00	.00	0.00	42.33	1.00
15958.000	690.00	600.07	.81	-.00	0.00	326.36	1.00
15958.000	755.00	600.26	.19	-.02	0.00	326.79	1.00
15958.000	1070.00	601.41	1.16	-.02	0.00	600.00	1.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
16752.000	465.00	599.61	0.00	.36	0.00	59.28	794.00
16752.000	690.00	600.55	.94	.49	0.00	65.37	794.00
16752.000	755.00	600.75	.20	.49	0.00	224.33	794.00
16752.000	1070.00	601.70	.95	.29	0.00	225.00	794.00
17401.000	465.00	599.83	0.00	.22	0.00	58.14	649.00
17401.000	690.00	600.82	.99	.27	0.00	64.46	649.00
17401.000	755.00	601.04	.22	.29	0.00	65.81	649.00
17401.000	1070.00	601.99	.95	.29	0.00	338.00	649.00
17811.000	465.00	599.98	0.00	.14	0.00	59.04	410.00
17811.000	690.00	601.00	1.02	.18	0.00	65.74	410.00
17811.000	755.00	601.22	.23	.19	0.00	67.23	410.00
17811.000	1070.00	602.21	.99	.22	0.00	280.11	410.00
17911.000	465.00	599.92	0.00	-.05	0.00	32.87	100.00
17911.000	690.00	600.93	1.01	-.07	0.00	37.33	100.00
17911.000	755.00	601.15	.22	-.07	0.00	38.32	100.00
17911.000	1070.00	602.16	1.00	-.06	0.00	485.89	100.00
18011.000	465.00	600.43	0.00	.51	0.00	40.45	100.00
18011.000	690.00	601.46	1.03	.53	0.00	46.16	100.00
18011.000	755.00	601.71	.24	.55	0.00	47.49	100.00
18011.000	1070.00	602.78	1.08	.63	0.00	600.00	100.00
18311.000	465.00	601.09	0.00	.66	0.00	40.43	300.00
18311.000	690.00	602.14	1.05	.68	0.00	171.89	300.00
18311.000	755.00	602.40	.25	.69	0.00	199.18	300.00
18311.000	1070.00	603.13	.73	.35	0.00	270.00	300.00
19536.000	465.00	602.83	0.00	1.73	0.00	33.88	1225.00
19536.000	690.00	603.85	1.02	1.71	0.00	433.97	1225.00
19536.000	755.00	604.02	.17	1.63	0.00	463.97	1225.00
19536.000	1070.00	604.60	.58	1.47	0.00	632.00	1225.00
20836.000	465.00	604.26	0.00	1.44	0.00	30.74	1300.00
20836.000	690.00	605.32	1.05	1.47	0.00	45.00	1300.00
20836.000	755.00	605.49	.17	1.47	0.00	45.00	1300.00
20836.000	1070.00	606.08	.59	1.48	0.00	45.00	1300.00

SUMMARY OF ERRORS

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CAUTION  SECNO=15328.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=15328.000  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=15328.000  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL
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  HEC2 RELEASE DATED NOV 76 UPDATED   AUG1977
  ERROR CORR -    01,02
  MODIFICATION -  50,51,52,53
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T1             MACOMB TWP. FIS J&A FILE NO. 5850-03
T2             100 YEAR FLOOD
T3             GLOEDE DITCH
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J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	4.	0.	0.	0.000000	0.00	0.0	0.	594.740	0.000

J2	NPROF	IPLOT	PREVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	3.000	0.000	1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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*PROF 3

CCHV=     .300 CEHV=      .500
*SECNO 7786.000
   SECNO     DEPTH     CWSEL     CRIWS     WSELK      EG        HV        HL       OLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB       ACH       AROB      VOL      TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL        XNCH      XNR       WTN      ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL     IDC       ICONT     CORAR    TOPWID      ENDST

  7786.00      9.74    594.74      0.00    594.74    595.48       .74      0.00      0.00    601.00
    1370.        0.     1370.        0.        0.      199.        0.        0.        0.    601.10
     0.00      0.00      6.88      0.00      .035      .080      .035     0.000    585.00    230.64
  .017123        0.        0.        0.         0         0         0      0.00     35.78    266.42

*SECNO 7787.000

3265 DIVIDED FLOW

3370 NORMAL BRIDGE,NRD= 15 MIN ELTRD=  600.90 MAX ELLC=  598.80

  7787.00      9.63    594.63      0.00      0.00    595.60       .96       .01       .11    601.00
    1370.        0.     1370.        0.        0.      174.        0.        0.        0.    601.10
      .00      0.00      7.87      0.00      .040      .020      .040      .010    585.00    230.77
  .003184        1.        1.        1.         2         0         0      0.00     32.57    266.25

*SECNO 7860.000

3265 DIVIDED FLOW

3370 NORMAL BRIDGE,NRD= 15 MIN ELTRD=  600.90 MAX ELLC=  598.80

                   BRIDGE SECTION NO.1 HALL ROAD (M-59)  (J&A)      SECT. A

  7860.00     10.01    595.01      0.00      0.00    595.85       .84       .21       .04    601.00
    1370.        0.     1370.        0.        0.      187.        0.        0.        0.    601.10
      .00      0.00      7.34      0.00      .040      .020      .040      .019    585.00    230.29
  .002663       73.       73.       73.         2         0         0      0.00     33.64    266.84

*SECNO 7861.000
  7861.00     10.32    595.32      0.00      0.00    595.92       .60       .00       .07    601.00
    1370.        0.     1370.        0.        0.      220.        0.        0.        0.    601.10
      .00      0.00      6.22      0.00      .050      .040      .050      .019    585.00    229.90
  .003246        1.        1.        1.         2         0         0      0.00     37.42    267.32

*SECNO 8050.000
   SECNO     DEPTH     CWSEL     CRIWS     WSELK      EG        HV        HL       OLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB       ACH       AROB      VOL      TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL        XNCH      XNR       WTN      ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL     IDC       ICONT     CORAR    TOPWID      ENDST

3470 ENCROACHMENT STATIONS=       93.0       245.0  TYPE=      1  TARGET=       -93.000
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                    VALLEY SECTION NO.2   (J&A)                        SECT. B
  8050.00     10.55    596.15     0.00      0.00    596.26      .11      .20       .15     592.90
     1345.      259.     1084.       2.       188.      367.       3.       2.        0.     594.60
      .02      1.38      2.95      .52      .050      .040     .050     .033    585.60     93.00
  .000470      275.      190.     190.         2         0        0     0.00    110.51    203.51

*SECNO 8198.000
  8198.00     10.56    596.16     0.00      0.00    596.45      .29      .10       .09     598.80
     1345.       0.     1345.       0.        0.      310.       0.       4.        1.     598.80
      .03      0.00      4.34     0.00      .050      .040     .050     .035    585.60    200.00
  .001142      148.      148.     148.         2         0        0     0.00     34.00    234.00

*SECNO 8199.000

3370 NORMAL BRIDGE,NRD=  5 MIN ELTRD=  596.60 MAX ELLC=  596.60

  8199.00     10.56    596.16     0.00      0.00    596.45      .29      .00       .00     598.80
     1345.       0.     1345.       0.        0.      310.       0.       4.        1.     598.80
      .03      0.00      4.34     0.00      .035      .020     .035     .035    585.60    200.00
  .000286        1.        1.       1.         0         0        0     0.00     34.00    234.00

*SECNO 8215.000

3370 NORMAL BRIDGE,NRD=  5 MIN ELTRD=  596.60 MAX ELLC=  596.60

                    BRIDGE SECTION NO.3 PRIVATE BRIDGE   (J&A)         SECT. C
  8215.00     10.57    596.17     0.00      0.00    596.46      .29      .00       .00     598.80
     1345.       0.     1345.       0.        0.      310.       0.       4.        1.     598.80
      .03      0.00      4.33     0.00      .035      .020     .035     .035    585.60    200.00
  .000285       16.       16.      16.         0         0        0     0.00     34.00    234.00

*SECNO 8216.000
  8216.00     10.57    596.17     0.00      0.00    596.46      .29      .00       .00     598.80
     1345.       0.     1345.       0.        0.      310.       0.       4.        1.     598.80
      .03      0.00      4.34     0.00      .050      .040     .050     .034    585.60    200.00
  .001140        1.        1.       1.         0         0        0     0.00     34.00    234.00

*SECNO 8885.000
    SECNO     DEPTH     CWSEL     CRIWS     WSELK       EG        HV       HL      OLOSS   BANK ELEV
    Q         QLOB      QCH       QROB      ALOB        ACH       AROB     VOL     TWA    LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL         XNCH      XNR      WTN     ELMIN      SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL      IDC       ICONT    CORAR   TOPWID     ENDST

                    VALLEY SECTION NO.4   (J&A)                        SECT. D

  8885.00     10.37    596.87     0.00      0.00    596.94      .07      .41       .07     596.20
     1345.       1.      874.     470.        6.      358.     470.      13.        3.     593.60
      .13       .23      2.44     1.00      .060      .042     .060     .039    586.50    181.91
  .000378      669.      669.     669.         2         0        0     0.00    235.04    416.95

*SECNO 9086.000

3470 ENCROACHMENT STATIONS=        .0      989.0  TYPE=      1  TARGET=     1149.999
  9086.00     10.45    596.95     0.00      0.00    597.04      .09      .09       .01     586.70
     1345.      499.      579.     267.      523.      168.     245.      18.        5.     586.50
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      .16         .95      3.45      1.09      .060      .042      .060      .039    586.50    604.04
   .000426       350.      201.      201.         2         0         0      0.00    384.96    989.00

*SECNO 9091.000

3470 ENCROACHMENT STATIONS=        .0     989.0  TYPE=      1  TARGET=     1149.999
   9091.00     10.53    597.03      0.00      0.00    597.06       .03       .00       .02    586.70
     1345.      718.      246.      382.      542.      169.      253.       18.        5.    586.50
       .16      1.32      1.45      1.51      .035      .080      .035      .039    586.50    600.83
   .000271        5.        5.        5.         2         0         0      0.00    388.16    989.00

SPECIAL BRIDGE

SB  XK          XKOR        COFQ       RDLEN       BWC        BWP       BAREA       SS         ELCHU      ELCHD
      0.00        1.75      2.98       0.00      16.50       0.00     130.20      0.00      586.50     586.50

*SECNO 9107.000
PRESSURE AND WEIR FLOW

  EGPRS      EGLWC        H3       QWEIR       QPR       BAREA   TRAPEZOID     ELLC       ELTRD
                                                                   AREA
   599.93    597.06      0.00     1116.      233.      130.      130.       594.40     594.50

3470 ENCROACHMENT STATIONS=        .0     989.0  TYPE=      1  TARGET=     1149.999

                   BRIDGE SECT. NO.5 GARFIELD ROAD(ABANDONED) (J&A)   SECT.E

   9107.00     10.58    597.08      0.00      0.00    597.11       .03       .06      0.00    586.70
     1345.      723.      240.      382.      557.      170.      260.       18.        5.    586.50
       .17      1.30      1.41      1.47      .035      .080      .035      .039    586.50    598.36
   .000255       16.       16.       16.         2         0         7      0.00    390.64    989.00

*SECNO 9110.000

3470 ENCROACHMENT STATIONS=        .0     989.0  TYPE=      1  TARGET=     1149.999
   9110.00     10.56    597.06      0.00      0.00    597.14       .07       .00       .02    586.70
     1345.      527.      539.      279.      552.      170.      257.       18.        5.    586.50
       .17       .95      3.18      1.08      .060      .045      .060      .039    586.50    599.24
   .000409        3.        3.        3.         2         0         0      0.00    389.76    989.00

*SECNO 9155.000
    SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS   BANK ELEV
      Q        QLOB       QCH      QROB      ALOB       ACH      AROB       VOL       TWA   LEFT/RIGHT
     TIME      VLOB       VCH      VROB       XNL      XNCH       XNR       WTN     ELMIN      SSTA
    SLOPE     XLOBL      XLCH     XLOBR    ITRIAL       IDC     ICONT     CORAR    TOPWID     ENDST

3470 ENCROACHMENT STATIONS=     100.0     602.0  TYPE=      1  TARGET=     -100.000

                   VALLEY SECTION NO.1    (AE&W)                    SECT. F

   9155.00     11.47    597.15      0.00      0.00    597.16       .01       .01       .02    592.08
     1345.      702.      560.       83.     1033.      431.      209.       19.        5.    593.68
       .18       .68      1.30       .40      .060      .045      .060      .039    585.68    100.00
   .000104       45.       45.       45.         2         0         0      0.00    423.29    523.29
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*SECNO 9550.000
                    VALLEY SECTION NO.4    (AE&W)                              SECT. G

   9550.00     10.80    597.18      0.00      0.00    597.31       .13       .09       .06    594.58
     1345.      395.      825.      125.      302.      235.      110.       30.        8.    594.58
       .22      1.31      3.52      1.13      .060      .045      .060      .041    586.38     87.09
   .001026      395.      395.      395.         2         0         0      0.00    261.86    348.95

*SECNO 9609.000
   9609.00     10.65    597.33      0.00      0.00    597.39       .06       .06       .02    593.58
     1345.      797.      377.      170.      504.      137.      138.       31.        9.    593.58
       .23      1.58      2.75      1.23      .060      .045      .060      .041    586.68     92.59
   .000895       59.       59.       59.         2         0         0      0.00    262.30    354.89

*SECNO 9610.000

3370 NORMAL BRIDGE,NRD= 19 MIN ELTRD=   593.58 MAX ELLC=   592.68

   9610.00     10.66    597.34      0.00      0.00    597.39       .05       .00       .00    593.58
     1345.      945.      197.      202.      505.      111.      139.       31.        9.    593.58
       .23      1.87      1.78      1.46      .050      .038      .050      .041    586.68     92.55
   .000868        1.        1.        1.         1         0         0    -26.60    262.49    355.05

*SECNO 9625.000

3370 NORMAL BRIDGE,NRD= 19 MIN ELTRD=   593.58 MAX ELLC=   592.68

                    BRIDGE SECTION NO.5 PRIVATE BRIDGE    (AE&W)               SECT. H

   9625.00     10.68    597.36      0.00      0.00    597.41       .05       .01       .00    593.58
     1345.      946.      196.      203.      508.      111.      140.       31.        9.    593.58
       .23      1.86      1.77      1.45      .050      .038      .050      .041    586.68     92.44
   .000852       15.       15.       15.         0         0         0    -26.60    263.09    355.53

*SECNO 9626.000
    SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS  BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

   9626.00     10.67    597.35      0.00      0.00    597.41       .06       .00       .00    593.58
     1345.      802.      371.      172.      508.      137.      140.       31.        9.    593.58
       .23      1.58      2.70      1.23      .050      .038      .050      .041    586.68     92.43
   .000611        1.        1.        1.         0         0         0      0.00    263.14    355.56

*SECNO 9700.000

                    VALLEY SECTION NO.6    (AE&W)                              SECT. I

   9700.00     10.82    597.40      0.00      0.00    597.45       .06       .04       .00    594.28
     1345.      627.      371.      347.      467.      139.      187.       32.        9.    594.28
       .24      1.34      2.66      1.85      .060      .046      .035      .041    586.58     92.15
   .000723       50.       74.      100.         1         0         0      0.00    294.18    386.34

*SECNO 9965.000

                    VALLEY SECTION NO.8    (AE&W)                              SECT. J
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9965.00	10.16	597.54	0.00	0.00	597.56	.02	.10	.01	595.38
1345.	404.	224.	717.	568.	154.	555.	39.	12.	595.38
.31	.71	1.45	1.29	.060	.046	.035	.041	587.38	58.62
.000227	265.	265.	265.	2	0	0	0.00	463.91	522.53

1490 NH CARD USED
*SECNO 10245.000

VALLEY SECTION NO.9 (AE&W) SECT. K

10245.00	10.61	597.59	0.00	0.00	597.69	.11	.09	.04	594.88
1345.	410.	805.	130.	366.	245.	153.	45.	15.	595.98
.34	1.12	3.28	.85	.043	.033	.035	.042	586.98	400.37
.000474	320.	280.	220.	2	0	0	0.00	523.85	924.22

1490 NH CARD USED
*SECNO 10445.000

3470 ENCROACHMENT STATIONS= 260.0 660.0 TYPE= 1 TARGET= -260.000

VALLEY SECTION NO.11 (AE&W) SECT. L

10445.00	10.15	597.73	0.00	0.00	597.75	.02	.03	.03	589.48
1345.	654.	250.	441.	923.	157.	441.	50.	17.	589.38
.40	.71	1.60	1.00	.043	.033	.035	.042	587.58	260.00
.000066	200.	200.	200.	2	0	0	0.00	392.93	652.93

*SECNO 10845.000
3280 CROSS SECTION 10845.00 EXTENDED .36 FEET

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

10845.00	10.06	597.76	0.00	0.00	597.81	.06	.04	.02	591.00
1345.	573.	343.	429.	348.	133.	262.	61.	19.	590.90
.45	1.65	2.57	1.64	.035	.033	.035	.041	587.70	0.00
.000234	400.	400.	400.	2	0	0	0.00	174.42	174.42

*SECNO 10945.000
3280 CROSS SECTION 10945.00 EXTENDED .14 FEET

VALLEY SECTION NO.12 (AE&W) SECT. M

10945.00	9.84	597.82	0.00	0.00	597.84	.02	.02	.01	591.28
765.	320.	202.	243.	328.	130.	247.	63.	20.	591.18
.48	.98	1.55	.98	.035	.033	.035	.041	587.98	0.00
.000088	100.	100.	100.	2	0	0	0.00	172.45	172.45

*SECNO 11445.000

VALLEY SECTION NO.13 (AE&W) SECT. N

11445.00	8.68	597.86	0.00	0.00	597.89	.03	.05	.00	592.08
765.	306.	261.	198.	301.	151.	192.	70.	22.	592.08

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      .59      1.02      1.73      1.00      .035      .033      .035      .040    589.18       .21
   .000104     500.      500.      500.         2         0         0      0.00    169.95    170.16

*SECNO 11945.000

                 VALLEY SECTION NO.14   (AE&W)                   SECT. O

  11945.00     8.64    597.92      0.00      0.00    597.95       .03       .06       .00    592.28
      765.     289.      276.      199.      257.      143.      181.       77.       24.    592.28
       .69     1.12      1.93      1.10      .035      .033      .035      .039    589.28     11.80
   .000133     500.      500.      500.         0         0         0      0.00    155.38    167.18

*SECNO 12445.000

                 VALLEY SECTION NO.15   (AE&W)                   SECT. P

  12445.00     8.21    597.99      0.00      0.00    598.02       .03       .06       .00    592.58
      765.     255.      250.      261.      247.      140.      253.       84.       26.    592.58
       .80     1.03      1.78      1.03      .035      .033      .035      .038    589.78     11.27
   .000118     500.      500.      500.         1         0         0      0.00    180.96    192.23

*SECNO 12545.000
     SECNO    DEPTH     CWSEL     CRIWS     WSELK       EG        HV        HL     OLOSS   BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL      TWA    LEFT/RIGHT
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN     ELMIN       SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR   TOPWID      ENDST

                 VALLEY SECTION NO.16   (AE&W)                   SECT. Q

  12545.00     8.32    598.00      0.00      0.00    598.03       .03       .01       .00    592.48
      765.     306.      198.      261.      265.      107.      233.       86.       26.    592.48
       .82     1.15      1.86      1.12      .035      .033      .035      .038    589.68     12.52
   .000142     100.      100.      100.         0         0         0      0.00    173.20    185.73

*SECNO 12645.000

                 VALLEY SECTION 1+00    (AE&W)                   SECT. R

  12645.00     8.56    598.02      0.00      0.00    598.04       .03       .01       .00    593.46
      765.     157.      451.      157.      180.      295.      180.       87.       26.    593.46
       .84      .87      1.53       .87      .035      .033      .035      .038    589.46     16.13
   .000088     100.      100.      100.         0         0         0      0.00    167.74    183.87

*SECNO 13453.000

                 VALLEY SECTION 9+08    (AE&W)                   SECT. S

  13453.00     7.86    598.12      0.00      0.00    598.16       .04       .11       .01    594.26
      765.     128.      507.      130.      136.      266.      138.       98.       29.    594.26
       .98      .94      1.91       .94      .050      .042      .050      .039    590.26     24.45
   .000256     808.      808.      808.         1         0         0      0.00    152.95    177.40

*SECNO 13653.000

                 VALLEY SECTION 11+03   (AE&W)                   SECT. T

  13653.00     7.71    598.17      0.00      0.00    598.24       .07       .06       .01    594.46
      765.      37.      597.      131.       42.      2[illegible]      110.      101.        3.    594.46
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     1.01        .87       2.30       1.20       .050       .042       .050       .039     590.46      15.30
  .000385       200.       200.       200.          1          0          0       0.00     104.77     120.07

*SECNO 13753.000

                     VALLEY SECTION 12+08    (AE&W)                         SECT. U

 13753.00       7.65     598.21       0.00       0.00     598.28        .07        .04        .00     594.56
     765.        36.       591.       138.        41.       257.       121.       101.        30.     594.56
     1.02        .87       2.30       1.13       .050       .042       .050       .039     590.56      15.31
  .000390       100.       100.       100.          0          0          0       0.00     115.30     130.61

*SECNO 14128.000
   SECNO      DEPTH      CWSEL      CRIWS      WSELK        EG         HV         HL       OLOSS   BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA   LEFT/RIGHT
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

                     VALLEY SECTION 15+83    (AE&W)                         SECT. V

 14128.00       7.41     598.37       0.00       0.00     598.45        .08        .16        .01     594.96
     765.        20.       611.       134.        22.       247.       113.       105.        31.     594.96
     1.07        .90       2.48       1.18       .050       .042       .050       .039     590.96      24.97
  .000478       375.       375.       375.          0          0          0       0.00     106.76     131.73

*SECNO 14328.000

                     VALLEY SECTION 17+83    (AE&W)                         SECT. W

 14328.00       7.32     598.48       0.00       0.00     598.54        .06        .08        .01     595.16
     765.       118.       530.       118.       117.       244.       117.       107.        32.     595.16
     1.10       1.01       2.18       1.01       .050       .042       .050       .039     591.16      21.25
  .000374       200.       200.       200.          2          0          0       0.00     157.49     178.75

*SECNO 14801.000

3470 ENCROACHMENT STATIONS=       38.0      163.0   TYPE=       1   TARGET=      125.000

                     VALLEY SECTION 22+56    (AE&W)                         SECT. X

 14801.00       7.02     598.68       0.00       0.00     598.74        .07        .20        .01     595.66
     765.       107.       551.       107.        94.       231.        95.       112.        33.     595.66
     1.17       1.14       2.39       1.13       .050       .042       .050       .039     591.66      38.00
  .000483       473.       473.       473.          0          0          0       0.00     125.00     163.00

*SECNO 14886.000

3470 ENCROACHMENT STATIONS=       41.0      130.0   TYPE=       1   TARGET=      -41.000

                     VALLEY SECTION 23+41    (AE&W)                         SECT. Y

 14886.00       6.94     598.70       0.00       0.00     598.81        .11        .05        .02     595.76
     765.         9.       646.       110.         9.       228.        81.       112.        34.     595.76
     1.17       1.02       2.83       1.36       .050       .042       .050       .039     591.76      41.00
  .000693        85.        85.        85.          0          0          0       0.00      82.81     123.81

*SECNO 14981.000
 14981.00       6.85     598.71       0.00       0.00     599.03        .33        .11        .11     [illegible]
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     765.       0.      765.       0.       0.     167.       0.     113.      34.    604.36
     1.18      0.00     4.59      0.00     .050     .042     .050     .039   591.86    83.00
  .002428       95.      95.       95.       2        0        0     0.00    34.00   117.00

*SECNO 14982.000
   SECNO     DEPTH    CWSEL    CRIWS    WSELK      EG       HV       HL     OLOSS  BANK ELEV
   Q         QLOB     QCH      QROB     ALOB      ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME      VLOB     VCH      VROB     XNL       XNCH     XNR      WTN     ELMIN     SSTA
   SLOPE     XLOBL    XLCH     XLOBR    ITRIAL    IDC      ICONT    CORAR   TOPWID    ENDST


3370 NORMAL BRIDGE,NRD=  4 MIN ELTRD=  604.36 MAX ELLC=  600.76

 14982.00     6.85   598.71     0.00     0.00   599.03      .33      .00      .00   604.36
     765.       0.     765.       0.       0.     167.       0.     113.      34.   604.36
     1.18     0.00     4.58     0.00     .040     .021     .040     .039   591.86    83.00
  .000606       1.       1.       1.        0        0        0     0.00    34.00   117.00

*SECNO 15054.000

3370 NORMAL BRIDGE,NRD=  4 MIN ELTRD=  604.36 MAX ELLC=  600.76


               BRIDGE SECTION 24+56 21 MILE ROAD    (AE&W)         SECT. Z

 15054.00     6.90   598.76     0.00     0.00   599.08      .32      .04      .00   604.36
     765.       0.     765.       0.       0.     169.       0.     113.      34.   604.36
     1.18     0.00     4.54     0.00     .040     .021     .040     .039   591.86    83.00
  .000588      72.      72.      72.        2        0        0     0.00    34.00   117.00


*SECNO 15055.000
 15055.00     6.90   598.76     0.00     0.00   599.08      .32      .00      .00   604.36
     765.       0.     765.       0.       0.     169.       0.     113.      34.   604.36
     1.18     0.00     4.54     0.00     .035     .033     .035     .039   591.86    83.00
  .001451       1.       1.       1.        0        0        0     0.00    34.00   117.00


*SECNO 15097.000

               VALLEY SECTION 25+33    (AE&W)                      SECT. AA

 15097.00     7.19   599.05     0.00     0.00   599.18      .13      .04      .06   600.66
     755.       0.     755.       0.       0.     262.       0.     114.      34.   600.16
     1.19     0.00     2.88     0.00     .040     .037     .040     .039   591.86   195.75
  .000724      42.      42.      42.        2        0        0     0.00    57.91   253.66


*SECNO 15228.000

               VALLEY SECTION 26+83    (AE&W)                      SECT. AB

 15228.00     7.19   599.15     0.00     0.00   599.28      .13      .09      .00   600.66
     755.       0.     755.       0.       0.     262.       0.     114.      34.   600.36
     1.20     0.00     2.88     0.00     .040     .037     .040     .039   591.96   271.53
  .000727     131.     131.     131.        2        0        0     0.00    57.86   329.39


*SECNO 15303.000
   SECNO     DEPTH    CWSEL    CRIWS    WSELK      EG       HV       HL     OLOSS  BANK ELEV
   Q         QLOB     QCH      QROB     ALOB      ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME      VLOB     VCH      VROB     XNL       XNCH     XNR      WTN     ELMIN     SSTA
   SLOPE     XLOBL    XLCH     XLOBR    ITRIAL    IDC      ICONT    CORAR   TOPWID    ENDST
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   15303.00      7.13    599.19      0.00      0.00    599.39       .20       .08       .04    650.90
       755.        0.      755.        0.        0.      208.      208.      115.       34.    650.90
       1.21      0.00      3.63      0.00      .040      .037      .040      .039    592.06    271.47
    .001629       75.       75.       75.         1         0         0      0.00     57.98    329.45

 *SECNO 15325.000
   15325.00      6.42    599.18      0.00      0.00    599.49       .31       .05       .05    601.36
       755.        0.      755.        0.        0.      169.      169.      115.       34.    601.36
       1.21      0.00      4.46      0.00      .040      .037      .040      .039    592.76    276.49
    .002738       22.       22.       22.         2         0         0      0.00     50.79    327.28

 *SECNO 15328.000
   15328.00      4.00    599.06      0.00      0.00    599.63       .58       .01       .13    600.66
       755.        0.      755.        0.        0.      124.        0.      115.       34.    600.36
       1.21      0.00      6.09      0.00      .050      .030      .050      .039    595.06    272.41
    .005751        3.        3.        3.         2         0         0      0.00     56.63    329.04

 *SECNO 15329.000

               DAM SECTION 27+83       (AE3W)                       SECT. AC

   15329.00      4.01    599.07      0.00      0.00    599.64       .57       .01       .00    600.66
       755.        0.      755.        0.        0.      124.        0.      115.       34.    600.36
       1.21      0.00      6.08      0.00      .050      .030      .050      .039    595.06    272.39
    .005730        1.        1.        1.         0         0         0      0.00     56.66    329.05

 *SECNO 15332.000
   15332.00      6.73    599.49      0.00      0.00    599.74       .26       .01       .10    650.90
       755.        0.      755.        0.        0.      186.      186.      115.       34.    650.90
       1.21      0.00      4.06      0.00      .050      .030      .050      .039    592.76    274.27
    .001426        3.        3.        3.         2         0         0      0.00     53.97    328.24

 *SECNO 15354.000
      SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS   BANK ELEV
      Q          QLOB       QCH      QROB      ALOB       ACH      AROB       VOL       TWA  LEFT/RIGHT
      TIME       VLOB       VCH      VROB       XNL      XNCH       XNR       WTN     ELMIN      SSTA
      SLOPE     XLOBL      XLCH     XLOBR    ITRIAL       IDC     ICONT     CORAR    TOPWID     ENDST

   15354.00      7.58    599.64      0.00      0.00    599.80       .16       .03       .03    600.66
       755.        0.      755.        0.        0.      235.      235.      115.       34.    600.66
       1.21      0.00      3.22      0.00      .040      .037      .040      .039    592.06    269.92
    .001163       22.       22.       22.         2         0         0      0.00     60.89    330.81

 *SECNO 15778.000
   15778.00      8.07    600.03      0.00      0.00    600.12       .10       .31       .02    600.66
       755.        0.      755.        0.        0.      302.        0.      119.       35.    600.66
       1.26      0.00      2.50      0.00      .040      .037      .040      .039    591.96    268.88
    .000489      424.      424.      424.         2         0         0      0.00     61.30    330.18

 *SECNO 15946.000
 3280 CROSS SECTION  15946.00 EXTENDED       .04 FEET

   15946.00      7.74    600.10      0.00      0.00    600.25       .15       .10       .03    600.06
       755.       17.      738.        0.       50.      236.        0.      120.       35.    600.36
       1.27       .33      3.13      0.00      .040      .037      .040      .039    592.36      0.00
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 .000750      168.      168.      168.         2         0         0      0.00    326.43    326.43

 *SECNO 15947.000
 3280 CROSS SECTION  15947.00 EXTENDED        .07 FEET

   15947.00      7.77    600.13      0.00      0.00    600.26       .13       .00       .01    600.06
       755.       49.      706.        0.       57.      237.        0.      120.       35.    600.36
       1.27       .85      2.98      0.00      .035      .080      .035      .039    592.36      0.00
    .003161        1.        1.        1.         2         0         0      0.00    326.49    326.49

 SPECIAL BRIDGE
 SB  XK          XKOR       COFQ      RDLEN       BWC       BWP     BAREA       SS       ELCHU      ELCHD
       0.00       1.55      2.98      0.00     25.84      0.00    160.20      0.00    592.36     592.36

 *SECNO 15957.000
 3280 CROSS SECTION  15957.00 EXTENDED        .21 FEET

 PRESSURE AND WEIR FLOW
    EGPRS       EGLWC        H3       QWEIR        QPR       BAREA   TRAPEZOID      ELLC      ELTRD
                                                                       AREA
     600.66      600.26      0.00      252.       507.      160.      160.     598.56    599.86

                    BRIDGE SECTION 34+02 PRIVATE BRIDGE (AE&W)          SECT. AD

   15957.00      7.91    600.27      0.00      0.00    600.37       .10       .11      0.00    600.06
       755.      103.      652.        0.       98.      244.        0.      120.       36.    600.36
       1.27      1.06      2.68      0.00      .035      .080      .035      .039    592.36      0.00
    .002484       10.       10.       10.         2         0         3      0.00    326.80    326.80

 *SECNO 15958.000
 3280 CROSS SECTION  15958.00 EXTENDED        .20 FEET

      SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS  BANK ELEV
      Q          QLOB       QCH      QROB      ALOB       ACH      AROB       VOL       TWA  LEFT/RIGHT
      TIME       VLOB       VCH      VROB       XNL      XNCH       XNR       WTN     ELMIN      SSTA
      SLOPE     XLOBL      XLCH     XLOBR    ITRIAL       IDC     ICONT     CORAR    TOPWID     ENDST

   15958.00      7.90    600.26      0.00      0.00    600.39       .13       .00       .02    600.06
       755.       32.      723.        0.       96.      243.        0.      120.       36.    600.36
       1.27       .33      2.97      0.00      .058      .038      .060      .039    592.36      0.00
    .000692        1.        1.        1.         1         0         0      0.00    326.79    326.79

 *SECNO 16752.000

 3470 ENCROACHMENT STATIONS=          .0      225.0  TYPE=      1  TARGET=      224.999

                    VALLEY SECTION 42+07   (AE&W)                        SECT. AE

   16752.00      7.99    600.75      0.00      0.00    600.83       .08       .43       .01  99999.76
       755.        0.      754.        1.        0.      326.       14.      126.       41.    600.66
       1.37      0.00      2.31       .10      .058      .038      .060      .039    592.76       .67
    .000438      [illegible]      [illegible]      [illegible]         2         0         0      0.00    [illegible]    225.00
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 *SECNO 17401.000

                    VALLEY SECTION 48+56    (AE&W)                    SECT. AF

   17401.00      7.98    601.04      0.00      0.00    601.12       .09       .29       .00    601.26
       755.        0.      755.        0.        0.      322.        0.      131.       43.    601.86
       1.45      0.00      2.34      0.00      .058      .038      .060      .039    593.06       .76
    .000453      649.      649.      649.         2         0         0      0.00     65.81     66.57

 *SECNO 17811.000

                    VALLEY SECTION 52+66    (AE&W)                    SECT. AG

   17811.00      7.96    601.22      0.00      0.00    601.31       .08       .18       .00    601.56
       755.        0.      755.        0.        0.      327.        0.      134.       43.    604.46
       1.50      0.00      2.31      0.00      .058      .038      .060      .039    593.26      1.23
    .000442      410.      410.      410.         0         0         0      0.00     67.23     68.46

 *SECNO 17911.000

                    VALLEY SECTION 53+66    (AE&W)                    SECT. AH

   17911.00      5.49    601.15      0.00      0.00    601.58       .43       .10       .17    603.16
       755.        0.      755.        0.        0.      144.        0.      135.       43.    604.46
       1.50      0.00      5.25      0.00      .060      .044      .060      .039    595.66    287.55
    .004496      100.      100.      100.         2         0         0      0.00     38.32    325.86

 *SECNO 18011.000
      SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
      Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
      TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
      SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

                    VALLEY SECTION 54+66    (AE&W)                    SECT. AI

   18011.00      6.05    601.71      0.00      0.00    601.96       .26       .33       .05    602.16
       755.        0.      755.        0.        0.      186.        0.      135.       44.    602.16
       1.51      0.00      4.06      0.00      .060      .044      .060      .039    595.66    284.18
    .002484      100.      100.      100.         2         0         0      0.00     47.49    331.68

 *SECNO 18311.000

 3265 DIVIDED FLOW

 3280 CROSS SECTION  18311.00 EXTENDED        .20 FEET

 3470 ENCROACHMENT STATIONS=      173.0      443.0   TYPE=      1   TARGET=      270.000

                    VALLEY SECTION 57+66 (AE&W)                        SECT.AJ

   18311.00      6.74    602.40      0.00      0.00    602.57       .18       .59       .02    603.06
       755.       21.      710.       24.       35.      205.       37.      137.       44.    603.06
       1.53       .61      3.47       .64      .060      .044      .060      .039    595.66    173.00
    .001584      350.      300.      250.         2         0         0      0.00    199.18    443.00
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*SECNO 19536.000
3265 DIVIDED FLOW

3280 CROSS SECTION  19536.00 EXTENDED      1.02 FEET


3470 ENCROACHMENT STATIONS=      174.0      869.0  TYPE=      1  TARGET=      695.000

                VALLEY SECTION NO. 2 (J&A)                             SECT.AK

   19536.00       8.22    604.02      0.00      0.00    604.14       .12      1.55       .02    604.70
       755.        66.      599.       90.      129.      197.      127.      147.        53.    606.40
       1.67        .51      3.04       .71      .060      .044      .060      .039    595.80    174.00
    .001033      1050.     1225.     1350.         2         0         0      0.00    463.97    869.00


*SECNO 20836.000
3280 CROSS SECTION  20836.00 EXTENDED       .29 FEET


3470 ENCROACHMENT STATIONS=      494.0      539.0  TYPE=      1  TARGET=       45.000

                VALLEY SECTION NO. 1 (J&A)                             SECT.AL

   20836.00       8.69    605.49      0.00      0.00    605.71       .22      1.52       .05    604.70
       755.         3.      749.        3.        5.      199.        4.      157.        61.    604.90
       1.76        .71      3.76       .61      .060      .044      .060      .040    596.80    494.00
    .001331      1300.     1300.     1300.         2         0         0      0.00     45.00    539.00
```

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Macomb Twp

3) WATERCOURSE: Gloede Ditch

4) DOCUMENT TYPE: CLOMR-

00BREAK00

GLOEDE DITCH
Section 30, Macomb Township
Conditional Letter of Map Revision

INDEX

Hydraulics

Maps & Plans

GLOEDE DITCH
Section 30, Macomb Township
Conditional Letter of Map Revision

Computer Input Files

Macomb County
Public Works Commissioner
Anthony V. Marrocco

RECEIVED

By

July 17, 1997

TO: Plat Coordinating Committee

RE: PCC Case No. 7-97-4
Strawberry Knolls Subdivision
Section 30, Macomb Township
Gloede Drain

Gentlemen:

The Office of the Macomb County Public Works Commissioner has reviewed the pre-preliminary plat for the subdivision referenced above. All drainage from the subdivision should be directed to the Gloede Drain which traverses the east half of the site.

Personnel from this office have met with the developer's engineer to discuss required improvements on the Gloede Drain. In that regard, this office has been petitioned for said improvements and a Hearing of Necessity has been scheduled for August 31, 1997. All work to the Gloede Drain will be accomplished under the authority of the Macomb County Public Works Commissioner through developer agreement and separate contract.

Prior to final plat approval, a copy of the subdivision deed restrictions must be on file with this office that state: "No fences, pools or structures will be allowed in the Gloede Drain easement."

Engineering plans should conform to the requirements as set forth in the enclosed letter dated May 23, 1995. Also, submit the enclosed form entitled Data for Subdivision Storm Water Outlet, April, 1996, which addresses items in said letter.

The above comments are not to be construed as approvals and are not necessarily conclusive.

Sincerely,

Keith Graboske

Keith Graboske
Engineer

cc: Rick Merlini; RCM Homes, Inc.

Craig P. Amey, P.S.; Anderson, Eckstein & Westrick, Inc. (w/enclosures)

Spalding, DeDecker & Associates, Inc.; Macomb Township consulting engineer

KG/lb-StrawberryKnolls.pcc

Federal Emergency Management Agency

Washington, D.C. 20472

JUN 16 1997

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. John Brennen
Macomb Township Supervisor
19925 Twenty-Three Mile Road
Macomb, Michigan 48042

IN REPLY REFER TO:
Case Number: 97-05-231P
(follow-up to CLOMR: 96-05-299R)
Community Name: Township of Macomb, Macomb County, Michigan
Community Number: 260445
Map Panel Number: 260445 0020
Effective Date of this Revision: JUN 16 1997

102-D-A

Dear Mr. Brennen:

The Flood Insurance Study (FIS), Flood Insurance Rate Map (FIRM), and Flood Boundary and Floodway Map (FBFM) for the Township of Macomb have been revised by this Letter of Map Revision (LOMR) to reflect channel modifications and more up-to-date and detailed hydraulic and topographic information for Gloede Ditch than that used to prepare the August 4, 1980, FIS. The subject area is located in the vicinity of the intersection of Twenty-Two Mile Road and Garfield Road. This revision was initiated by Ms. Jennifer L. Chehab, of Anderson, Eckstein and Westrick, Inc., in a letter of transmittal dated April 23, 1997. We issued a conditional LOMR for this project on January 28, 1997.

We received the following technical data, prepared by Anderson, Eckstein and Westrick, Inc., in support of this revision:

- a HEC-2 hydraulic model, dated March 25, 1997, of the 10% (10-year), 2% (50-year), 1% (100-year), and 0.2% (500-year) annual chance floods for Gloede Ditch, representing "as-built" conditions;

- a HEC-2 hydraulic model, dated May 13, 1997, of the 1% annual chance flood and floodway for Gloede Ditch, representing "as-built" conditions;

- certified "as-built" topographic plans, dated March 13, 1997, entitled Jefferson Meadows III, IV & V, at a scale of 1"=50', with a contour interval of 1 foot, showing the 1% and 0.2% annual chance floodplains and floodway for Gloede Ditch, representing "as-built" conditions;

- copies of the Township of Macomb FIRM number 260445, panel 0020 B, and FBFM number 260445, panel 0020, both dated February 4, 1981, annotated to reflect the 1% and 0.2% annual chance floodplains and floodway for Gloede Ditch, representing "as-built" conditions;

- a copy of the April 20, 1997, public notification of the proposed floodway revision;
- an April 24, 1997, letter from Mr. Keith Graboske, of the Office of the Macomb County Public Works Commissioner, stating that his office is responsible for channel maintenance; and
- completed application/certification forms, including community concurrence with the revision.

We received all data necessary to process this revision by May 19, 1997.

Based on our review of the submitted data, we are issuing this LOMR to reflect decreases in the 1% annual chance water-surface elevations and narrowing of the 1% annual chance floodplain and floodway for Gloede Ditch, from the downstream side of Twenty-Two Mile Road to a point approximately 0.55 mile upstream. The maximum decrease in the 1% annual chance water-surface elevations is 2.0 feet. This LOMR revises the Township of Macomb FIS report, Table 2 (Floodway Data), and Flood Profiles 09P and 10P, dated August 4, 1980; FIRM number 260445, panel 0020 B, dated February 4, 1981; and FBFM number 260445, panel 0020, dated February 4, 1981. This revision is shown on the enclosed annotated portions of the FIS, FIRM, and FBFM.

We have enclosed a copy of the public notification of the revised Base (1% annual chance) Flood Elevations (BFEs), which will be published in The Macomb Daily on or about June 25, 1997, and July 2, 1997. In addition, we will publish a notice of changes in the Federal Register. However, we will not print and distribute this LOMR to users, such as insurance agents or lenders. Your community will serve as a repository for the new data. Therefore, we encourage you to supplement the notification to appear in The Macomb Daily by preparing a news release for publication in your community newspaper that describes the revision and explains how your community will provide data and help interpret the National Flood Insurance Program (NFIP) maps. In that way, interested persons, such as property owners, insurance agents, and mortgage lenders, can benefit from the information.

Within 90 days of the second publication in The Macomb Daily, a citizen may request that we reconsider this determination. Any request for reconsideration must be based on scientific or technical data. This revision is effective as of the date of this letter. However, until the 90-day period elapses, the revised BFEs presented in this LOMR may be modified.

We based this determination on the 1% annual chance flood discharges computed in the August 4, 1980, FIS for your community without considering subsequent changes in watershed characteristics that could increase flood discharges. Future development of projects upstream could cause increased flood discharges, which could cause increased flood hazards. A comprehensive restudy of your community's flood hazards would consider the cumulative effects of development on flood discharges subsequent to the publication of the August 4, 1980, FIS for your community and could, therefore, establish greater flood hazards in this area.

Your community must approve all proposed floodplain development and ensure that permits required by Federal and/or State law have been obtained. State or community officials, based on knowledge of local conditions and in the interest of safety, may set higher standards for construction or may limit development in floodplain areas. If the State of Michigan or the Township of Macomb has adopted more restrictive or comprehensive floodplain management criteria, those criteria take precedence over the minimum NFIP requirements.

Because of funding constraints, we must limit the number of map republications. Consequently, we will not republish the FIS, FIRM, and FBFM for the Township of Macomb to reflect this determination. However, we will incorporate this determination when we next republish the FIS, FIRM panel 0020, and FBFM panel 0020.

We have enclosed an updated version of a document entitled "List of Current Flood Insurance Study Data," which now includes this letter, to help your community maintain all information for floodplain management and flood insurance. If any of the items in that document are not filed in your community's map repository, please contact our Regional Office at the number listed below for information on how to obtain those items.

We provide the floodway designation to your community as a tool to regulate floodplain development. Therefore, the floodway modifications we have described in this letter, while acceptable to us, must also be acceptable to your community and adopted by appropriate community action, as specified in Paragraph 60.3(d) of the NFIP regulations.

NFIP regulations Subparagraph 60.3(b)(7) requires communities to "assure that the flood carrying capacity within the altered or relocated portion of any watercourse is maintained." This provision is incorporated into your community's existing floodplain management regulations; therefore, responsibility for maintenance of the modified channel rests with your community. We may request that your community submit a description and schedule of channel maintenance activities.

Use the map panels listed above and revised by this letter for all flood insurance policies and renewals issued in your community.

We have made this determination pursuant to Section 206 of the Flood Disaster Protection Act of 1973 (P.L. 93-234) and in accordance with the National Flood Insurance Act of 1968, as amended (Title XIII of the Housing and Urban Development Act of 1968, P.L. 90-448), 42 U.S.C. 4001-4128, and 44 CFR Part 65. Pursuant to Section 1361 of the National Flood Insurance Act of 1968, as amended, communities participating in the NFIP are required to adopt and enforce floodplain management regulations that meet or exceed NFIP criteria. These criteria, including adoption of the FIS, FIRM, and FBFM, and modifications made by this LOMR, are the minimum requirements for NFIP participation and do not supersede more stringent State or local requirements to which the regulations apply.

If you have any questions, please do not hesitate to contact the Director, Mitigation Division of the Federal Emergency Management Agency in Chicago, Illinois, at (312) 408-5548, or me at our Headquarters Office in Washington, D.C., at (202) 646-2903, or by facsimile at (202) 646-4596.

Sincerely,

Doug Bellomo
Project Engineer
Hazard Identification Branch
Mitigation Directorate

For: Frederick H. Sharrocks Jr., Chief
Hazard Identification Branch
Mitigation Directorate

Enclosures

cc: Mr. Richard Young, Macomb Township Building Official
Ms. Jennifer Chehab
State Coordinator

LIST OF CURRENT FLOOD INSURANCE STUDY DATA

This list is provided to document all information currently effective for your community for insurance and floodplain management.

Date:	JUN 16 1997
This list replaces previous list dated:	April 8, 1997
Community:	Township of Macomb, Macomb County, Michigan
Community Number:	260445
Page Number:	1 of 2

CURRENT EFFECTIVE FLOOD INSURANCE STUDY DATE: August 4, 1980

FLOOD INSURANCE RATE MAP

Index Date: February 4, 1981

Panel Numbers	Effective Date
0005 B, 0010 B, 0015 B, and 0020 B	February 4, 1981

FLOOD BOUNDARY AND FLOODWAY MAP

Index Date: February 4, 1981

Panel Numbers	Effective Date
0010, 0015, and 0020	February 4, 1981

LETTERS OF MAP REVISION

Panel Numbers	Effective Date
0010 B	March 2, 1992 April 10, 1995 July 10, 1995 March 5, 1996
0020 B	August 12, 1993 December 26, 1995 April 8, 1997 JUN 16 1997

LETTERS OF MAP AMENDMENT AND MAP REVISION BASED ON FILL

Panel Numbers	Effective Date
0010 B	August 16, 1991 February 2, 1992 April 3, 1992 November 5, 1992 January 15, 1993 October 6, 1993 May 26, 1994 August 16, 1994 September 7, 1994 February 21, 1995 April 7, 1995 May 31, 1996 January 21, 1997 March 24, 1997 May 9, 1997
0020 B	November 10, 1989 March 24, 1992 April 26, 1994 August 8, 1994 October 2, 1996(2)[1]

BEST AVAILABLE DATA LETTERS

None

[1] The number is parentheses indicates the number of Letters of Map Correction issued on this date for this panel.

CHANGES ARE MADE IN DETERMINATIONS OF THE TOWNSHIP OF MACOMB, MACOMB COUNTY, MICHIGAN, BASE (1% ANNUAL CHANCE) FLOOD ELEVATIONS UNDER THE NATIONAL FLOOD INSURANCE PROGRAM

On February 4, 1981, the Federal Emergency Management Agency (FEMA) identified Special Flood Hazard Areas in the Township of Macomb, Michigan, through issuance of a Flood Insurance Rate Map.

The Executive Associate Director for Mitigation, has determined that modification of the elevations of the flood having a 1% chance of occurrence in any given year (base flood) for certain locations in the Township of Macomb, is appropriate. The modified base flood elevations amend the FEMA Flood Insurance Rate Map for the community.

This modification to the effective Flood Insurance Rate Map reflects channel modifications and more up-to-date and detailed hydraulic and topographic information for Gloede Ditch than that used to prepare the August 4, 1980, Flood Insurance Rate Map. As a result of the modifications, there are decreases in the base flood elevations and narrowing of the 1% (100-year) annual chance floodplain and floodway. The revised base flood elevations for Gloede Ditch are as follows:

	Base Flood Elevations (NGVD)*	
Location	Effective	Revised
Approximately 0.39 mile upstream of Private Drive	602	601
Downstream side of Twenty Two Mile Road	606	604

*Elevation in feet National Geodetic Vertical Datum

The changes are made pursuant to Section 206 of the Flood Disaster Protection Act of 1973 (P.L. 93-234), and are in accordance with the National Flood Insurance Act of 1968, as amended. (Title XIII of the Housing and Urban

Development Act of 1968, P.L. 90-448) 42 U.S.C. 4001-4128, and 44 CFR Part 65.

Under the above-mentioned Acts of 1968 and 1973, the Executive Associate Director for Mitigation, must develop criteria for floodplain management. In order for the community to participate in the National Flood Insurance Program, the community will be using the new base flood elevations to administer the floodplain management measures of the National Flood Insurance Program. These modified base flood elevations will also be used to calculate the appropriate flood insurance premium rates for new buildings and their contents.

Upon the second publication of notice of these changes in this paper, any person has 90 days in which he can request through the Chief Executive Officer of the community that the Executive Associate Director for Mitigation reconsider the determination. Any request for reconsideration must be based on knowledge of changed conditions or new scientific or technical data. All interested parties are on notice that until the 90-day period elapses, the Executive Associate Director's determination to modify the base flood elevations may itself be changed.

Any person having knowledge or wishing to comment on these changes should immediately notify:

Mr. John Brennen
Macomb Township Supervisor
19925 Twenty-Three Mile Road
Macomb, Michigan 48042

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Macomb Twp

3) WATERCOURSE: Gloede Ditch

4) DOCUMENT TYPE: Clomr- Sect. 30

00BREAK00

Gloede Ditch Improvements
Section 30, T3N, R13E
Macomb Township, Macomb County, Michigan

Conditional Letter of Map Revision

INDEX

CLOMR FORMS

Revision Requestor & Community Official (Form 1)
Certification by Registered Engineer (Form 2)
Reverine Hydraulic Analysis (Form 4)
Riverine/Coastal Mapping (Form 5)
Channelization (Form 6)
Bridge/Culvert (Form 7)

HYDRAULICS

Duplicate Effective Natural Model . . . . Appendix A
Duplicate effective Floodway Model . . . . Appendix B
Post-Project Conditions Natural Model . . . . Appendix C
Post-Project Conditions Floodway Model . . . . Appendix D

PLANS & MAPS

Existing Conditions

1) Flood Insurance Rate Map
2) Floodway Map
3) Existing Flood Study Profile
4) Existing Site Topography

Post-Project Conditions

5) Flood Free Description & Revised Floodplain Plan
6) Proposed Drain Improvement Plans
7) Proposed Drain Improvement Profiles
8) Revised Floodway Map

COMPUTER INPUT FILES

a) Duplicate Effective Model-Natural . . . . Eff-nat.dat
b) Duplicate Effective Model-Floodway . . . . Eff-fld.dat
c) Post-Project Conditions Model-Natural . . Post-nat.dat
d) Post-Project Conditions Model-Floodway . . Post-fld.dat

R.K. ENGINEERING & SURVEYING ASSOCIATES, INC.

48653 Van Dyke
Utica, MI 48317
(810) 254-2080
Fax (810) 739-5944

January 30, 1998

Accompanied application is for conditional "Letter of Map Amendment" for Gloede Ditch in Section 30 of Macomb Township, Macomb County, Michigan. Community Panel No. 260445 0020B, revised June 16, 1997.

Gloede Drain, in its original natural condition as shown in Community Panel No. 260445 0020B, is proposed to be cleaned and widened to contain the 100 year floodplain within the drain cross section as shown.

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

TOWNSHIP OF
MACOMB,
MICHIGAN
MACOMB COUNTY

PANEL 20 OF 20

REVISED TO
REFLECT LOMR
DATED JUN 16 1997

COMMUNITY-PANEL NUMBER
260445 0020 B

EFFECTIVE DATE:
FEBRUARY 4, 1981

federal emergency management agency
federal insurance administration

R.K. ENGINEERING & SURVEYING ASSOCIATES, INC.

48653 Van Dyke
Utica, MI 48317
(810) 254-2080
Fax (810) 739-5944

TRANSMITTAL LETTER

****

TO: State of Michigan
Department of Environmental Quality
Land & Water Management Division
P.O. Box 30458
Lansing, Michigan 48909-7958
Attn: Bruce Menerey

DATE: 2/4/98

R.K. PROJECT NO. & DESC.:
C L O.M.R
GLOEDE DRAIN
Macomb Township
Macomb County

****

x FOR APPROVAL

___ AS REQUIRED

___ FOR REVIEW & COMMENTS

___ FOR YOUR INFORMATION

****

Dear Bruce,

We are submitting this report for a "Conditional Letter of Map Revision" for your review and approval letter to F.E.M.A.

Please call me if you have any questions

Raj Khatri

Raj Khatri

RECEIVED
FEB 06 1998
ENVIRONMENTAL QUALITY
LAND & WATER MANAGEMENT

PROFESSIONAL CIVIL ENGINEERS AND SURVEYOR

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Macomb Twp

3) WATERCOURSE: Gloede Ditch

4) DOCUMENT TYPE: Comm- Cor. Effect- Floodway

00BREAK00

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                                                                  THIS RUN EXECUTED 23JUL97    11:21:47
 *****************************************
  HEC-2 WATER SURFACE PROFILES

  Version   4.6.2:  May 1991
 *****************************************

 T1      GLOEDE DITCH - 21 TO 22 MILE ROAD - SECTIONS 29 & 30. MACOMB TOWNSHIP
 T2      100 YEAR EVENT - STARTING WATER SURFACE= 602.14 [FLOOD STUDY XSEC 19011]
 T3      CORRECTED EFFECTIVE MODEL - FLOODWAY  AEW JOB NO. 526-002 (CORRFW.DAT)

 J1  ICHECK     INQ      NINV     IDIR     STRT     METRIC    HVINS      Q       WSEL      FQ

       0.        2.       0.       0.       0.       0.        0.       0.    602.14

 J2  NPROF     IPLOT    PRFVS    XSECV    XSECH      FN      ALLDC     IBW      CHNIM     ITRACE

      1.        0.       -1.

 J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    110.       200.

 J5  LPRNT     NUMSEC              *********REQUESTED SECTION NUMBERS*********

    -10.      -10.

 QT        2.       755.       755.
 ET                             1.4
 NC    0.060      0.040      0.040        .3        .5
 X1   19011.         8.        25.      122.        0.        0.        0.        0.        0.        0.
 GR   602.49         0.     602.49       25.    593.27       41.    593.27       49.    597.67       65.
 GR   599.05       105.     602.36      122.    602.36      139.

 X1   19426.         8.        25.      122.      415.      415.      415.        0.        0.        0.
 GR   603.00         0.     603.00       25.    594.19       41.    594.19       49.    597.86       65.
 GR   597.97       105.     602.84      122.    602.84      139.

         VALLEY SECTION NO. 2 (J&A)   SECT. AK  (Q)
 X1   19536.         8.        25.      122.      110.      110.      110.        0.        0.        0.
 GR   603.30         0.     603.30       25.    594.99       41.    594.99       49.    598.94       65.
 GR   599.77       105.     603.44      122.    603.44      139.

 X1   19726.        15.       500.      600.      190.      190.      190.        0.        0.        0.
 GR   603.56         0.     603.36      100.    603.53      200.    603.65      300.    603.75      400.
 GR   604.70       500.     596.71      515.    595.96      520.    596.19      524.    598.24      531.
 GR   604.43       600.     604.29      700.    603.18      800.    603.23      900.    603.32     1000.
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CORRECTED STREAM DISTANCE FOR SECT. AL (R)

X1	20726.	17.	500.	532.	1000.	1000.	1000.	0.	0.	0.
X3	10.									
GR	603.3	0.	604.3	100.0	604.3	200.0	604.5	300.0	604.6	400.0
GR	604.7	500.0	598.1	508.0	597.0	511.0	596.8	516.0	596.9	520.0
GR	597.9	524.0	604.9	532.0	604.6	600.0	605.4	700.0	604.8	800.0
GR	604.6	900.0	605.2	1000.0	0.	0.	0.	0.	0.	0.

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T1      GLOEDE DITCH - 21 TO 22 MILE ROAD - SECTIONS 29 & 30. MACOMB TOWNSHIP
T2      100 YEAR EVENT - STARTING WATER SURFACE= 602.14 [FLOOD STUDY XSEC 19011]
T3      CORRECTED EFFECTIVE-FLOODWAY  AEW JOB NO. 526-002 (CORRFW.DAT)

J1  ICHECK    INQ      NINV     IDIR     STRT    METRIC   HVINS      Q      WSEL      FQ

      0.       3.       0.       0.       0.       0.       0.       0.   602.14

J2  NPROF    IPLOT    PRFVS    XSECV    XSECH      FN     ALLDC     IBW    CHNIM    ITRACE

    15.                -1.
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THIS RUN EXECUTED 23JUL97 11:21:47

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HEC-2 WATER SURFACE PROFILES

Version 4.6.2: May 1991
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

CORRECTED EFFECTIVE MODE

SUMMARY PRINTOUT TABLE 110

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STE
	19011.000	602.14	.00	602.19	95.26	.00	755.00	.00	.00	.00	25.00	122.00	
	19011.000	602.14	.00	602.19	95.26	.00	755.00	.00	.00	25.00	25.00	122.00	122
	19426.000	602.27	.00	602.32	93.73	.00	755.00	.00	.00	.00	25.00	122.00	
	19426.000	602.28	.00	602.32	93.68	.00	755.00	.00	.00	25.00	25.00	122.00	122
*	19536.000	602.31	.00	602.39	89.86	.00	755.00	.00	.00	.00	25.00	122.00	
*	19536.000	602.31	.00	602.39	89.84	.00	755.00	.00	.00	25.00	25.00	122.00	122
*	19726.000	602.47	.00	602.64	73.93	.00	755.00	.00	.00	.00	500.00	600.00	
*	19726.000	602.47	.00	602.65	73.95	.00	755.00	.00	.00	500.00	500.00	600.00	600.
	20726.000	604.39	.00	604.72	31.02	.00	755.00	.00	.00	.00	500.00	532.00	
	20726.000	604.39	.00	604.71	31.03	.00	755.00	.00	.00	500.00	500.00	532.00	532.

SUMMARY OF ERRORS AND SPECIAL NOTES

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WARNING SECNO=  19536.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  19536.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  19726.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  19726.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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FLOODWAY DATA. CORRECTED EFFECTIVE MODE
PROFILE NO. 2

STATION	------- FLOODWAY ------- WIDTH	SECTION AREA	MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
19011.000	95.	422.	1.8	602.1	602.1	.0
19426.000	94.	430.	1.8	602.3	602.3	.0
19536.000	90.	329.	2.3	602.3	602.3	.0
19726.000	74.	224.	3.4	602.5	602.5	.0
20726.000	31.	164.	4.6	604.4	604.4	.0

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Macomb Twp

3) WATERCOURSE: Gloede Ditch

4) DOCUMENT TYPE: Comp- Cor. Effect.- Natural

00BREAK00

THIS RUN EXECUTED 23JUL97 13:09:48

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HEC-2 WATER SURFACE PROFILES

Version  4.6.2: May 1991
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T1      GLOEDE DITCH - 21 TO 22 MILE ROAD - SECTIONS 29 & 30, MACOMB TOWNSHIP
T2      10 YEAR EVENT - STARTING WATER SURFACE = 600.75 [FLOOD STUDY XSEC 19011]
T3      CORRECTED EFFECTIVE MODEL - NATURAL  AEW JOB NO. 526-002 (CORREFF.DAT)

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC    HVINS    Q        WSEL     FQ

      0.       2.       0.       0.       0.       0.        0.       0.     600.75    0.

J2  NPROF    IPLOT    PRFVS    XSECV    XSECH    FN        ALLDC    IBW      CHNIM    ITRACE

     1.       0.       -1.


QT      4.     465.     690.     755.     1070.
NC   0.060    0.040    0.040      .3       .5
X1  19011.       8.      25.     122.       0.        0.        0.        0.        0.        0.
GR  602.49       0.   602.49      25.   593.27       41.    593.27       49.    597.67       65.
GR  599.05     105.   602.36     122.   602.36      139.

X1  19426.       8.      25.     122.     415.      415.      415.        0.        0.        0.
GR  603.00       0.   603.00      25.   594.19       41.    594.19       49.    597.86       65.
GR  597.97     105.   602.84     122.   602.84      139.

        VALLEY SECTION NO. 2 (J&A)    SECT. AK   (Q)
X1  19536.       8.      25.     122.     110.      110.      110.        0.        0.        0.
GR  603.30       0.   603.30      25.   594.99       41.    594.99       49.    598.94       65.
GR  599.77     105.   603.44     122.   603.44      139.

X1  19726.      15.     500.     600.     190.      190.      190.        0.        0.        0.
GR  603.56       0.   603.36     100.   603.53      200.    603.65      300.    603.75      400.
GR  604.70     500.   596.71     515.   595.96      520.    596.19      524.    598.24      531.
GR  604.43     600.   604.29     700.   603.18      800.    603.23      900.    603.32     1000.

        CORRECTED STREAM DISTANCE FOR SECT. AL   (R)
X1  20726.      17.     500.     532.    1000.     1000.     1000.        0.        0.        0.
X3     10.
GR   603.3       0.    604.3    100.0    604.3     200.0     604.5    300.0     604.6     400.0
GR   604.7   500.0    598.1    508.0    597.0     511.0     596.8    516.0     596.9     520.0
GR   597.9   524.0    604.9    532.0    604.6     600.0     605.4    700.0     604.8     800.0
GR   604.6   900.0    605.2   1000.0       0.        0.        0.       0.        0.        0.
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*PROF 1

CCHV= 300 CEHV= .500

*SECNO 19011.000

19011.000	7.48	600.75	.00	600.75	600.79	.04	.00	.00	602.49
465.0	.0	465.0	.0	.0	295.9	.0	.0	.0	602.36
.00	.00	1.57	.00	.000	.040	.000	.000	593.27	28.02
.000358	0.	0.	0.	0	0	0	.00	85.71	113.73

*SECNO 19426.000

19426.000	6.70	600.89	.00	.00	600.93	.04	.14	.00	603.00
465.0	.0	465.0	.0	.0	306.8	.0	2.9	.8	602.84
.08	.00	1.52	.00	.000	.040	.000	.000	594.19	28.82
.000319	415.	415.	415.	0	0	0	.00	86.41	115.22

*SECNO 19536.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE. KRATIO = 56

VALLEY SECTION NO. 2 (J&A) SECT. AK (Q)

19536.000	5.94	600.93	.00	.00	601.01	.08	.06	.02	603.30
465.0	.0	465.0	.0	.0	211.1	.0	3.5	1.0	603.44
.09	.00	2.20	.00	.000	.040	.000	.000	594.99	29.56
.001010	110.	110.	110.	0	0	0	.00	80.82	110.38

*SECNO 19726.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE. KRATIO = .63

19726.000	5.21	601.17	.00	.00	601.35	.17	.29	.05	604.70
465.0	.0	465.0	.0	.0	138.9	.0	4.3	1.3	604.43
.11	.00	3.35	.00	.000	.040	.000	.000	595.96	506.62
.002573	190.	190.	190.	2	0	0	.00	57.07	563.69

*SECNO 20726.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE. ELLEA= 604.70 ELREA= 604.90

CORRECTED STREAM DISTANCE FOR SECT. AL (R)

20726.000	6.33	603.13	.00	.00	603.34	.21	1.97	.02	604.70
465.0	.0	465.0	.0	.0	126.9	.0	7.3	2.3	604.90
18	.00	3.67	.00	.000	.040	.000	.000	596.80	501.90
.001562	1000.	1000.	1000.	2	0	0	.00	28.07	529.98

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T1      GLOEDE DITCH - 21 TO 22 MILE ROAD - SECTIONS 29 & 30. MACOMB TOWNSHIP
T2      50 YEAR EVENT - STARTING WATER SURFACE = 601.88 [FLOOD STUDY XSEC 19011]
T3      CORRECTED EFFECTIVE-NATURAL  AEW JOB NO. 526-002 (CORREFF.DAT)
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J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	3.	0.	0.	0.	0.	0.	0.	601.88	
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	2.		-1.							

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*PROF 2

CCHV= .300 CEHV= .500

*SECNO 19011.000

19011.000	8.61	601.88	.00	601.88	601.93	.05	.00	.00	602.49
690.0	.0	690.0	.0	.0	397.1	.0	.0	.0	602.36
.00	.00	1.74	.00	.000	.040	.000	.000	593.27	26.06
.000332	0.	0.	0.	0	0	0	.00	93.48	119.53

*SECNO 19426.000

19426.000	7.82	602.01	.00	.00	602.06	.04	.13	.00	603.00
690.0	.0	690.0	.0	.0	406.9	.0	3.8	.9	602.84
.07	.00	1.70	.00	.000	040	.000	.000	594.19	26.78
.000301	415.	415.	415.	0	0	0	.00	92.35	119.13

*SECNO 19536.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE. KRATIO = .64

VALLEY SECTION NO. 2 (J&A) SECT. AK (Q)

19536.000	7.06	602.05	.00	.00	602.13	.08	.05	.02	603.30
690.0	.0	690.0	.0	.0	305.6	.0	4.7	1.1	603.44
.08	.00	2.26	.00	.000	.040	.000	.000	594.99	27.41
.000730	110.	110.	110.	0	0	0	.00	88.15	115.56

*SECNO 19726.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE. KRATIO = .60

19726.000	6.26	602.22	.00	.00	602.39	.18	.22	.05	604.70
690.0	.0	690.0	.0	.0	205.5	.0	5.8	1.5	604.43
.10	.00	3.36	.00	.000	.040	.000	.000	595.96	504.66
.002039	190.	190.	190.	2	0	0	.00	70.65	575.31

*SECNO 20726.000
3280 CROSS SECTION 20726.00 EXTENDED .84 FEET

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 604.70 ELREA= 604.90

CORRECTED STREAM DISTANCE FOR SECT. AL (R)

20726.000	7.34	604.14	.00	.00	604.44	.30	1.99	.06	604.70
690.0	.0	690.0	.0	.0	156.3	.0	10.0	2.6	604.90
.16	.00	4.41	.00	.000	.040	.000	.000	596.80	500.68
.001940	1000.	1000.	1000.	2	0	0	.00	30.44	531.13

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T1      GLOEDE DITCH - 21 TO 22 MILE ROAD - SECTIONS 29 & 30, MACOMB TOWNSHIP
T2      100 YEAR EVENT - STARTING WATER SURFACE = 602.14 [FLOOD STUDY XSEC 19011
T3      CORRECTED EFFECTIVE-NATURAL  AEW JOB NO. 526-002 (CORREFF.DAT)

J1  ICHECK    INQ    NINV    IDIR    STRT    METRIC    HVINS    Q      WSEL     FQ

      0.       4.      0.      0.      0.      0.        0.      0.   602.14

J2  NPROF    IPLOT   PRFVS   XSECV   XSECH    FN      ALLDC    IBW    CHNIM   ITRACE

     3.               -1.
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*PROF 3

CCHV= .300 CEHV= .500

*SECNO 19011.000

19011.000	8.87	602.14	.00	602.14	602.19	.05	.00	.00	602.49
755.0	.0	755.0	.0	.0	421.7	.0	.0	.0	602.36
.00	.00	1.79	.00	.000	.040	.000	.000	593.27	25.61
.000334	0.	0.	0.	0	0	0	.00	95.26	120.87

*SECNO 19426.000

19426.000	8.08	602.27	.00	.00	602.32	.05	.13	.00	603.00
755.0	.0	755.0	.0	.0	431.1	.0	4.1	.9	602.84
.07	.00	1.75	.00	.000	.040	.000	.000	594.19	26.31
.000303	415.	415.	415.	0	0	0	.00	93.73	120.04

*SECNO 19536.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE. KRATIO = .66

VALLEY SECTION NO. 2 (J&A) SECT. AK (Q)

19536.000	7.32	602.31	.00	.00	602.39	.08	.05	.02	603.30
755.0	.0	755.0	.0	.0	328.8	.0	5.0	1.1	603.44
08	.00	2.30	.00	.000	.040	.000	.000	594.99	26.91
.000703	110.	110.	110.	0	0	0	.00	89.86	116.77

*SECNO 19726.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE. KRATIO = .60

19726.000	6.51	602.47	.00	.00	602.64	.18	.21	.05	604.70
755.0	.0	755.0	.0	.0	223.7	.0	6.2	1.5	604.43
09	.00	3.37	.00	.000	.040	.000	.000	595.96	504.19
.001953	190.	190.	190.	2	0	0	.00	73.93	578.13

*SECNO 20726.000
3280 CROSS SECTION 20726.00 EXTENDED 1.08 FEET

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 604.70 ELREA= 604.90

CORRECTED STREAM DISTANCE FOR SECT. AL (R)

20726.000	7.59	604.39	.00	.00	604.72	.33	2.00	.08	604.70
755.0	.0	755.0	.0	.0	163.9	.0	10.7	2.7	604.90
16	.00	4.61	.00	.000	.040	.000	.000	596.80	500.38
.002040	1000.	1000.	1000.	2	0	0	.00	31.02	531.41

T1 GLOEDE DITCH - 21 TO 22 MILE ROAD - SECTIONS 29 & 30, MACOMB TOWNSHIP
T2 500 YEAR EVENT - STARTING WATER SURFACE = 603.14 [FLOOD STUDY XSEC 19011
T3 CORRECTED EFFECTIVE-NATURAL AEW JOB NO. 526-002 (CORREFF.DAT)

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	5.	0.	0.	0.	0.	0.	0.	603.14	

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	15.		-1.							

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*PROF 4

CCHV= .300 CEHV= .500
*SECNO 19011.000
3280 CROSS SECTION 19011.00 EXTENDED .78 FEET

19011.000	9.87	603.14	.00	603.14	603.20	.06	.00	.00	602.49
1070.0	5.5	1057.1	7.4	16.3	518.4	13.3	.0	.0	602.36
.00	.34	2.04	.56	.060	.040	.040	.000	593.27	.00
.000338	0.	0.	0.	0	0	0	.00	139.00	139.00

*SECNO 19426.000
3280 CROSS SECTION 19426.00 EXTENDED .44 FEET

19426.000	9.09	603.28	.00	.00	603.34	.06	.14	.00	603.00
1070.0	1.3	1065.8	2.8	7.0	527.2	7.5	5.2	1.3	602.84
.06	.19	2.02	.38	.060	.040	.040	.000	594.19	.00
.000324	415.	415.	415.	0	0	0	.00	139.00	139.00

*SECNO 19536.000
3280 CROSS SECTION 19536.00 EXTENDED .01 FEET

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE. KRATIO = .69

VALLEY SECTION NO. 2 (J&A) SECT. AK (Q)

19536.000	8.32	603.31	.00	.00	603.41	.10	.05	.02	603.30
1070.0	.0	1070.0	.0	.4	422.4	.0	6.4	1.7	603.44
.07	.04	2.53	.00	.060	.040	.000	.000	594.99	.00
.000675	110.	110.	110.	0	0	0	.00	121.42	121.42

*SECNO 19726.000

3265 DIVIDED FLOW

3280 CROSS SECTION 19726.00 EXTENDED .14 FEET

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE. KRATIO = .64

19726.000	7.50	603.46	.00	.00	603.64	.18	.19	.04	604.70
1070.0	.8	1042.8	26.4	5.6	303.7	47.9	8.1	2.8	604.43
.08	.14	3.43	.55	.060	.040	.040	.000	595.96	49.13
.001667	190.	190.	190.	2	0	0	.00	422.97	1000.00

*SECNO 20726.000

3265 DIVIDED FLOW

3280 CROSS SECTION 20726.00 EXTENDED 1.71 FEET

CORRECTED STREAM DISTANCE FOR SECT. AL (R)

20726.000	8.22	605.02	.00	.00	605.21	.19	1.56	.01	604.70
1070.0	268.7	756.8	44.4	336.3	183.9	77.7	19.1	17.5	604.90
.17	.80	4.12	.57	.060	.040	.040	.000	596.80	.00
.001465	1000.	1000.	1000.	3	0	0	.00	855.79	968.77

THIS RUN EXECUTED 23JUL97 13:09:48

****
HEC-2 WATER SURFACE PROFILES

Version 4.6.2: May 1991
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

CORRECTED EFFECTIVE MODE

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.0
	19011.000	.00	.00	.00	593.27	465.00	600.75	.00	600.79	3.58	1.57	295.89	245
	19011.000	.00	.00	.00	593.27	690.00	601.88	.00	601.93	3.32	1.74	397.13	378
	19011.000	.00	.00	.00	593.27	755.00	602.14	.00	602.19	3.34	1.79	421.67	412
	19011.000	.00	.00	.00	593.27	1070.00	603.14	.00	603.20	3.38	2.04	547.95	582
	19426.000	415.00	.00	.00	594.19	465.00	600.89	.00	600.93	3.19	1.52	306.82	260
	19426.000	415.00	.00	.00	594.19	690.00	602.01	.00	602.06	3.01	1.70	406.87	397
	19426.000	415.00	.00	.00	594.19	755.00	602.27	.00	602.32	3.03	1.75	431.14	433
	19426.000	415.00	.00	.00	594.19	1070.00	603.28	.00	603.34	3.24	2.02	541.73	594
*	19536.000	110.00	.00	.00	594.99	465.00	600.93	.00	601.01	10.10	2.20	211.12	146
*	19536.000	110.00	.00	.00	594.99	690.00	602.05	.00	602.13	7.30	2.26	305.57	255.
*	19536.000	110.00	.00	.00	594.99	755.00	602.31	.00	602.39	7.03	2.30	328.81	284.
*	19536.000	110.00	.00	.00	594.99	1070.00	603.31	.00	603.41	6.75	2.53	422.73	411.
*	19726.000	190.00	.00	.00	595.96	465.00	601.17	.00	601.35	25.73	3.35	138.90	91.
*	19726.000	190.00	.00	.00	595.96	690.00	602.22	.00	602.39	20.39	3.36	205.49	152.
*	19726.000	190.00	.00	.00	595.96	755.00	602.47	.00	602.64	19.53	3.37	223.74	170.
*	19726.000	190.00	.00	.00	595.96	1070.00	603.46	.00	603.64	16.67	3.43	357.22	262.
	20726.000	1000.00	.00	.00	596.80	465.00	603.13	.00	603.34	15.62	3.67	126.85	117.
	20726.000	1000.00	.00	.00	596.80	690.00	604.14	.00	604.44	19.40	4.41	156.32	156.
	20726.000	1000.00	.00	.00	596.80	755.00	604.39	.00	604.72	20.40	4.61	163.91	167.
	20726.000	1000.00	.00	.00	596.80	1070.00	605.02	.00	605.21	14.65	4.12	597.90	279.

CORRECTED EFFECTIVE MODE

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	19011.000	465.00	600.75	.00	.00	.00	85.71	.00
	19011.000	690.00	601.88	1.13	.00	.00	93.48	.00
	19011.000	755.00	602.14	.26	.00	.00	95.26	.00
	19011.000	1070.00	603.14	1.00	.00	.00	139.00	.00
	19426.000	465.00	600.89	.00	.14	.00	86.41	415.00
	19426.000	690.00	602.01	1.12	.13	.00	92.35	415.00
	19426.000	755.00	602.27	.26	.13	.00	93.73	415.00
	19426.000	1070.00	603.28	1.00	.14	.00	139.00	415.00
*	19536.000	465.00	600.93	.00	.04	.00	80.82	110.00
*	19536.000	690.00	602.05	1.11	.03	.00	88.15	110.00
*	19536.000	755.00	602.31	.26	.03	.00	89.86	110.00
*	19536.000	1070.00	603.31	1.00	.03	.00	121.42	110.00
*	19726.000	465.00	601.17	.00	.24	.00	57.07	190.00
*	19726.000	690.00	602.22	1.04	.17	.00	70.65	190.00
*	19726.000	755.00	602.47	.25	.16	.00	73.93	190.00
*	19726.000	1070.00	603.46	.99	.15	.00	422.97	190.00
	20726.000	465.00	603.13	.00	1.96	.00	28.07	1000.00
	20726.000	690.00	604.14	1.01	1.92	.00	30.44	1000.00
	20726.000	755.00	604.39	.25	1.92	.00	31.02	1000.00
	20726.000	1070.00	605.02	.63	1.56	.00	855.79	1000.00

SUMMARY OF ERRORS AND SPECIAL NOTES

```
WARNING SECNO=  19536.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  19536.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  19536.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  19536.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  19726.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  19726.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  19726.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  19726.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
```

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Macomb Twp

3) WATERCOURSE: Gloede Ditch

4) DOCUMENT TYPE: CLOMR- Dupl. Effect- Floodway

00BREAK00

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*********************************************        ***************************************
* HEC-2 WATER SURFACE PROFILES              *        * U.S. ARMY CORPS OF ENGINEERS
*                                           *        * HYDROLOGIC ENGINEERING CENTER
* Version   4.6.2:  May 1991                *        * 609 SECOND STREET, SUITE D
*                                           *        * DAVIS, CALIFORNIA 95616-4687
* RUN DATE    23JUL97    TIME   11:22:08    *        *          (916) 756-1104
*********************************************        ***************************************
```

```
X     X  XXXXXXX   XXXXX           XXXXX
X     X  X        X     X         X     X
X     X  X        X                     X
XXXXXXX  XXXX     X        XXXXX   XXXXX
X     X  X        X               X
X     X  X        X     X         X
X     X  XXXXXXX   XXXXX          XXXXXXX
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                                                                         THIS RUN EXECUTED 23JUL97    11:22:08

 **************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2:  May 1991
 **************************************

T1      GLOEDE DITCH - 21 TO 22 MILE ROAD - SECTIONS 29 & 30
T2      100 YEAR EVENT - STARTING WATER SURFACE= 602.14 [FLOOD STUDY XSEC 19011]
T3      DUPLICATE EFFECTIVE-FLOODWAY  AEW JOB NO. 526-002 (FWEFF.DAT)

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC    HVINS     Q        WSEL      FQ

      0.       2.       0.       0.       0.       0.        0.        0.     602.14

J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC     IBW      CHNIM     ITRACE

     1.       0.       -1.


J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    110.      200.

J5  LPRNT     NUMSEC                  ********REQUESTED SECTION NUMBERS********

    -10.      -10.

QT        2.       755.       755.
ET                              1.4
NC    0.060      0.040      0.040        .3         .5
X1   19011.         8.         0.      139.         0.        0.        0.        0.        0.        0.
GR   602.36         0.     602.36       17.     599.05       34.    597.67       74.    593.27       90.
GR   593.27        98.     602.49      114.     602.49      139.

X1   19426.         8.         0.      139.       415.      415.      415.        0.        0.        0.
GR   602.84         0.     602.84       17.     598.97       34.    597.86       74.    594.19       90.
GR   594.19        98.     603.00      114.     603.00      139.

        VALLEY SECTION NO. 2 (J&A)             SECT. AK  (Q)
X1   19536.         8.         0.      139.       110.      110.      110.        0.        0.        0.
GR   603.44         0.     603.44       17.     599.97       34.    598.94       74.    594.99       90.
GR   594.99        98.     603.30      114.     603.30      139.

X1   19726.        15.       500.      531.       190.      190.      190.        0.        0.        0.
GR   603.56         0.     603.36      100.     603.53      200.    603.65      300.    603.75      400.
GR    604.7       500.     596.71      515.     595.96      520.    596.19      524.    598.24      531.
GR   604.43       600.     604.29      700.     603.18      800.    603.23      900.    603.32     1000.
```

VALLEY SECTION NO. 1 (J&A) SECT. AL (R)

X1	20836.	17.	500.	532.	1110.	1110.	1110.	0.	0.	0.
X3	10.									
GR	603.3	0.	604.3	100.0	604.3	200.0	604.5	300.0	604.6	400.0
GR	604.7	500.0	598.1	508.0	597.0	511.0	596.8	516.0	596.9	520.0
GR	597.9	524.0	604.9	532.0	604.6	600.0	605.4	700.0	604.8	800.0
GR	604.6	900.0	605.2	1000.0	0.	0.	0.	0.	0.	0.

```
T1      GLOEDE DITCH - 21 TO 22 MILE ROAD - SECTIONS 29 & 30
T2      100 YEAR EVENT - STARTING WATER SURFACE= 602.14 [FLOOD STUDY XSEC 19011]
T3      DUPLICATE EFFECTIVE - FLOODWAY  AEW JOB NO. 526-002 (FWEFF.DAT)

J1  ICHECK    INQ     NINV     IDIR     STRT    METRIC   HVINS     Q      WSEL     FQ

       0.      3.      0.       0.       0.       0.       0.      0.   602.14

J2  NPROF    IPLOT   PRFVS    XSECV    XSECH     FN     ALLDC     IBW    CHNIM   ITRACE

     15.       0.     -1.
```

THIS RUN EXECUTED 23JUL97 11:22:08

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HEC-2 WATER SURFACE PROFILES

Version 4.6.2: May 1991

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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

DUPLICATE EFFECTIVE-FLOO

SUMMARY PRINTOUT TABLE 110

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STEN
19011.000	602.14	.00	602.19	95.26	.00	755.00	.00	.00	.00	.00	139.00	
19011.000	602.14	.00	602.19	95.26	.00	755.00	.00	.00	.00	.00	139.00	139.
19426.000	602.28	.00	602.34	93.22	.00	755.00	.00	.00	.00	.00	139.00	.
19426.000	602.28	.00	602.34	93.25	.00	755.00	.00	.00	.00	.00	139.00	139.
19536.000	602.33	.00	602.41	89.65	.00	755.00	.00	.00	.00	.00	139.00	.
19536.000	602.33	.00	602.41	89.72	.00	755.00	.00	.00	.00	.00	139.00	139.
* 19726.000	602.47	.00	602.67	73.95	.00	504.78	250.22	.00	.00	500.00	531.00	.
* 19726.000	602.45	-.01	602.70	48.76	.00	524.06	230.94	.04	500.00	500.00	531.00	552.
20836.000	604.44	.00	604.76	31.15	.00	755.00	.00	.00	.00	500.00	532.00	.
20836.000	604.50	.06	604.82	31.32	.00	755.00	.00	.00	500.00	500.00	532.00	532.

SUMMARY OF ERRORS AND SPECIAL NOTES

```
WARNING SECNO=  19726.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  19726.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
```

FLOODWAY DATA. DUPLICATE EFFECTIVE-FLOO
PROFILE NO. 2

STATION	------- FLOODWAY ------- WIDTH	SECTION AREA	MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
19011.000	95.	422.	1.8	602.1	602.1	.0
19426.000	93.	403.	1.9	602.3	602.3	.0
19536.000	90.	325.	2.3	602.3	602.3	.0
19726.000	49.	195.	3.9	602.5	602.5	.0
20836.000	31.	168.	4.5	604.5	604.4	.1

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Macomb Twp

3) WATERCOURSE: Gloede Ditch

4) DOCUMENT TYPE: Comp- Dupl. Effect- Natural

00BREAK00

```
*********************************************        ****************************************
*  HEC-2 WATER SURFACE PROFILES             *        *  U.S. ARMY CORPS OF ENGINEERS
*                                           *        *  HYDROLOGIC ENGINEERING CENTER
*  Version   4.6.2;  May 1991               *        *  609 SECOND STREET, SUITE D
*                                           *        *  DAVIS, CALIFORNIA 95616-4687
*  RUN DATE    23JUL97    TIME    11:21:08  *        *          (916) 756-1104
*********************************************        ****************************************
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X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X            X     X
X     X  X        X                        X
XXXXXXX  XXXX     X          XXXXX    XXXXX
X     X  X        X                  X
X     X  X        X     X            X
X     X  XXXXXXX   XXXXX             XXXXXXX
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THIS RUN EXECUTED 23JUL97 11:21:08

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****************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2:  May 1991
****************************************


T1      GLOEDE DITCH - 21 TO 22 MILE ROAD - SECTIONS 29 & 30
T2      10 YEAR EVENT - STARTING WATER SURFACE = 600.75 [FLOOD STUDY XSEC 19011]
T3      DUPLICATE EFFECTIVE-NATURAL  AEW JOB NO. 526-002 (EFF.DAT)

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC    HVINS      Q      WSEL      FQ

       0.      2.       0.       0.       0.       0.        0.       0.   600.75      0.

J2  NPROF    IPLOT    PRFVS    XSECV    XSECH      FN      ALLDC     IBW     CHNIM    ITRACE

      1.       0.      -1.


QT       4.      465.      690.      755.      1070.
NC    0.060     0.040     0.040        .3        .5
X1   19011.        8.        0.      139.        0.        0.        0.        0.        0.        0.
GR   602.36        0.    602.36       17.    599.05       34.    597.67       74.    593.27       90.
GR   593.27       98.    602.49      114.    602.49      139.

X1   19426.        8.        0.      139.      415.      415.      415.        0.        0.        0.
GR   602.84        0.    602.84       17.    598.97       34.    597.86       74.    594.19       90.
GR   594.19       98.    603.00      114.    603.00      139.

        VALLEY SECTION NO. 2 (J&A)               SECT. AK  (Q)
X1   19536.        8.        0.      139.      110.      110.      110.        0.        0.        0.
GR   603.44        0.    603.44       17.    599.97       34.    598.94       74.    594.99       90.
GR   594.99       98.    603.30      114.    603.30      139.

X1   19726.       15.      500.      531.      190.      190.      190.        0.        0.        0.
GR   603.56        0.    603.36      100.    603.53      200.    603.65      300.    603.75      400.
GR    604.7      500.    596.71      515.    595.96      520.    596.19      524.    598.24      531.
GR   604.43      600.    604.29      700.    603.18      800.    603.23      900.    603.32     1000.

        VALLEY SECTION NO. 1 (J&A)               SECT. AL  (R)
X1   20836.       17.      500.      532.     1110.     1110.     1110.        0.        0.        0.
X3      10.
GR    603.3        0.     604.3     100.0     604.3     200.0     604.5     300.0     604.6     400.0
GR    604.7     500.0     598.1     508.0     597.0     511.0     596.8     516.0     596.9     520.0
GR    597.9     524.0     604.9     532.0     604.6     600.0     605.4     700.0     604.8     800.0
GR    604.6     900.0     605.2    1000.0        0.        0.        0.        0.        0.        0.
```

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 SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
 Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
 TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
 SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 1

CCHV=      .300 CEHV=      .500
*SECNO 19011.000
 19011.000      7.48    600.75       .00    600.75    600.79       .04       .00       .00    602.36
     465.0        .0     465.0        .0        .0     295.9        .0        .0        .0    602.49
       .00       .00      1.57       .00      .000      .040      .000      .000    593.27     25.27
   .000358        0.        0.        0.         0         0         0       .00     85.71    110.98

*SECNO 19426.000
 19426.000      6.72    600.91       .00       .00    600.95       .04       .16       .00    602.84
     465.0        .0     465.0        .0        .0     280.0        .0       2.7        .8    603.00
       .07       .00      1.66       .00      .000       040      .000      .000    594.19     25.53
   .000421      415.      415.      415.         0         0         0       .00     84.65    110.18

*SECNO 19536.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE.  KRATIO =    .63

        VALLEY SECTION NO. 2 (J&A)             SECT. AK  (Q)
 19536.000      5.97    600.96       .00       .00    601.04       .08       .07       .02    603.44
     465.0        .0     465.0        .0        .0     207.9        .0       3.4       1.0    603.30
       .08       .00      2.24       .00      .000      .040      .000      .000    594.99     29.19
   .001054      110.      110.      110.         0         0         0       .00     80.29    109.48

*SECNO 19726.000
 19726.000      5.21    601.17       .00       .00    601.38       .20       .28       .06    604.70
     465.0        .0     359.6     105.4        .0      91.0      47.9       4.1       1.3    598.24
       .10       .00      3.95      2.20      .000      .040      .040      .000    595.96    506.62
   .002115      190.      190.      190.         2         0         0       .00     57.07    563.69

*SECNO 20836.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE. ELLEA=       604.70 ELREA=       604.90

        VALLEY SECTION NO. 1 (J&A)             SECT. AL  (R)
 20836.000      6.36    603.16       .00       .00    603.36       .21      1.99       .00    604.70
     465.0        .0     465.0        .0        .0     127.7        .0       7.5       2.4    604.90
       .18       .00      3.64       .00      .000       040      .000      .000    596.80    501.87
   .001535     1110.     1110.     1110.         2         0         0       .00     28.14    530.01
```

T1 GLOEDE DITCH - 21 TO 22 MILE ROAD - SECTIONS 29 & 30
T2 50 YEAR EVENT - STARTING WATER SURFACE = 601.88 [FLOOD STUDY XSEC 19011]
T3 DUPLICATE EFFECTIVE-NATURAL AEW JOB NO. 526-002 (EFF.DAT)

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	3.	0.	0.	0.	0.	0.	0.	601.88	

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	2.		-1.							

```
 SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
 Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
 TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
 SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*PROF 2

CCHV=      .300 CEHV=      .500
*SECNO 19011.000
 19011.000       8.61     601.88        .00     601.88     601.93        .05        .00        .00     602.36
     690.0         .0      690.0         .0         .0      397.1         .0         .0         .0     602.49
       .00        .00       1.74        .00       .000       .040       .000       .000     593.27      19.47
   .000332         0.         0.         0.          0          0          0        .00      93.48     112.94

*SECNO 19426.000
 19426.000       7.83     602.02        .00        .00     602.08        .05        .15        .00     602.84
     690.0         .0      690.0         .0         .0      378.7         .0        3.7         .9     603.00
       .06        .00       1.82        .00       .000       .040       .000       .000     594.19      20.61
   .000377       415.       415.       415.          0          0          0        .00      91.61     112.22

*SECNO 19536.000
       VALLEY SECTION NO. 2 (J&A)              SECT. AK  (Q)
 19536.000       7.08     602.07        .00        .00     602.15        .08        .06        .01     603.44
     690.0         .0      690.0         .0         .0      301.4         .0        4.6        1.1     603.30
       .08        .00       2.29        .00       .000       .040       .000       .000     594.99      23.74
   .000761       110.       110.       110.          0          0          0        .00      87.88     111.62

*SECNO 19726.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE.  KRATIO =    .66

 19726.000       6.26     602.22        .00        .00     602.42        .20        .21        .06     604.70
     690.0         .0      474.0      216.0         .0      117.4       88.1        5.7        1.5     598.24
       .09        .00       4.04       2.45       .000       .040       .040       .000     595.96     504.66
   .001751       190.       190.       190.          2          0          0        .00      70.66     575.32

*SECNO 20836.000
3280 CROSS SECTION  20836.00 EXTENDED       .88 FEET

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      604.70 ELREA=      604.90

       VALLEY SECTION NO. 1 (J&A)              SECT. AL  (R)
```

SECNO Q TIME SLOPE	DEPTH QLOB VLOB XLOBL	CWSEL QCH VCH XLCH	CRIWS QROB VROB XLOBR	WSELK ALOB XNL ITRIAL	EG ACH XNCH IDC	HV AROB XNR ICONT	HL VOL WTN CORAR	OLOSS TWA ELMIN TOPWID	L-BANK ELEV R-BANK ELEV SSTA ENDST
20836.000	7.39	604.19	.00	.00	604.48	.30	2.02	.05	604.70
690.0	.0	690.0	.0	.0	157.8	.0	10.3	2.7	604.90
.16	.00	4.37	.00	.000	.040	.000	.000	596.80	500.63
.001891	1110.	1110.	1110.	2	0	0	.00	30.56	531.18

T1 GLOEDE DITCH - 21 TO 22 MILE ROAD - SECTIONS 29 & 30
T2 100 YEAR EVENT - STARTING WATER SURFACE= 602.14 [FLOOD STUDY XSEC 19011]
T3 DUPLICATE EFFECTIVE-NATURAL AEW JOB NO. 526-002 (EFF.DAT)

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	4.	0.	0.	0.	0.	0.	0.	602.14	

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	3.		-1.							

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*PROF 3

CCHV= .300 CEHV= .500

*SECNO 19011.000

19011.000	8.87	602.14	.00	602.14	602.19	.05	.00	.00	602.36
755.0	.0	755.0	.0	.0	421.7	.0	.0	.0	602.49
.00	.00	1.79	.00	.000	.040	.000	.000	593.27	18.13
.000334	0.	0.	0.	0	0	0	.00	95.26	113.39

*SECNO 19426.000

19426.000	8.09	602.28	.00	.00	602.34	.05	.15	.00	602.84
755.0	.0	755.0	.0	.0	402.8	.0	3.9	.9	603.00
.06	.00	1.87	.00	.000	.040	.000	.000	594.19	19.47
.000377	415.	415.	415.	0	0	0	.00	93.22	112.69

*SECNO 19536.000

VALLEY SECTION NO. 2 (J&A) SECT. AK (Q)

19536.000	7.34	602.33	.00	.00	602.41	.08	.06	.01	603.44
755.0	.0	755.0	.0	.0	324.5	.0	4.8	1.1	603.30
.07	.00	2.33	.00	.000	.040	.000	.000	594.99	22.47
.000732	110.	110.	110.	0	0	0	.00	89.65	112.12

*SECNO 19726.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE. KRATIO = .66

19726.000	6.51	602.47	.00	.00	602.67	.20	.20	.06	604.70
755.0	.0	504.8	250.2	.0	124.1	99.7	6.0	1.5	598.24
.09	.00	4.07	2.51	.000	.040	.040	.000	595.96	504.19
.001692	190.	190.	190.	2	0	0	.00	73.95	578.14

*SECNO 20836.000

3280 CROSS SECTION 20836.00 EXTENDED 1.14 FEET

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 604.70 ELREA= 604.90

VALLEY SECTION NO. 1 (J&A) SECT. AL (R)

SECNO Q TIME SLOPE	DEPTH QLOB VLOB XLOBL	CWSEL QCH VCH XLCH	CRIWS QROB VROB XLOBR	WSELK ALOB XNL ITRIAL	EG ACH XNCH IDC	HV AROB XNR ICONT	HL VOL WTN CORAR	OLOSS TWA ELMIN TOPWID	L-BANK ELEV R-BANK ELEV SSTA ENDST
20836.000 755.0 .16 .001985	7.64 .0 .00 1110.	604.44 755.0 4.56 1110.	.00 .0 .00 1110.	.00 .0 .000 2	604.76 165.6 .040 0	.32 .0 .000 0	2.03 11.0 .000 .00	.06 2.8 596.80 31.15	604.70 604.90 500.32 531.47

T1 GLOEDE DITCH - 21 TO 22 MILE ROAD - SECTIONS 29 & 30
T2 500 YEAR EVENT - STARTING WATER SURFACE= 603.14 [FLOOD STUDY XSEC 19011]
T3 DUPLICATE EFFECTIVE-NATURAL AEW JOB NO. 526-002 (EFF.DAT)

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	5.	0.	0.	0.	0.	0.	0.	603.14	

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	15.		-1.							

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*PROF 4

CCHV= .300 CEHV= .500
*SECNO 19011.000
3280 CROSS SECTION 19011.00 EXTENDED .78 FEET

19011.000	9.87	603.14	.00	603.14	603.20	.06	.00	.00	602.36
1070.0	.0	1070.0	.0	.0	547.9	.0	.0	.0	602.49
.00	.00	1.95	.00	.000	.040	.000	.000	593.27	.00
.000464	0.	0.	0.	0	0	0	.00	139.00	139.00

*SECNO 19426.000
3280 CROSS SECTION 19426.00 EXTENDED .50 FEET

19426.000	9.16	603.35	.00	.00	603.41	.07	.21	.00	602.84
1070.0	.0	1070.0	.0	.0	521.4	.0	5.1	1.3	603.00
.06	.00	2.05	.00	.000	.040	.000	.000	594.19	.00
.000543	415.	415.	415.	1	0	0	.00	139.00	139.00

*SECNO 19536.000
3280 CROSS SECTION 19536.00 EXTENDED .10 FEET

VALLEY SECTION NO. 2 (J&A) SECT. AK (Q)

19536.000	8.41	603.40	.00	.00	603.50	.10	.07	.02	603.44
1070.0	.0	1070.0	.0	.0	427.5	.0	6.3	1.7	603.30
.07	.00	2.50	.00	.000	.040	.000	.000	594.99	17.19
.000879	110.	110.	110.	0	0	0	.00	121.81	139.00

*SECNO 19726.000

3265 DIVIDED FLOW

3280 CROSS SECTION 19726.00 EXTENDED .25 FEET

19726.000	7.61	603.57	.00	.00	603.74	.16	.20	.03	604.70
1070.0	5.4	609.3	455.3	25.0	154.9	232.2	8.1	3.1	598.24
.09	.21	3.93	1.96	.060	.040	.040	.000	595.96	.00
.001309	190.	190.	190.	2	0	0	.00	560.00	1000.00

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 20836.000

3265 DIVIDED FLOW

3280 CROSS SECTION 20836.00 EXTENDED 1.75 FEET

VALLEY SECTION NO. 1 (J&A) SECT. AL (R)

20836.000	8.25	605.05	.00	.00	605.22	.17	1.48	.01	604.70
1070.0	280.1	737.1	52.8	354.4	185.0	89.8	21.4	21.4	604.90
.19	.79	3.98	.59	.060	.040	.040	.000	596.80	.00
.001361	1110.	1110.	1110.	2	0	0	.00	872.41	974.81

THIS RUN EXECUTED 23JUL97 11:21:08

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HEC-2 WATER SURFACE PROFILES

Version 4.6.2: May 1991
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

DUPLICATE EFFECTIVE-NATU

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01
	19011.000	.00	.00	.00	593.27	465.00	600.75	.00	600.79	3.58	1.57	295.89	245.
	19011.000	.00	.00	.00	593.27	690.00	601.88	.00	601.93	3.32	1.74	397.13	378.
	19011.000	.00	.00	.00	593.27	755.00	602.14	.00	602.19	3.34	1.79	421.67	412.
	19011.000	.00	.00	.00	593.27	1070.00	603.14	.00	603.20	4.64	1.95	547.95	496.
	19426.000	415.00	.00	.00	594.19	465.00	600.91	.00	600.95	4.21	1.66	280.02	226.
	19426.000	415.00	.00	.00	594.19	690.00	602.02	.00	602.08	3.77	1.82	378.68	355.
	19426.000	415.00	.00	.00	594.19	755.00	602.28	.00	602.34	3.77	1.87	402.78	388.
	19426.000	415.00	.00	.00	594.19	1070.00	603.35	.00	603.41	5.43	2.05	521.43	459.
*	19536.000	110.00	.00	.00	594.99	465.00	600.96	.00	601.04	10.54	2.24	207.89	143.
	19536.000	110.00	.00	.00	594.99	690.00	602.07	.00	602.15	7.61	2.29	301.41	250.
	19536.000	110.00	.00	.00	594.99	755.00	602.33	.00	602.41	7.32	2.33	324.52	279.
	19536.000	110.00	.00	.00	594.99	1070.00	603.40	.00	603.50	8.79	2.50	427.50	360.
	19726.000	190.00	.00	.00	595.96	465.00	601.17	.00	601.38	21.15	3.95	138.90	101.
*	19726.000	190.00	.00	.00	595.96	690.00	602.22	.00	602.42	17.51	4.04	205.55	164.
*	19726.000	190.00	.00	.00	595.96	755.00	602.47	.00	602.67	16.92	4.07	223.81	183.
	19726.000	190.00	.00	.00	595.96	1070.00	603.57	.00	603.74	13.09	3.93	412.12	295.
	20836.000	1110.00	.00	.00	596.80	465.00	603.16	.00	603.36	15.35	3.64	127.68	118.
	20836.000	1110.00	.00	.00	596.80	690.00	604.19	.00	604.48	18.91	4.37	157.79	158.
	20836.000	1110.00	.00	.00	596.80	755.00	604.44	.00	604.76	19.85	4.56	165.56	169.
	20836.000	1110.00	.00	.00	596.80	1070.00	605.05	.00	605.22	13.61	3.98	629.23	290.

DUPLICATE EFFECTIVE-NATU

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	19011.000	465.00	600.75	.00	.00	.00	85.71	.00
	19011.000	690.00	601.88	1.13	.00	.00	93.48	.00
	19011.000	755.00	602.14	.26	.00	.00	95.26	.00
	19011.000	1070.00	603.14	1.00	.00	.00	139.00	.00
	19426.000	465.00	600.91	.00	.16	.00	84.65	415.00
	19426.000	690.00	602.02	1.12	.14	.00	91.61	415.00
	19426.000	755.00	602.28	.26	.14	.00	93.22	415.00
	19426.000	1070.00	603.35	1.06	.21	.00	139.00	415.00
*	19536.000	465.00	600.96	.00	.05	.00	80.29	110.00
	19536.000	690.00	602.07	1.11	.04	.00	87.88	110.00
	19536.000	755.00	602.33	.26	.04	.00	89.65	110.00
	19536.000	1070.00	603.40	1.08	.06	.00	121.81	110.00
	19726.000	465.00	601.17	.00	.21	.00	57.07	190.00
*	19726.000	690.00	602.22	1.04	.15	.00	70.66	190.00
*	19726.000	755.00	602.47	.25	.14	.00	73.95	190.00
	19726.000	1070.00	603.57	1.10	.17	.00	560.00	190.00
	20836.000	465.00	603.16	.00	1.99	.00	28.14	1110.00
	20836.000	690.00	604.19	1.03	1.97	.00	30.56	1110.00
	20836.000	755.00	604.44	.25	1.97	.00	31.15	1110.00
	20836.000	1070.00	605.05	.61	1.48	.00	872.41	1110.00

SUMMARY OF ERRORS AND SPECIAL NOTES

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WARNING SECNO=  19536.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  19726.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  19726.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Macomb Twp

3) WATERCOURSE: Gloede Ditch

4) DOCUMENT TYPE: CLOMR - Exist - Floodway

00BREAK00

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                                                                THIS RUN EXECUTED 26JUL97    08:54:23
 ****************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2:  May 1991
 ****************************************


T1     GLOEDE DITCH - 21 TO 22 MILE ROAD - SECTIONS 29 & 30
T2     100 YEAR EVENT - STARTING WATER SURFACE= 602.14 [FLOOD STUDY XSEC 19011]
T3     EXISTING CONDITIONS - FLOODWAY   AEW JOB NO. 526-002 (EXCONDFW.DAT)

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC    HVINS     Q        WSEL     FQ

      0.       2.       0.       0.       0.       0.        0.       0.     602.14

J2  NPROF    IPLOT    PRFVS    XSECV    XSECH     FN      ALLDC     IBW      CHNIM    ITRACE

     1.       0.      -1.


J3  VARIABLE CODES FOR SUMMARY PRINTOUT

   110.      200.

J5  LPRNT    NUMSEC                  *********REQUESTED SECTION NUMBERS*********

   -10.      -10.

JT       2.       755.       755.
ET                            1.4
NC    0.060      0.040      0.040        .3         .5
X1   19011.         8.        25.       122.         0.         0.         0.         0.         0.         0.
GR   602.49         0.     602.49        25.     593.27        41.     593.27        49.     597.67        65.
GR   599.05       105.     602.36       122.     602.36       139.

X1   19426.         8.        25.       122.       415.       415.       415.         0.         0.         0.
GR   603.00         0.     603.00        25.     594.19        41.     594.19        49.     597.86        65.
GR   597.97       105.     602.84       122.     602.84       139.

        VALLEY SECTION NO. 2 (J&A)            SECT. AK  (Q)
X1   19536.         8.        40.       137.       110.       110.       110.         0.         0.         0.
GR   604.45         0.     603.30        40.     594.99        56.     594.99        64.     598.94        80.
GR   599.77       120.     603.44       137.     603.44       154.

X1   19726.        18.        50.      100.9       190.       190.       190.         0.         0.         0.
GR   603.94         0.     604.32        50.     595.97      64.5      595.60      69.3      595.97      74.4
GR   606.13      100.9     604.10       158.     603.60      210.      602.36     262.5      601.66      264.
GR   602.33      265.5     603.27      312.5     603.45     362.5      603.80     412.5      604.50     462.5
GR   604.40      512.5     604.30      562.5     604.10     612.5
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X1	19950.	14.	50.	93.2	240.	220.	224.	0.	0.	0.
GR	604.27	0.	605.28	50.	596.79	68.2	595.99	74.2	596.85	80.2
GR	605.83	93.2	605.40	108.2	604 30	163.2	603.60	218.2	603.70	268.
GR	602.34	270.	602.80	275.	603.20	325.	603.70	375.		
X1	20175.	16.	30.	70.	225.	225.	225.	0.	0.	0.
GR	603.80	0.	604.70	30.	596.78	42.	595.81	47.	596.96	53.
GR	606.83	70.	606.00	89.	605.00	137.4	604.00	233.6	603.00	284.1
GR	602.80	294.1	603.00	297.1	604.00	395.8	604.00	449.4	603.00	527.
GR	604.00	860.6								
X1	20350.	10.	55.	97.	175.	175.	175.	0.	0.	0.
GR	604.03	0.	605.59	55.	597.08	69.	595.90	75.	597.37	81.
GR	605.21	97.	604.40	162.	603.80	212.	603.48	262.	602.60	312.
X1	20464.	15.	40.	77.4	114.	114.	114.	0.	0.	0.
GR	603.75	0.	604.64	40.	597.10	51.7	596.20	57.7	597.00	63.7
GR	605.72	77.4	605.00	87.7	604.00	103.2	603.50	149.2	604.00	211.7
GR	605.00	289.1	604.00	405.6	604.00	452.5	605.00	544.5	605.00	860.6
	VALLEY SECTION NO. 1 (J&A)				SECT. AL (R)					
X1	20726.	17.	500.	532.	262.	262.	262.	0.	0.	0.
X3	10.									
GR	603.3	0.	604.3	100.0	604.3	200.0	604.5	300.0	604.6	400.0
GR	604.7	500.0	598.1	508.0	597.0	511.0	596.8	516.0	596.9	520.0
GR	597.9	524.0	604.9	532.0	604.6	600.0	605.4	700.0	604.8	800.0
GR	604.6	900.0	605.2	1000.0	0.	0.	0.	0.	0.	0.

T1 GLOEDE DITCH - 21 TO 22 MILE ROAD - SECTIONS 29 & 30
T2 100 YEAR - EVENT STARTING WATER SURFACE= 602.14 [FLOOD STUDY XSEC 19011]
T3 EXISTING CONDITIONS - FLOODWAY AEW JOB NO. 526-002 (EXCONDFW.DAT)

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	3.	0.	0.	0.	0.	0.	0.	602.14	

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	15.	0.	-1.							

THIS RUN EXECUTED 26JUL97 08:54:23

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HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991

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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

EXISTING CONDITIONS - FL

SUMMARY PRINTOUT TABLE 110

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STE
19011.000	602.14	.00	602.19	95.26	.00	755.00	.00	.00	.00	25.00	122.00	
19011.000	602.14	.00	602.19	95.26	.00	755.00	.00	.00	25.00	25.00	122.00	122.
19426.000	602.27	.00	602.32	93.73	.00	755.00	.00	.00	.00	25.00	122.00	.
19426.000	602.28	.00	602.32	93.68	.00	755.00	.00	.00	25.00	25.00	122.00	122.
* 19536.000	602.31	.00	602.39	89.86	.00	755.00	.00	.00	.00	40.00	137.00	
* 19536.000	602.31	.00	602.39	89.84	.00	755.00	.00	.00	40.00	40.00	137.00	137.
* 19726.000	602.40	.00	602.77	46.23	.00	753.76	1.24	.00	.00	50.00	100.90	.
* 19726.000	602.40	.00	602.77	37.86	.00	755.00	.00	.00	50.00	50.00	100.90	100.
19950.000	603.04	.00	603.43	70.49	.00	750.05	4.95	.00	.00	50.00	93.20	.
19950.000	603.04	.00	603.44	34.37	.00	755.00	.00	.01	50.00	50.00	93.20	93.
20175.000	603.77	.00	603.96	480.45	.00	608.95	146.05	.00	.00	30.00	70.00	.
20175.000	603.77	.00	604.00	261.57	.00	647.29	107.71	.08	30.00	30.00	70.00	565.
20350.000	604.03	.00	604.24	155.83	.00	669.58	85.42	.00	.00	55.00	97.00	.
20350.000	604.07	.03	604.30	140.04	.00	700.61	54.39	.05	55.00	55.00	97.00	293.
20464.000	604.20	.00	604.44	271.79	1.73	701.67	51.60	.00	.00	40.00	77.40	.
20464.000	604.24	.05	604.51	94.34	.00	724.16	30.84	.05	40.00	40.00	77.40	159.
20726.000	604.63	.00	604.93	31.58	.00	755.00	.00	.00	.00	500.00	532.00	.
20726.000	604.69	.06	604.98	31.74	.00	755.00	.00	.15	500.00	500.00	532.00	532.

SUMMARY OF ERRORS AND SPECIAL NOTES

```
WARNING SECNO=  19536.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  19536.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  19726.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  19726.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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FLOODWAY DATA. EXISTING CONDITIONS - FL
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WATER SURFACE ELEVATION WITHOUT FLOODWAY	WATER SURFACE ELEVATION DIFFERENCE
19011.000	95.	422.	1.8	602.1	602.1	.0
19426.000	94.	430.	1.8	602.3	602.3	.0
19536.000	90.	329.	2.3	602.3	602.3	.0
19726.000	38.	155.	4.9	602.4	602.4	.0
19950.000	34.	149.	5.1	603.0	603.0	.0
20175.000	534.	267.	2.8	603.8	603.8	.0
20350.000	236.	226.	3.3	604.0	604.0	.0
20464.000	119.	203.	3.7	604.2	604.2	.0
20726.000	32.	173.	4.4	604.7	604.6	.1

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Macomb Twp

3) WATERCOURSE: Gloede Ditch

4) DOCUMENT TYPE: Closed- Exist- Natural

00BREAK00

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                                                                THIS RUN EXECUTED 26JUL97    08:49:32
*************************************
HEC-2 WATER SURFACE PROFILES

Version   4.6.2:  May 1991
*************************************


T1      GLOEDE DITCH - 21 TO 22 MILE ROAD - SECTIONS 29 & 30, MACOMB TOWNSHIP
T2      10 YEAR EVENT STARTING WATER SURFACE= 600.75 [FLOOD STUDY XSEC 19011]
T3      EXISTING CONDITIONS - NATURAL    AEW JOB NO. 526-002 (EXCOND.DAT)

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC    HVINS     Q       WSEL      FQ

       0.       2.       0.       0.       0.       0.       0.       0.    600.75      0.

J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC     IBW     CHNIM     ITRACE

      1.       0.      -1.


QT       4.      465.      690.      755.     1070.
NC    0.060     0.040     0.040        .3        .5
X1   19011.        8.       25.      122.        0.        0.        0.        0.        0.        0.
GR   602.49        0.    602.49       25.    593.27       41.    593.27       49.    597.67       65.
GR   599.05      105.    602.36      122.    602.36      139.

'1   19426.        8.       25.      122.      415.      415.      415.        0.        0.        0.
.R   603.00        0.    603.00       25.    594.19       41.    594.19       49.    597.86       65.
.R   597.97      105.    602.84      122.    602.84      139.

        VALLEY SECTION NO. 2 (J&A)            SECT. AK  (Q)
X1   19536.        8.       40.      137.      110.      110.      110.        0.        0.        0.
GR   604.45        0.    603.30       40.    594.99       56.    594.99       64.    598.94       80.
GR   599.77      120.    603.44      137.    603.44      154.

X1   19726.       18.       50.     100.9      190.      190.      190.        0.        0.        0.
GR   603.94        0.    604.32       50.    595.97      64.5    595.60      69.3    595.97      74.4
GR   606.13     100.9    604.10      158.    603.60      210.    602.36     262.5    601.66      264.
GR   602.33     265.5    603.27     312.5    603.45     362.5    603.80     412.5    604.50     462.5
GR   604.40     512.5    604.30     562.5    604.10     612.5

X1   19950.       14.       50.      93.2      240.      220.      224.        0.        0.        0.
GR   604.27        0.    605.28       50.    596.79      68.2    595.99      74.2    596.85      80.2
GR   605.83      93.2    605.40     108.2    604.30     163.2    603.60     218.2    603.70      268.
GR   602.34      270.    602.80      275.    603.20      325.    603.70      375.

X1   20175.       16.       30.       70.      225.      225.      225.        0.        0.        0.
GR   603.80        0.    604.70       30.    596.78       42.    595.81       47.    596.96       53.
GR   606.83       70.    606.00       89.    605.00     137.4    604.00     233.6    603.00     284.1
GR   602.80     294.1    603.00     297.1    604.00     395.8    604.00     449.4    603.00      527.
GR   604.00     860.6
```

X1	20350.	10.	55.	97.	175.	175.	175.	0.	0.	0.
GR	604.03	0.	605.59	55.	597.08	69.	595.90	75.	597.37	81.
GR	605.21	97.	604.40	162.	603.80	212.	603.48	262.	602.60	312.

X1	20464	15.	40.	77.4	114.	114.	114.	0.	0.	0.
GR	603.75	0.	604.64	40.	597.10	51.7	596.20	57.7	597.00	63.7
GR	605.72	77.4	605.00	97.7	604.00	103.2	603.50	149.2	604.00	211.7
GR	605.00	289.1	604.00	[illegible]	604.00	452.5	605.00	544.5	605.00	860.6

VALLEY SECTION NO. 1 (J&A) SECT. AL (R)

X1	20726.	17.	500.	[illegible]	262.	262.	262.	0.	0.	0.
X3	10.									
GR	603.3	0.	604.3	100.0	604.3	200.0	604.5	300.0	604.6	400.0
GR	604.7	500.0	598.1	[illegible]	597.0	511.0	596.8	516.0	596.9	520.0
GR	597.9	524.0	604.9	[illegible]	604.6	600.0	605.4	700.0	604.8	800.0
GR	604.6	900.0	605.2	1000.0	0.	0.	0.	0.	0.	0.

```
   SECNO      DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
   Q          QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
   TIME       VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
   SLOPE      XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 1

CCHV=     .300 CEHV=     .500
*SECNO 19011.000
 19011.000      7.48    600.75       .00    600.75    600.79       .04       .00       .00    602.49
     465.0        .0     465.0        .0        .0     295.9        .0        .0        .0    602.36
       .00       .00      1.57       .00      .000      .040      .000      .000    593.27     28.02
   .000358        0.        0.        0.         0         0         0       .00     85.71    113.73

*SECNO 19426.000
 19426.000      6.70    600.89       .00       .00    600.93       .04       .14       .00    603.00
     465.0        .0     465.0        .0        .0     306.8        .0       2.9        .8    602.84
       .08       .00      1.52       .00      .000      .040      .000      .000    594.19     28.82
   .000319      415.      415.      415.         0         0         0       .00     86.41    115.22

*SECNO 19536.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE.  KRATIO =   .56

          VALLEY SECTION NO. 2 (J&A)             SECT. AK  (Q)
 19536.000      5.94    600.93       .00       .00    601.01       .08       .06       .02    603.30
     465.0        .0     465.0        .0        .0     211.1        .0       3.5       1.0    603.44
       .09       .00      2.20       .00      .000      .040      .000      .000    594.99     44.56
   .001010      110.      110.      110.         0         0         0       .00     80.82    125.38

*SECNO 19726.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE.  KRATIO =   .61

 19726.000      5.53    601.13       .00       .00    601.40       .27       .30       .10    604.32
     465.0        .0     465.0        .0        .0     110.7        .0       4.2       1.3    606.13
       .10       .00      4.20       .00      .000      .040      .000      .000    595.60     55.54
   .002719      190.      190.      190.         2         0         0       .00     32.31     87.85

*SECNO 19950.000
 19950.000      5.74    601.73       .00       .00    602.02       .29       .61       .01    605.28
     465.0        .0     465.0        .0        .0     107.4        .0       4.8       1.4    605.83
       .12       .00      4.33       .00      .000       040      .000      .000    595.99     57.61
    002751      240.      224.      220.         2         0         0       .00     29.66     87.27
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


*SECNO 20175.000
 20175.000      6.52     602.33        .00        .00     602.59        .26        .55        .01     604.70
     465.0        .0      465.0         .0         .0      114.2         .0        5.4        1.6     606.83
       .13       .00       4.07        .00       .000       .040       .000       .000     595.81      33.58
   .002200      225.       225.       225.          1          0          0        .00      28.68      62.26


*SECNO 20350.000

3265 DIVIDED FLOW

3280 CROSS SECTION  20350.00 EXTENDED       .13 FEET

 20350.000      6.83     602.73        .00        .00     602.93        .20        .33        .02     605.59
     465.0        .0      464.9         .1         .0      129.7         .5        5.9        1.7     605.21
       .15       .00       3.58        .25       .000       .040       .040       .000     595.90      59.70
    001644      175.       175.       175.          2          0          0        .00      39.91     312.00


*SECNO 20464.000
 20464.000      6.72     602.92        .00        .00     603.12        .20        .18        .00     604.64
     465.0        .0      465.0         .0         .0      129.2         .0        6.2        1.8     605.72
       .15       .00       3.60        .00       .000       .040       .000       .000     596.20      42.68
   .001574      114.       114.       114.          2          0          0        .00      30.32      72.99


*SECNO 20726.000
3280 CROSS SECTION  20726.00 EXTENDED       .02 FEET


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE. ELLEA=       604.70 ELREA=       604.90

        VALLEY SECTION NO. 1 (J&A)             SECT. AL  (R)
 20726.000      6.52     603.32        .00        .00     603.51        .19        .39        .00     604.70
     465.0         0      465.0         .0         .0      132.2         .0        7.0        2.0     604.90
        18       .00       3.52        .00       .000        040       .000       .000     596.80     501.68
    001395      262.       262.       262.          2          0          0        .00      28.51     530.19
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T1      GLOEDE DITCH - 21 TO 22 MILE ROAD - SECTIONS 29 & 30, MACOMB TOWNSHIP
T2      50 YEAR EVENT STARTING WATER SURFACE= 601.88 [FLOOD STUDY XSEC 19011]
T3      EXISTING CONDITIONS - NATURAL    AEW JOB NO. 526-002 (EXCOND.DAT)

J1  ICHECK    INQ     NINV    IDIR    STRT    METRIC   HVINS     Q      WSEL     FQ

       0.      3.      0.      0.      0.      0.       0.       0.   601.88

J2  NPROF    IPLOT    PRFVS   XSECV   XSECH    FN      ALLDC    IBW    CHNIM    ITRACE

      2.              -1.
```

SECNO Q TIME SLOPE	DEPTH QLOB VLOB XLOBL	CWSEL QCH VCH XLCH	CRIWS QROB VROB XLOBR	WSELK ALOB XNL ITRIAL	EG ACH XNCH IDC	HV AROB XNR ICONT	HL VOL WTN CORAR	OLOSS TWA ELMIN TOPWID	L-BANK ELEV R-BANK ELEV SSTA ENDST

*PROF 2

CCHV= .300 CEHV= .500

*SECNO 19011.000

19011.000	8.61	601.88	.00	601.88	601.93	.05	.00	.00	602.49
690.0	.0	690.0	.0	.0	397.1	.0	.0	.0	602.36
.00	.00	1.74	.00	.000	.040	.000	.000	593.27	26.06
.000332	0.	0.	0.	0	0	0	.00	93.48	119.53

*SECNO 19426.000

19426.000	7.82	602.01	.00	.00	602.06	.04	.13	.00	603.00
690.0	.0	690.0	.0	.0	406.9	.0	3.8	.9	602.84
.07	.00	1.70	.00	.000	040	.000	.000	594.19	26.78
.000301	415.	415.	415.	0	0	0	.00	92.35	119.13

*SECNO 19536.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE. KRATIO = .64

VALLEY SECTION NO. 2 (J&A) SECT. AK (Q)

19536.000	7.06	602.05	.00	.00	602.13	.08	.05	.02	603.30
690.0	.0	690.0	.0	.0	305.6	.0	4.7	1.1	603.44
.08	.00	2.26	.00	.000	.040	.000	.000	594.99	42.41
.000730	110.	110.	110.	0	0	0	.00	88.15	130.56

*SECNO 19726.000

3265 DIVIDED FLOW

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE. KRATIO = .51

19726.000	6.56	602.16	.00	.00	602.50	.35	.24	.13	604.32
690.0	.0	689.6	.4	.0	146.0	.5	5.7	1.4	606.13
.09	.00	4.72	.73	.000	.040	.040	.000	595.60	53.77
.002836	190.	190.	190.	1	0	0	.00	38.90	265.10

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 19950.000

3265 DIVIDED FLOW

19950.000	6.80	602.79	.00	.00	603.16	.37	.64	.01	605.28
690.0	.0	689.1	.9	.0	140.6	1.2	6.5	1.6	605.83
.11	.00	4.90	.72	.000	.040	.040	.000	595.99	55.34
.002906	240.	224.	220.	2	0	0	.00	38.96	274.86

*SECNO 20175.000

3265 DIVIDED FLOW

20175.000	7.66	603.47	.00	.00	603.74	.27	.55	.03	604.70
690.0	.0	642.6	47.4	.0	148.7	68.2	7.4	2.5	606.83
.12	.00	4.32	.70	.000	.040	.040	.000	595.81	31.87
.002066	225.	225.	225.	2	0	0	.00	306.55	682.50

*SECNO 20350.000

3265 DIVIDED FLOW

3280 CROSS SECTION 20350.00 EXTENDED 1.26 FEET

20350.000	7.96	603.86	.00	.00	604.06	.20	.31	.02	605.59
690.0	.0	632.9	57.1	.0	168.4	52.3	8.3	3.4	605.21
.13	.00	3.76	1.09	.000	.040	.040	.000	595.90	57.84
.001510	175.	175.	175.	2	0	0	.00	141.56	312.00

*SECNO 20464.000

3265 DIVIDED FLOW

3280 CROSS SECTION 20464.00 EXTENDED .27 FEET

20464.000	7.82	604.02	.00	.00	604.27	.25	.18	.02	604.64
690.0	.4	670.7	18.9	1.6	164.6	30.3	8.8	3.8	605.72
.14	.27	4.07	.62	.060	040	.040	.000	596.20	.00
.001701	114.	114.	114.	2	0	0	.00	207.44	454.37

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 20726.000
3280 CROSS SECTION 20726.00 EXTENDED 1.14 FEET

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 604.70 ELREA= 604.90

VALLEY SECTION NO. 1 (J&A) SECT. AL (R)

20726.000	7.65	604.45	.00	.00	604.72	.27	.44	.01	604.70
690.0	.0	690.0	.0	.0	165.7	.0	9.9	4.6	604.90
.16	.00	4.16	.00	.000	.040	.000	.000	596.80	500.31
001654	262.	262.	262.	0	0	0	.00	31.16	531.48

T1 GLOEDE DITCH - 21 TO 22 MILE ROAD - SECTIONS 29 & 30. MACOMB TOWNSHIP
T2 100 YEAR EVENT STARTING WATER SURFACE= 602.14 [FLOOD STUDY XSEC 19011]
T3 EXISTING CONDITIONS - NATURAL AEW JOB NO. 526-002 (EXCOND.DAT)

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	4.	0.	0.	0.	0.	0.	0.	602.14	

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	3.		-1.							

```
 SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
 Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
 TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
 SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


*PROF 3


CCHV=     .300 CEHV=     .500
*SECNO 19011.000
 19011.000    8.87    602.14      .00    602.14    602.19      .05       .00       .00    602.49
     755.0      .0     755.0       .0        .0     421.7       .0        .0        .0    602.36
       .00     .00      1.79      .00      .000      .040     .000      .000    593.27     25.61
   .000334      0.        0.       0.         0         0        0       .00     95.26    120.87


*SECNO 19426.000
 19426.000    8.08    602.27      .00       .00    602.32      .05       .13       .00    603.00
     755.0      .0     755.0       .0        .0     431.1       .0       4.1        .9    602.84
        07     .00      1.75      .00      .000      .040     .000      .000    594.19     26.31
   .000303    415.      415.     415.         0         0        0       .00     93.73    120.04


*SECNO 19536.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE.  KRATIO =    .66

        VALLEY SECTION NO. 2 (J&A)             SECT. AK  (Q)
 19536.000    7.32    602.31      .00       .00    602.39      .08       .05       .02    603.30
     755.0      .0     755.0       .0        .0     328.8       .0       5.0       1.1    603.44
       .08     .00      2.30      .00      .000      .040     .000      .000    594.99     41.91
   .000703    110.      110.     110.         0         0        0       .00     89.86    131.77


*SECNO 19726.000

3265 DIVIDED FLOW


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE.  KRATIO =    .50

 19726.000    6.80    602.40      .00       .00    602.77      .36       .24       .14    604.32
     755.0      .0     753.8      1.2        .0     155.4      1.4       6.1       1.4    606.13
       .09     .00      4.85      .91      .000      .040     .040      .000    595.60     53.33
   .002865    190.      190.     190.         0         0        0        00     46.23    269.10
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 19950.000

3265 DIVIDED FLOW

19950.000	7.05	603.04	.00	.00	603.43	.39	.65	.01	605.28
755.0	.0	750.0	5.0	.0	149.3	6.3	6.9	1.7	605.83
.10	.00	5.03	.78	.000	.040	.040	.000	595.99	54.80
.002931	240.	224.	220.	2	0	0	.00	70.49	305.10

*SECNO 20175.000

3265 DIVIDED FLOW

20175.000	7.96	603.77	.00	.00	603.96	.19	.47	.06	604.70
755.0	.0	609.0	146.0	.0	158.8	179.5	8.2	3.1	606.83
.12	.00	3.83	.81	.000	.040	.040	.000	595.81	31.40
.001554	225.	225.	225.	2	0	0	.00	480.45	785.43

*SECNO 20350.000

3265 DIVIDED FLOW

280 CROSS SECTION 20350.00 EXTENDED 1.43 FEET

20350.000	8.13	604.03	.00	.00	604.24	.21	.27	.01	605.59
755.0	.0	669.6	85.4	.0	174.4	70.7	9.3	4.4	605.21
.14	.00	3.84	1.21	.000	.040	.040	.000	595.90	57.57
.001538	175.	175.	175.	2	0	0	.00	155.83	312.00

*SECNO 20464.000

3265 DIVIDED FLOW

3280 CROSS SECTION 20464.00 EXTENDED .45 FEET

20464.000	8.00	604.20	.00	.00	604.44	.24	.18	.02	604.64
755.0	1.7	701.7	51.6	4.6	170.9	65.2	10.0	5.0	605.72
.14	.37	4.11	.79	.060	.040	.040	.000	596.20	.00
.001683	114.	114.	114.	1	0	0	.00	271.79	471.31

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 20726.000
3280 CROSS SECTION 20726.00 EXTENDED 1.32 FEET

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 604.70 ELREA= 604.90

VALLEY SECTION NO. 1 (J&A) SECT. AL (R)

20726.000	7.83	604.63	.00	.00	604.93	.30	.46	.03	604.70
755.0	.0	755.0	.0	.0	171.3	.0	11.2	5.9	604.90
.16	.00	4.41	.00	.000	.040	.000	.000	596.80	500.10
.001808	262.	262.	262.	0	0	0	.00	31.58	531.68

```
T1     GLOEDE DITCH - 21 TO 22 MILE ROAD - SECTIONS 29 & 30. MACOMB TOWNSHIP
T2     500 YEAR EVENT STARTING WATER SURFACE= 603.13 [FLOOD STUDY XSEC 19011]
T3     EXISTING CONDITIONS - NATURAL    AEW JOB NO. 526-002 (EXCOND.DAT)

J1  ICHECK    INQ      NINV      IDIR      STRT      METRIC    HVINS     Q       WSEL      FQ

      0.       5.       0.        0.        0.        0.        0.        0.    603.13

J2  NPROF    IPLOT    PRFVS     XSECV     XSECH      FN       ALLDC     IBW     CHNIM     ITRACE

    15.               -1.
```

```
 SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
 Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
 TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
 SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 4

CCHV=     .300 CEHV=     .500
*SECNO 19011.000
3280 CROSS SECTION  19011.00 EXTENDED       .77 FEET

 19011.000      9.86    603.13       .00    603.13    603.19       .06       .00       .00    602.49
    1070.0       5.3    1057.4       7.3      16.0     517.5      13.1        .0        .0    602.36
       .00       .33      2.04       .56      .060      .040      .040      .000    593.27       .00
   .000340        0.        0.        0.         0         0         0       .00    139.00    139.00

*SECNO 19426.000
3280 CROSS SECTION  19426.00 EXTENDED       .43 FEET

 19426.000      9.08    603.27       .00       .00    603.33       .06       .14       .00    603.00
    1070.0       1.3    1066.0       2.8       6.8     526.4       7.3       5.2       1.3    602.84
       .06       .19      2.03       .38      .060      .040      .040      .000    594.19       .00
   .000326      415.      415.      415.         0         0         0       .00    139.00    139.00

*SECNO 19536.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE.  KRATIO =    .69

       VALLEY SECTION NO. 2 (J&A)             SECT. AK  (Q)
 19536.000      8.31    603.30       .00       .00    603.40       .10       .05       .02    603.30
    1070.0        .0    1070.0        .0        .0     421.5        .0       6.4       1.6    603.44
       .07       .00      2.54       .00      .000      .040      .000      .000    594.99     39.81
   .000679      110.      110.      110.         0         0         0       .00     96.57    136.38

*SECNO 19726.000

3265 DIVIDED FLOW

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE.  KRATIO =    .50

 19726.000      7.79    603.39       .00       .00    603.77       .38       .23       .14    604.32
    1070.0        .0     993.3      76.7        .0     195.2      57.1       7.9       2.2    606.13
       .08       .00      5.09      1.34      .000      .040      .040      .000    595.60     51.60
   .002697      190.      190.      190.         0         0         0       .00    171.08    347.55
```

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 19950.000

3265 DIVIDED FLOW

3280 CROSS SECTION 19950.00 EXTENDED .34 FEET

19950.000	8.05	604.04	.00	.00	604.35	.31	.56	.02	605.28
1070.0	.0	893.7	176.3	.0	185.4	118.0	9.3	3.2	605.83
.09	.00	4.82	1.49	.000	.040	.040	.000	595.99	52.66
.002318	240.	224.	220.	3	0	0	.00	229.37	375.00

*SECNO 20175.000

3265 DIVIDED FLOW

3280 CROSS SECTION 20175.00 EXTENDED .80 FEET

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE. KRATIO = 2.08

20175.000	8.79	604.60	.00	.00	604.64	.04	.22	.08	604.70
1070.0	3.3	446.5	620.2	10.8	187.5	690.3	12.4	5.7	606.83
.14	.31	2.38	.90	.060	.040	.040	.000	595.81	.00
.000534	225.	225.	225.	0	0	0	.00	747.83	860.60

*SECNO 20350.000

3265 DIVIDED FLOW

3280 CROSS SECTION 20350.00 EXTENDED 2.07 FEET

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE. KRATIO = .59

20350.000	8.77	604.67	.00	.00	604.87	.20	.15	.08	605.59
1070.0	3.3	799.6	267.2	7.3	199.2	164.9	14.9	7.7	605.21
.15	.45	4.01	1.62	.060	.040	.040	.000	595.90	.00
.001536	175.	175.	175.	2	0	0	.00	233.96	312.00

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 20464.000

3265 DIVIDED FLOW

3280 CROSS SECTION 20464.00 EXTENDED 1.14 FEET

20464.000	8.68	604.88	.00	.00	605.04	.16	.16	.01	604.64
1070.0	18.7	732.2	319.1	27.7	195.0	283.3	16.0	8.7	605.72
.16	.68	3.76	1.13	.060	.040	.040	.000	596.20	.00
001266	114.	114.	114.	2	0	0	.00	498.64	534.04

*SECNO 20726.000

3265 DIVIDED FLOW

3280 CROSS SECTION 20726.00 EXTENDED 1.93 FEET

VALLEY SECTION NO. 1 (J&A) SECT. AL (R)

20726.000	8.43	605.23	.00	.00	605.34	.11	.28	.01	604.70
1070.0	327.9	643.3	98.8	444.2	190.8	158.2	19.9	13.0	604.90
.19	.74	3.37	.62	.060	.040	.040	.000	596.80	.00
.000936	262.	262.	262.	2	0	0	.00	949.94	1000.00

THIS RUN EXECUTED 26JUL97 08:49:33

****
HEC-2 WATER SURFACE PROFILES

Version 4.6.2: May 1991
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

EXISTING CONDITIONS - NA

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.0.
	19011.000	.00	.00	.00	593.27	465.00	600.75	.00	600.79	3.58	1.57	295.89	245
	19011.000	.00	.00	.00	593.27	690.00	601.88	.00	601.93	3.32	1.74	397.13	378
	19011.000	.00	.00	.00	593.27	755.00	602.14	.00	602.19	3.34	1.79	421.67	412
	19011.000	.00	.00	.00	593.27	1070.00	603.13	.00	603.19	3.40	2.04	546.56	580
	19426.000	415.00	.00	.00	594.19	465.00	600.89	.00	600.93	3.19	1.52	306.82	260
	19426.000	415.00	.00	.00	594.19	690.00	602.01	.00	602.06	3.01	1.70	406.87	397
	19426.000	415.00	.00	.00	594.19	755.00	602.27	.00	602.32	3.03	1.75	431.14	433.
	19426.000	415.00	.00	.00	594.19	1070.00	603.27	.00	603.33	3.26	2.03	540.46	592.
*	19536.000	110.00	.00	.00	594.99	465.00	600.93	.00	601.01	10.10	2.20	211.12	146
*	19536.000	110.00	.00	.00	594.99	690.00	602.05	.00	602.13	7.30	2.26	305.57	255.
*	19536.000	110.00	.00	.00	594.99	755.00	602.31	.00	602.39	7.03	2.30	328.81	284.
*	19536.000	110.00	.00	.00	594.99	1070.00	603.30	.00	603.40	6.79	2.54	421.51	410.
*	19726.000	190.00	.00	.00	595.60	465.00	601.13	.00	601.40	27.19	4.20	110.71	89.
*	19726.000	190.00	.00	.00	595.60	690.00	602.16	.00	602.50	28.36	4.72	146.52	129.
*	19726.000	190.00	.00	.00	595.60	755.00	602.40	.00	602.77	28.65	4.85	156.75	141.
*	19726.000	190.00	.00	.00	595.60	1070.00	603.39	.00	603.77	26.97	5.09	252.30	206.
	19950.000	224.00	.00	.00	595.99	465.00	601.73	.00	602.02	27.51	4.33	107.36	88.
	19950.000	224.00	.00	.00	595.99	690.00	602.79	.00	603.16	29.06	4.90	141.87	128.
	19950.000	224.00	.00	.00	595.99	755.00	603.04	.00	603.43	29.31	5.03	155.59	139.
	19950.000	224.00	.00	.00	595.99	1070.00	604.04	.00	604.35	23.18	4.82	303.42	222.
	20175.000	225.00	.00	.00	595.81	465.00	602.33	.00	602.59	22.00	4.07	114.24	99.
	20175.000	225.00	.00	.00	595.81	690.00	603.47	.00	603.74	20.66	4.32	216.90	151.
	20175.000	225.00	.00	.00	595.81	755.00	603.77	.00	603.96	15.54	3.83	338.31	191.
*	20175.000	225.00	.00	.00	595.81	1070.00	604.60	.00	604.64	5.34	2.38	888.54	462.
	20350.000	175.00	.00	.00	595.90	465.00	602.73	.00	602.93	16.44	3.58	130.25	114.
	20350.000	175.00	.00	.00	595.90	690.00	603.86	.00	604.06	15.10	3.76	220.77	177.
	20350.000	175.00	.00	.00	595.90	755.00	604.03	.00	604.24	15.38	3.84	245.17	192.
*	20350.000	175.00	.00	.00	595.90	1070.00	604.67	.00	604.87	15.36	4.01	371.38	273.

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01'
20464.000	114.00	.00	.00	596.20	465.00	602.92	.00	603.12	15.74	3.60	129.23	117.
20464.000	114.00	.00	.00	596.20	690.00	604.02	.00	604.27	17.01	4.07	196.60	167.
20464.000	114.00	.00	.00	596.20	755.00	604.20	.00	604.44	16.83	4.11	240.73	184.
20464.000	114.00	.00	.00	596.20	1070.00	604.88	.00	605.04	12.66	3.76	505.90	300.
20726.000	262.00	.00	.00	596.80	465.00	603.32	.00	603.51	13.95	3.52	132.18	124.
20726.000	262.00	.00	.00	596.80	690.00	604.45	.00	604.72	16.54	4.16	165.72	169.
20726.000	262.00	.00	.00	596.80	755.00	604.63	.00	604.93	18.08	4.41	171.34	177.
20726.000	262.00	.00	.00	596.80	1070.00	605.23	.00	605.34	9.36	3.37	793.15	349.

EXISTING CONDITIONS - NA

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	19011.000	465.00	600.75	.00	.00	.00	85.71	.00
	19011.000	690.00	601.88	1.13	.00	.00	93.48	.00
	19011.000	755.00	602.14	.26	.00	.00	95.26	.00
	19011.000	1070.00	603.13	.99	.00	.00	139.00	.00
	19426.000	465.00	600.89	.00	.14	.00	86.41	415.00
	19426.000	690.00	602.01	1.12	.13	.00	92.35	415.00
	19426.000	755.00	602.27	.26	.13	.00	93.73	415.00
	19426.000	1070.00	603.27	.99	.14	.00	139.00	415.00
*	19536.000	465.00	600.93	.00	.04	.00	80.82	110.00
*	19536.000	690.00	602.05	1.11	.03	.00	88.15	110.00
*	19536.000	755.00	602.31	.26	.03	.00	89.86	110.00
*	19536.000	1070.00	603.30	.99	.03	.00	96.57	110.00
*	19726.000	465.00	601.13	.00	.20	.00	32.31	190.00
*	19726.000	690.00	602.16	1.03	.11	.00	38.90	190.00
*	19726.000	755.00	602.40	.25	.10	.00	46.23	190.00
*	19726.000	1070.00	603.39	.99	.09	.00	171.08	190.00
	19950.000	465.00	601.73	.00	.60	.00	29.66	224.00
	19950.000	690.00	602.79	1.05	.63	.00	38.96	224.00
	19950.000	755.00	603.04	.25	.64	.00	70.49	224.00
	19950.000	1070.00	604.04	1.00	.65	.00	229.37	224.00
	20175.000	465.00	602.33	.00	.60	.00	28.68	225.00
	20175.000	690.00	603.47	1.14	.68	.00	306.55	225.00
	20175.000	755.00	603.77	.31	.73	.00	480.45	225.00
*	20175.000	1070.00	604.60	.83	.56	.00	747.83	225.00
	20350.000	465.00	602.73	.00	.41	.00	39.91	175.00
	20350.000	690.00	603.86	1.13	.40	.00	141.56	175.00
	20350.000	755.00	604.03	.17	.26	.00	155.83	175.00
*	20350.000	1070.00	604.67	.64	.07	.00	233.96	175.00
	20464.000	465.00	602.92	.00	.18	.00	30.32	114.00
	20464.000	690.00	604.02	1.10	.16	.00	207.44	114.00
	20464.000	755.00	604.20	.18	.16	.00	271.79	114.00
	20464.000	1070.00	604.88	.69	.21	.00	498.64	114.00
	20726.000	465.00	603.32	.00	.40	.00	28.51	262.00
	20726.000	690.00	604.45	1.13	.43	.00	31.16	262.00
	20726.000	755.00	604.63	.18	.43	.00	31.58	262.00
	20726.000	1070.00	605.23	.60	.34	.00	949.94	262.00

SUMMARY OF ERRORS AND SPECIAL NOTES

```
WARNING SECNO=  19536.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  19536.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  19536.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  19536.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  19726.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  19726.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  19726.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  19726.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  20175.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  20350.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
```

00BREAK00

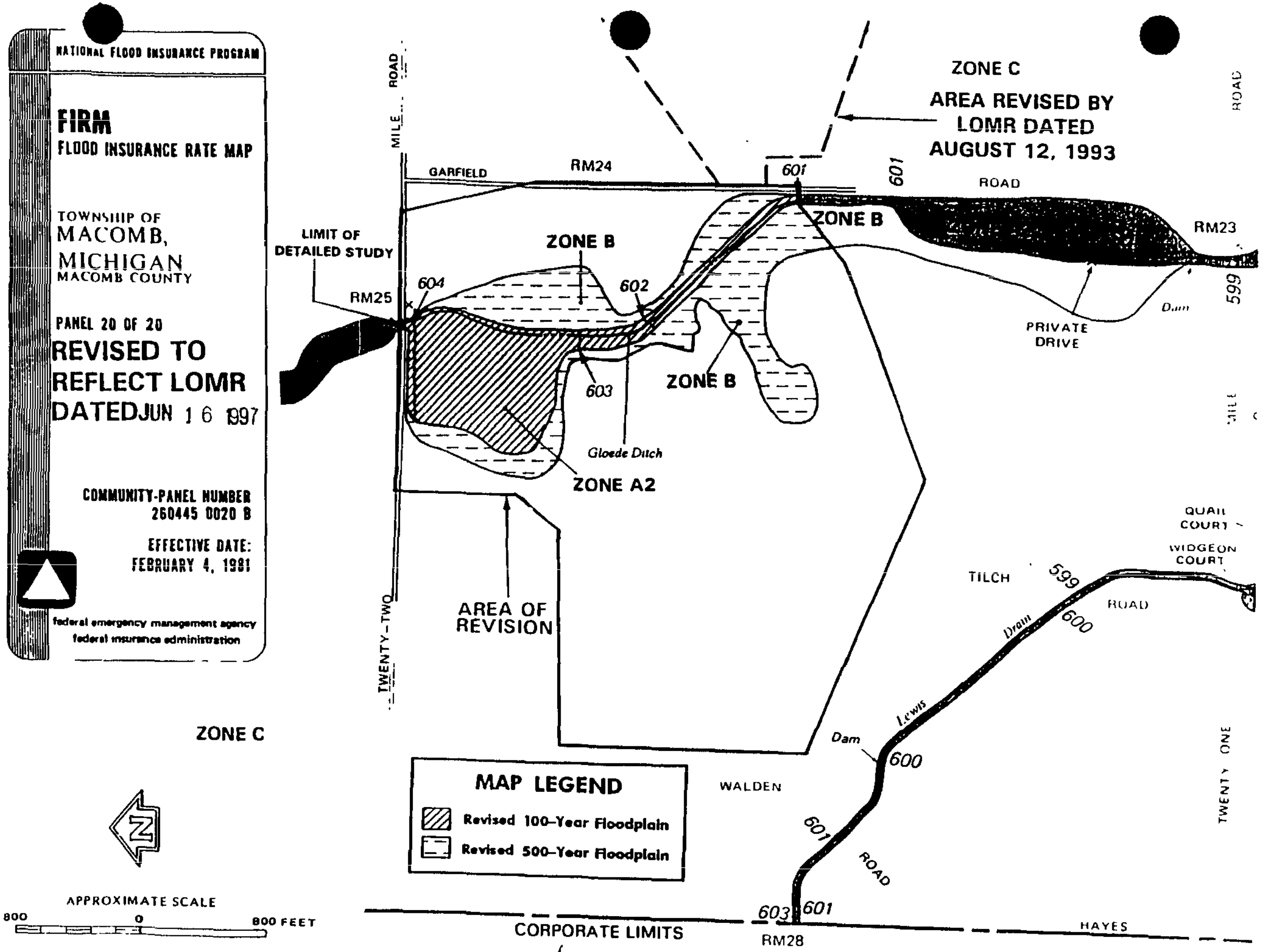
1) COUNTY: Macomb

2) STUDY NAME: Macomb Twp

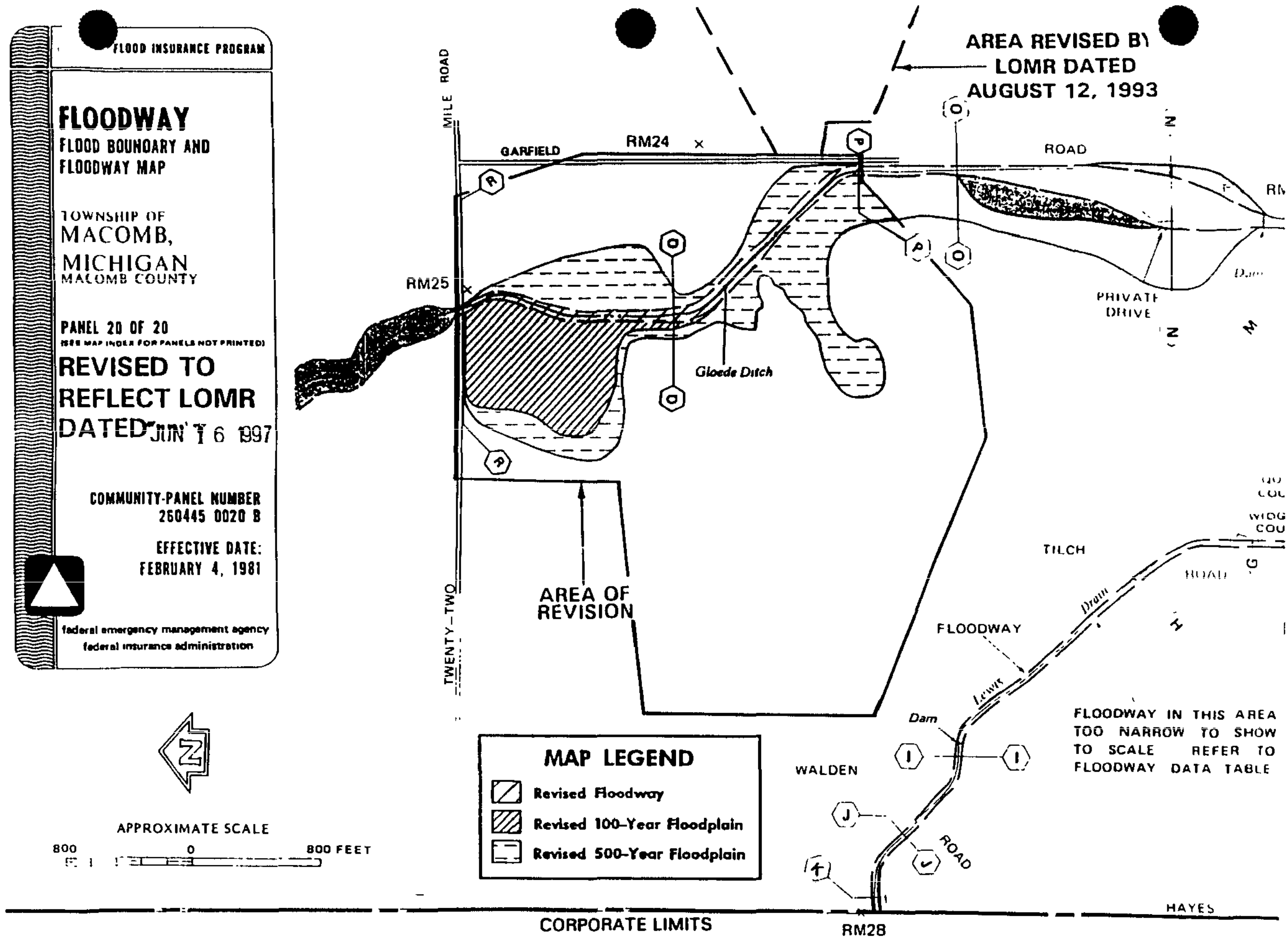
3) WATERCOURSE: Gloede Ditch

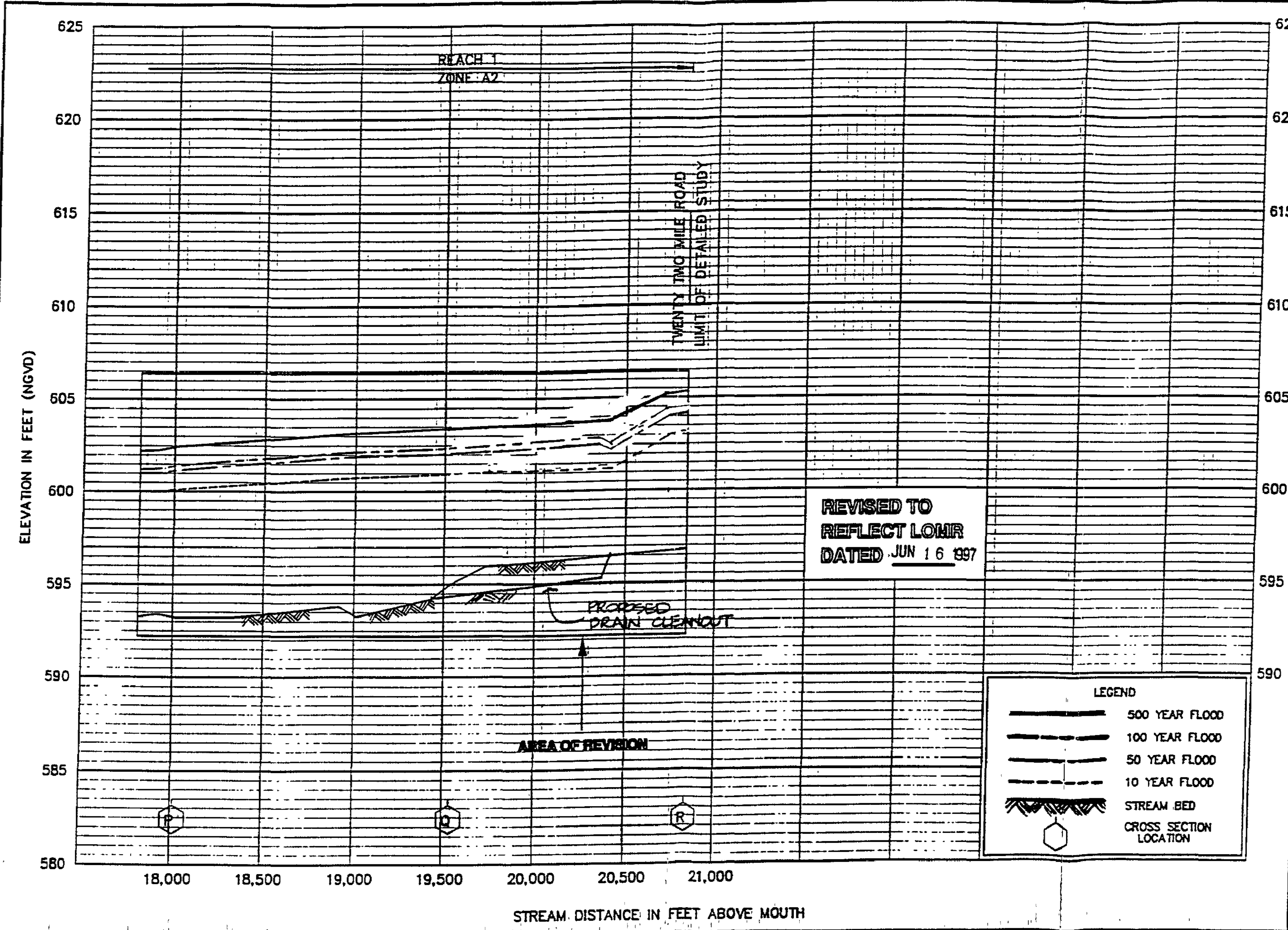
4) DOCUMENT TYPE: CLOMR - Figures

00BREAK00


NATIONAL FLOOD INSURANCE PROGRAM
FIRM
FLOOD INSURANCE RATE MAP
TOWNSHIP OF
MACOMB,
MICHIGAN
MACOMB COUNTY
PANEL 20 OF 20
REVISED TO
REFLECT LOMR
DATED JUN 16 1997
COMMUNITY-PANEL NUMBER
260445 0020 B
EFFECTIVE DATE:
FEBRUARY 4, 1981
federal emergency management agency
federal insurance administration
ZONE C
AREA REVISED BY
LOMR DATED
AUGUST 12, 1993
GARFIELD
RM24
601
ROAD
ZONE B
RM23
LIMIT OF
DETAILED STUDY
RM25
604
602
603
Gloede Ditch
ZONE A2
Dam
PRIVATE
DRIVE
599
TWENTY-TWO
MILE
ROAD
AREA OF
REVISION
QUAIL
COURT
WIDGEON
COURT
TILCH
600
Drain
Lewis
Dam
ZONE C
MAP LEGEND
Revised 100-Year Floodplain
Revised 500-Year Floodplain
WALDEN
TWENTY ONE
APPROXIMATE SCALE
800
0
800 FEET
CORPORATE LIMITS
HAYES
RM28

Exst. FIS MAP


FLOOD INSURANCE PROGRAM
FLOODWAY
FLOOD BOUNDARY AND FLOODWAY MAP
TOWNSHIP OF MACOMB, MICHIGAN
MACOMB COUNTY
PANEL 20 OF 20
(SEE MAP INDEX FOR PANELS NOT PRINTED)
REVISED TO REFLECT LOMR DATED JUN 16 1997
COMMUNITY-PANEL NUMBER 260445 0020 B
EFFECTIVE DATE: FEBRUARY 4, 1981
federal emergency management agency
federal insurance administration
AREA REVISED BY LOMR DATED AUGUST 12, 1993
MILE ROAD
GARFIELD
RM24
ROAD
RM25
Gloede Ditch
PRIVATE DRIVE
AREA OF REVISION
TWENTY-TWO
TILCH
ROAD
FLOODWAY
Lewis
Drain
Dam
FLOODWAY IN THIS AREA TOO NARROW TO SHOW TO SCALE REFER TO FLOODWAY DATA TABLE
WALDEN
ROAD
HAYES
CORPORATE LIMITS
RM28
APPROXIMATE SCALE
800 0 800 FEET
MAP LEGEND
Revised Floodway
Revised 100-Year Floodplain
Revised 500-Year Floodplain



FLOOD PROFILES

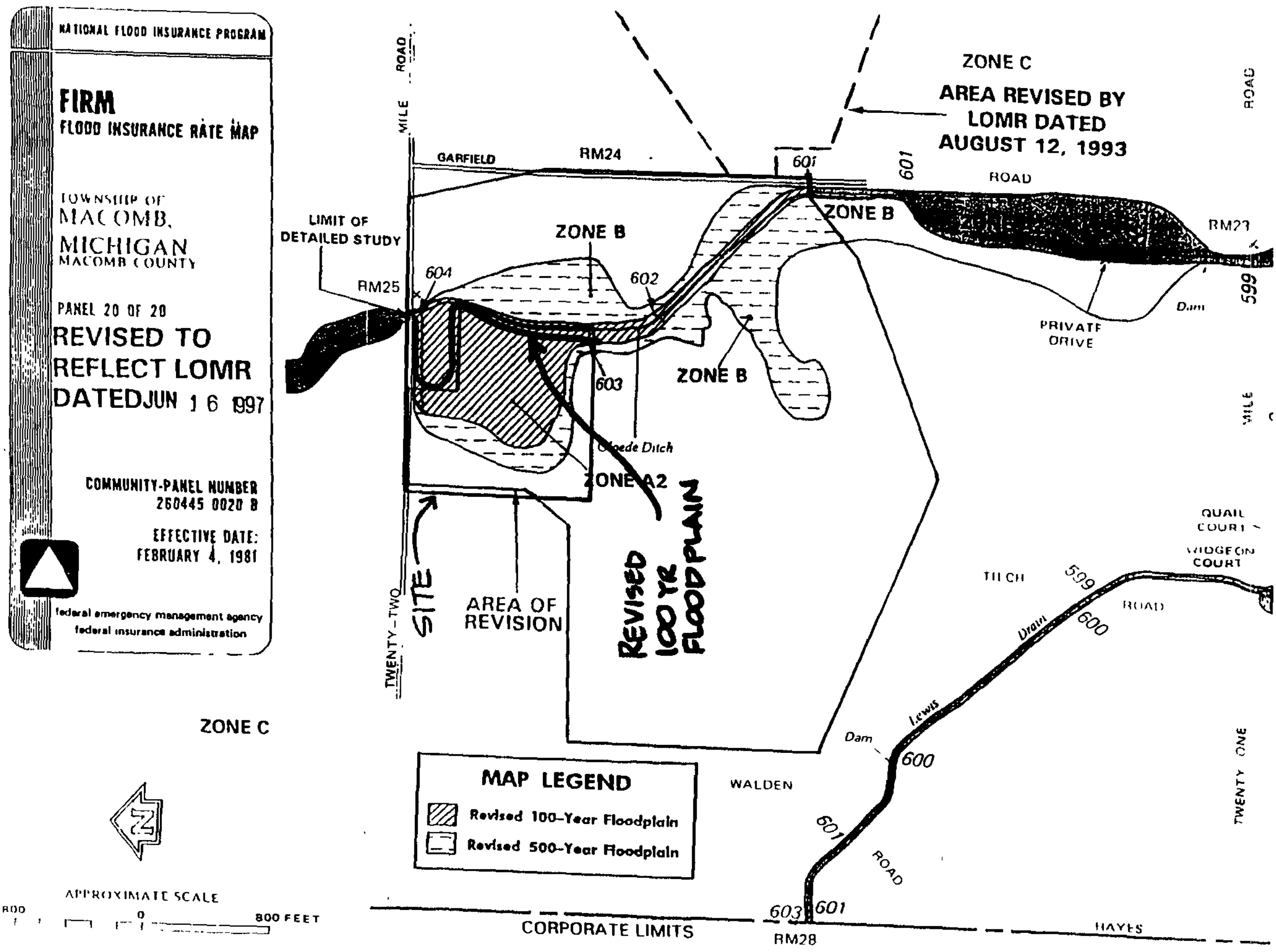
GLOEDE DITCH

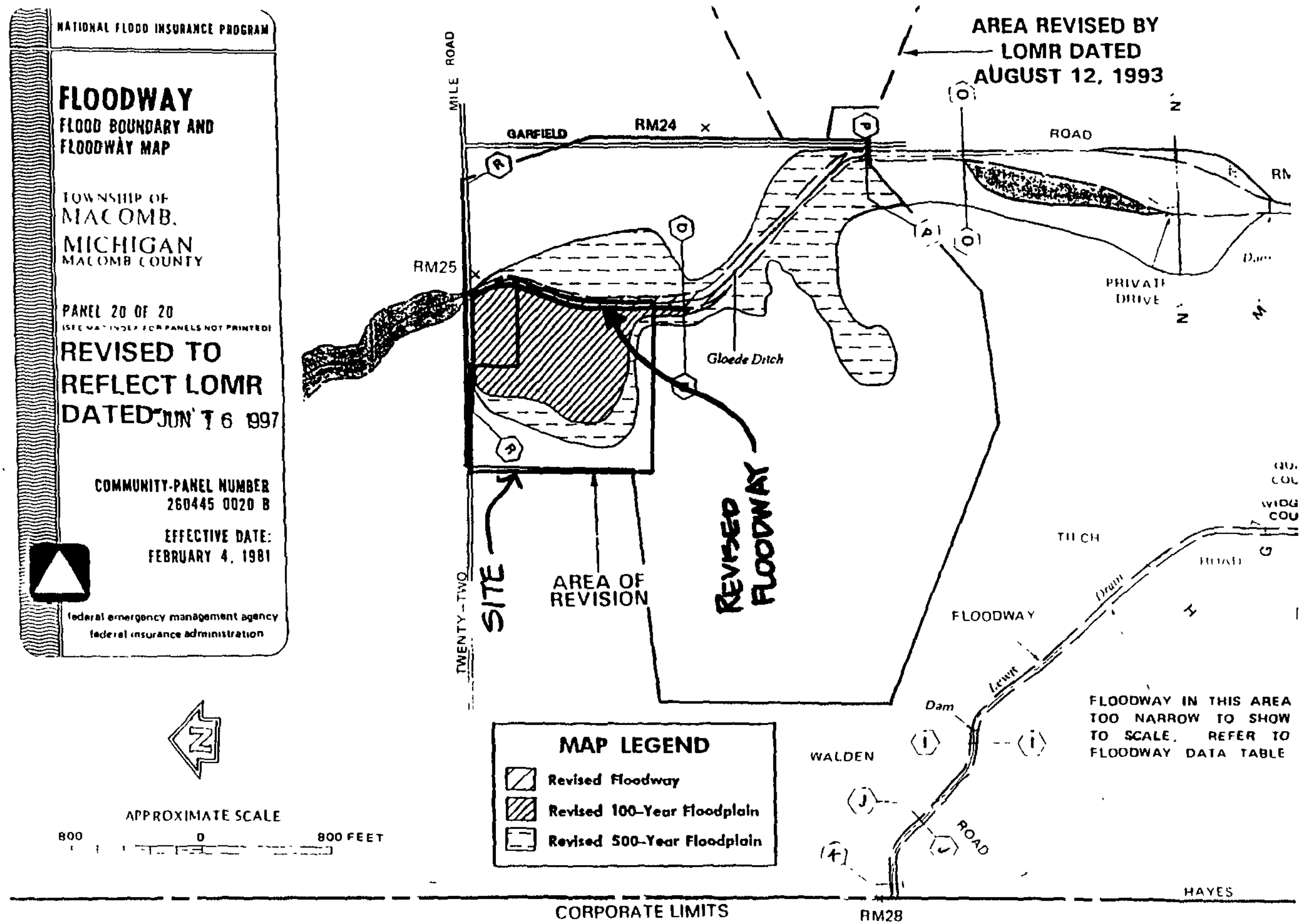
FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWNSHIP OF MACOMB, MI

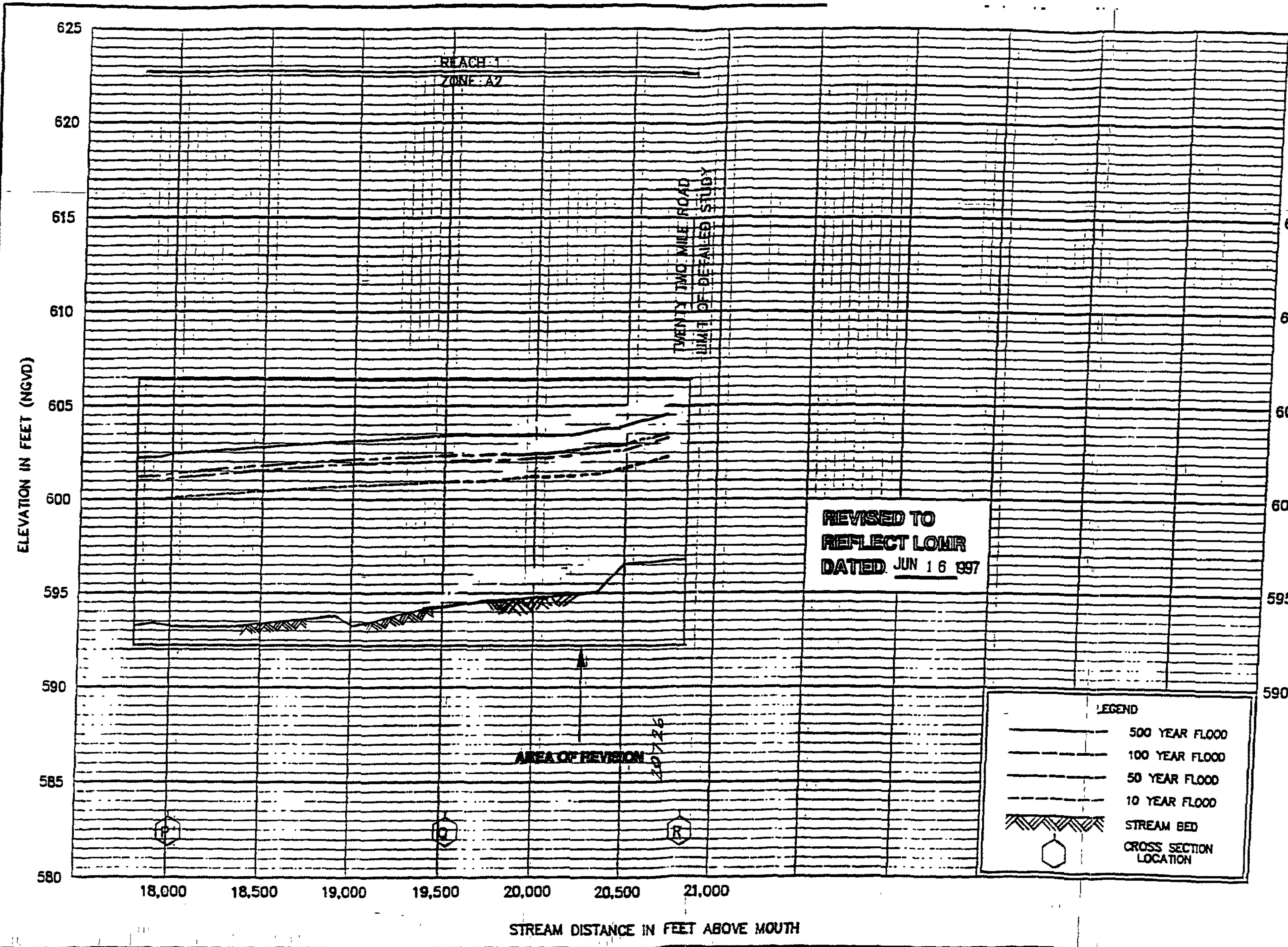
(MACOMB CO.)

10P


NATIONAL FLOOD INSURANCE PROGRAM
FIRM
FLOOD INSURANCE RATE MAP
TOWNSHIP OF
MACOMB,
MICHIGAN
MACOMB COUNTY
PANEL 20 OF 20
REVISED TO
REFLECT LOMR
DATEDJUN 1 6 1997
COMMUNITY-PANEL NUMBER
260445 0020 B
EFFECTIVE DATE:
FEBRUARY 4, 1981
federal emergency management agency
federal insurance administration
ZONE C
AREA REVISED BY
LOMR DATED
AUGUST 12, 1993
GARFIELD
RM24
601
ROAD
ZONE B
RM23
599
Dam
PRIVATE
DRIVE
LIMIT OF
DETAILED STUDY
ZONE B
604
602
RM25
603
ZONE B
Ciede Ditch
ZONE A2
REVISED
100 YR
FLOODPLAIN
SITE
AREA OF
REVISION
TWENTY_TWO
MILE
ROAD
QUAIL
COURT
WIDGEON
COURT
TITCH
599
ROAD
600
Drain
Lewis
Dam
600
WALDEN
601
ROAD
TWENTY ONE
MILE
MAP LEGEND
Revised 100-Year Floodplain
Revised 500-Year Floodplain
ZONE C
APPROXIMATE SCALE
800
0
800 FEET
CORPORATE LIMITS
603
601
RM28
HAYES



NATIONAL FLOOD INSURANCE PROGRAM
FLOODWAY
FLOOD BOUNDARY AND FLOODWAY MAP
TOWNSHIP OF MACOMB, MICHIGAN
MACOMB COUNTY
PANEL 20 OF 20
(SEE MAP INDEX FOR PANELS NOT PRINTED)
REVISED TO REFLECT LOMR DATED JUN 16 1997
COMMUNITY-PANEL NUMBER 260445 0020 B
EFFECTIVE DATE: FEBRUARY 4, 1981
federal emergency management agency
federal insurance administration
AREA REVISED BY LOMR DATED AUGUST 12, 1993
MILE ROAD
GARFIELD
RM24
ROAD
RM25
PRIVATE DRIVE
Gloede Ditch
SITE
AREA OF REVISION
REVISED FLOODWAY
TWENTY-TWO
FLOODWAY
TILCH ROAD
Dam
WALDEN
ROAD
FLOODWAY IN THIS AREA TOO NARROW TO SHOW TO SCALE. REFER TO FLOODWAY DATA TABLE
MAP LEGEND
Revised Floodway
Revised 100-Year Floodplain
Revised 500-Year Floodplain
APPROXIMATE SCALE
800 0 800 FEET
HAYES
CORPORATE LIMITS
RM28



FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWNSHIP OF MACOMB, MI
(MACOMB CO.)

FLOOD PROFILES

GLOEDE DITCH

10P

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***********************************************************
 HEC2 RELEASE DATED NOV 76 UPDATED -AUG1977
 ERROR CORR -  01,02
 MODIFICATION -  50,51,52,53
***********************************************************

C
T1           MACOMB TWP. FIS J&A FILE NO. 5850-03
T2           100 YEAR FLOOD
T3           GLOEDE DITCH

J1  ICHECK    INQ      NINV     IDIR     STRT      METRIC    HVINS    Q      WSEL      FQ
        0.       4.       0.       0.  0.000000     0.00      0.0      0.  594.740     0.000

J2  NPROF     IPLOT    PRFVS    XSECV    XSECH     FN        ALLDC    IBW    CHNIM     ITRACE
                       -1.000    0.000    0.000    0.000     0.000    0.000   0.000     0.000

NC     .035               .030      .300      .500     0.000     0.000     0.000     0.000     0.000
QT    4.00    85.       1250.000  1370.000  1935.000   0.000     0.000     0.000     0.000     0.000

X1   35.000     23.0     440.000   517.000    0.000     0.000     0.000      .520     0.000     0.000
GR  600.900              600.900    40.000  601.000   140.000   601.100   240.000   601.100   340.000
GR                       596.200   440.000  586.700   463.000   586.300   463.600   586.300   466.400
GR                       597.100   493.000  589.500   487.000   588.400   490.000   589.400   493.400
GR  595.30               601.100   517.000  601.200   540.000   601.300   640.000   601.400   740.000
GR  601.40               601.500   940.000  601.500   980.000     0.000     0.000     0.000     0.000
NC     .040                 .020     0.000    0.000     0.000     0.000     0.000     0.000     0.000

X1 7787.000   29.000     440.000   517.000    1.000     1.000     1.000      .520     0.000     0.000
X2    0.000    0.000       0.000     0.000    0.000     0.000     0.000     0.000      .520     0.000
BT   15.000    0.000     600.900     0.000   40.000   600.900     0.000   140.000   601.000     0.000
BT  240.000  601.100       0.000   340.000  601.100     0.000   440.000   601.000   599.800   440.000
BT  601.600  598.500     517.000   601.600  598.300   517.000   601.100   599.800   540.000   601.200
BT    0.000  640.000     601.300     0.000  740.000   601.400     0.000   840.000   601.400     0.000
BT  940.000  601.500       0.000   980.000  601.500     0.000     0.000     0.000     0.000     0.000
GR  600.900    0.000     600.900    40.000  601.000   140.000   601.100   240.000   601.100   340.000
GR  601.000  440.000     601.600   440.000  596.200   440.000   586.700   463.000   586.300   463.600
GR  598.500  463.600     598.800   466.400  586.300   466.400   585.000   475.000   587.100   483.000
GR  588.500  487.000     598.400   490.600  598.800   490.600   598.800   493.400   588.400   493.400
GR  596.300  517.000     601.600   517.000  601.100   517.000   601.200   540.000   601.300   640.000
GR  601.400  740.000     601.400   840.000  601.500   940.000   601.500   980.000     0.000     0.000

             BRIDGE SECTION NO.1 HALL ROAD (M-59)  (J&A)     SECT. A

X1 7860.000    0.000       0.000     0.000   73.000    73.000    73.000     0.000     0.000     0.000
X2    0.000    0.000       0.000     0.000    0.000     0.000     1.000     0.000     0.000     0.000
NC     .050     .050        .040     0.000    0.000     0.000     0.000     0.000     0.000     0.000
```

Run from Clinton to Hall Rd: get this elev. see [illegible]

X1	15354.000	0.000	0.000	0.000	22.000	22.000	22.000	0.000	-.700	0.000
X1	15778.000	9.000	267.000	332.000	424.000	424.000	424.000	0.000	-.240	0.000
GR	600.900	0.000	600.900	100.000	600.900	267.000	592.500	292.000	592.200	307.000
GR	600.900	332.000	600.900	400.000	600.900	500.000	601.100	600.000	0.000	0.000
X1	15946.000	14.000	261.000	327.000	168.000	168.000	168.000	0.000	-.240	0.000
GR	600.300	0.000	600.100	100.000	600.100	200.000	600.300	284.000	598.300	284.000
GR	596.600	299.000	592.600	296.000	592.600	311.000	596.600	319.000	599.800	323.000
GR	500.600	327.000	600.600	400.000	600.500	500.000	601.200	600.000	0.000	0.000
NC	.035	.035	.030	0.000	0.300	0.000	0.000	0.000	0.000	0.000
X1	15947.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
S3	0.000	1.550	2.980	0.000	25.540	0.000	160.200	0.000	592.360	592.360

BRIDGE SECTION 34+02 PRIVATE BRIDGE (AE&W) SECT. AD

X1	15957.000	0.000	0.000	0.000	10.000	10.000	10.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	598.560	599.860	0.000	0.000	0.000	0.000	0.000
BT	10.000	0.000	600.060	0.000	100.000	599.860	0.000	200.000	599.860	0.000
BT	284.000	600.060	0.000	284.000	600.160	598.060	323.000	600.260	598.560	323.000
BT	600.360	0.000	400.000	600.360	0.000	500.000	600.560	0.000	600.000	600.960
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.055	.060	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	15958.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000

VALLEY SECTION 42+87 (AE&W) SECT. AE

X1	16752.000	7.000	0.000	67.000	794.000	794.000	794.000	0.000	-.240	0.000
X3	0.000	0.000	0.000	0.000	0.000	225.000	0.000	0.000	0.000	0.000
GR	601.200	0.000	593.000	26.000	593.000	41.000	600.900	67.000	600.900	122.000
GR	600.900	322.000	601.100	422.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION 48+56 (AE&W) SECT. AF

X1	17401.000	7.000	0.000	69.000	649.000	649.000	649.000	0.000	-.240	0.000
GR	601.500	0.000	593.300	28.000	593.300	43.000	602.100	69.000	601.900	138.000
GR	602.200	235.000	602.000	338.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION 52+46 (AE&W) SECT. AG

X1	17511.000	7.000	0.000	78.000	410.000	410.000	410.000	0.000	-.240	0.000
GR	601.800	0.000	593.580	38.000	593.500	43.000	604.700	78.000	602.000	130.000
GR	602.100	230.000	602.200	330.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.060	.060	.046	0.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION 53+66 (AE&W) SECT. AH

X1	17911.000	10.000	283.000	333.000	100.000	100.000	100.000	0.000	-.240	0.000
GR	602.200	0.000	602.400	100.000	602.000	217.000	603.400	283.000	595.900	300.000
GR	595.900	314.000	604.700	333.000	603.000	400.000	602.100	500.000	602.200	600.000

VALLEY SECTION 54+66 (AE&W) SECT. AI

VALLEY SECTION 56+66 (AE&W) SECT. AI

X1	18011.000	10.000	253.000	333.000	100.000	100.000	100.000	0.000	-.240	0.000
GR	602.200	0.000	602.600	100.000	602.000	217.000	602.400	283.000	595.900	300.000
GR	595.900	314.000	602.600	333.000	602.000	400.000	602.100	500.000	602.200	600.000

VALLEY SECTION 57+66 (AE&W) SECT.AJ

X1	18311.000	10.000	263.000	333.000	350.000	250.000	300.000	0.000	-.240	0.000
GR	602.200	0.000	602.600	100.000	602.000	217.000	603.300	283.000	595.900	300.000
GR	595.900	316.000	603.300	333.000	602.000	400.000	602.100	500.000	602.200	600.000

VALLEY SECTION NO. 2 (JBA) 69+91 SECT.AK

X1	19536.000	17.000	500.000	542.000	1050.000	1350.000	1225.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	174.000	0.000	569.000	0.000	0.000	0.000	0.000
GR	603.600	0.000	603.200	100.000	603.400	200.000	603.500	300.000	603.600	400.000
GR	604.700	500.000	596.700	515.000	595.800	520.000	595.900	523.000	596.600	527.000
GR	597.100	530.000	604.400	542.000	604.400	600.000	604.100	700.000	602.900	800.000
GR	603.000	900.000	603.000	1000.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION NO. 1 (JBA) 82+91 SECT.AL

X1	20836.000	17.000	500.000	532.000	1300.000	1300.000	1300.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	496.000	0.000	530.000	0.000	0.000	0.000	0.000
GR	603.300	0.000	604.300	100.000	604.300	200.000	604.500	300.000	604.600	400.000
GR	604.700	500.000	598.100	508.000	597.000	511.000	596.600	516.000	596.500	520.000
GR	597.900	524.000	604.400	532.000	604.600	600.000	603.400	700.000	604.800	800.000
GR	604.600	900.000	605.200	1000.000	0.000	0.000	0.000	0.000	0.000	0.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
15947.000	1.00	0.00	0.00	592.36	465.00	599.13	0.00	599.22	23.99	2.40	193.60	94.94
15947.000	1.00	0.00	0.00	592.36	690.00	599.85	0.00	600.02	34.55	3.05	227.80	117.38
~~15947.000~~	~~1.00~~	~~0.00~~	~~0.00~~	~~592.36~~	~~755.00~~	~~600.13~~	~~0.00~~	~~600.26~~	~~31.61~~	~~2.98~~	~~294.38~~	~~134.20~~
15947.000	1.00	0.00	0.00	592.36	1070.00	601.39	0.00	501.42	4.04	1.31	941.10	496.72
~~15957.000~~	~~10.00~~	~~599.96~~	~~598.56~~	~~592.36~~	~~465.00~~	~~594.25~~	~~0.00~~	~~599.34~~	~~22.37~~	~~2.34~~	~~196.56~~	~~95.32~~
15957.000	10.00	599.86	598.56	592.36	650.00	600.07	0.00	600.19	28.79	2.83	275.33	128.60
15957.000	10.00	599.96	598.56	592.36	755.00	500.27	0.00	600.37	24.84	2.68	341.22	151.50
~~15957.000~~	~~10.00~~	~~599.86~~	~~598.56~~	~~592.36~~	~~1070.00~~	~~601.43~~	~~0.00~~	~~601.45~~	~~4.34~~	~~1.27~~	~~862.25~~	~~513.62~~
15958.000	1.00	0.00	0.00	592.35	465.00	599.25	0.00	599.34	5.04	2.34	198.67	207.13
~~15958.000~~	~~1.00~~	~~0.00~~	~~0.00~~	~~592.36~~	~~690.00~~	~~600.07~~	~~0.00~~	~~600.20~~	~~6.46~~	~~2.93~~	~~276.29~~	~~263.63~~
15958.000	1.00	0.00	0.00	592.36	755.00	600.26	0.00	600.39	6.92	2.97	338.94	286.95
15958.000	1.00	0.00	0.00	592.36	1070.00	601.41	0.00	501.47	3.48	2.40	950.39	573.35
16752.000	794.00	0.00	0.00	592.76	465.00	599.61	0.00	599.67	3.28	1.83	254.50	255.95
16752.000	794.00	0.00	0.00	592.76	690.00	600.55	0.00	600.53	4.12	2.20	313.24	340.06
~~16752.000~~	~~794.00~~	~~0.00~~	~~0.00~~	~~592.76~~	~~755.00~~	~~600.75~~	~~0.00~~	~~600.83~~	4.36	2.31	360.25	360.73
16752.000	794.00	0.00	0.00	592.76	1070.00	~~601.70~~	0.00	601.79	4.24	2.53	553.91	519.39
~~17401.000~~	~~649.00~~	~~0.00~~	~~0.00~~	~~593.06~~	~~465.00~~	~~599.83~~	~~0.00~~	~~599.40~~	~~3.50~~	~~1.48~~	~~247.06~~	~~248.04~~
17401.000	649.00	0.00	0.00	593.06	690.00	600.92	0.00	600.90	4.26	2.24	308.30	334.12
17401.000	649.00	0.00	0.00	593.06	755.00	601.04	0.00	601.12	4.53	2.36	322.35	354.81
~~17401.000~~	~~649.00~~	~~0.00~~	~~0.00~~	~~593.06~~	~~1070.00~~	~~601.99~~	~~0.00~~	~~602.33~~	~~5.25~~	~~2.76~~	~~434.85~~	~~462.04~~
17811.000	410.00	0.00	0.00	593.26	465.00	599.95	0.00	500.03	3.53	1.57	249.46	247.66
~~17811.000~~	~~410.00~~	~~0.00~~	~~0.00~~	~~593.26~~	~~690.00~~	~~601.00~~	~~0.00~~	~~601.07~~	~~4.19~~	~~2.21~~	~~332.26~~	~~337.30~~
17811.000	410.00	0.00	0.00	593.26	755.00	601.22	0.00	601.51	4.42	2.31	327.30	359.19
17811.000	410.00	0.00	0.00	593.26	1070.00	602.21	0.00	602.32	4.55	2.65	465.14	481.10
17911.000	100.00	0.00	0.00	595.66	465.00	599.92	0.00	600.26	45.38	4.65	99.91	68.28
17911.000	100.00	0.00	0.00	595.66	690.00	600.93	0.00	601.34	44.29	5.10	135.33	103.69
~~17911.000~~	~~100.00~~	~~0.00~~	~~0.00~~	~~595.66~~	~~755.00~~	~~601.15~~	~~0.00~~	~~601.58~~	~~44.96~~	~~5.25~~	~~143.23~~	~~112.60~~
17911.000	100.00	0.00	0.00	595.66	1020.00	602.16	600.09	602.59	40.71	5.47	252.16	167.71
~~18011.000~~	~~100.00~~	~~0.00~~	~~0.00~~	~~595.66~~	~~465.00~~	~~600.43~~	~~0.00~~	~~600.63~~	~~24.96~~	~~3.58~~	~~130.01~~	~~93.07~~
18011.000	100.00	0.00	0.00	595.66	690.00	601.46	0.00	601.71	24.56	3.95	174.65	139.16
18011.000	100.00	0.00	0.00	595.66	755.00	601.71	0.00	501.96	24.04	4.06	155.92	151.50
~~18011.000~~	~~100.00~~	~~0.00~~	~~0.00~~	~~595.66~~	~~1070.00~~	~~602.78~~	~~0.00~~	~~632.88~~	~~10.84~~	3.07	200.22	324.24
18311.000	300.00	0.00	0.00	595.66	465.00	601.09	0.00	601.25	16.46	3.14	147.90	114.55
~~18311.000~~	~~300.00~~	~~0.00~~	~~0.00~~	~~595.66~~	~~690.00~~	~~602.44~~	~~0.00~~	~~602.33~~	~~16.74~~	~~3.40~~	~~229.64~~	~~168.28~~
18311.000	300.00	0.00	0.00	595.66	755.00	602.60	0.00	502.57	15.84	3.47	277.10	189.72
18311.000	300.00	0.00	0.00	595.66	1070.00	603.13	0.00	603.30	15.08	3.60	451.58	275.55
19536.000	1225.00	0.00	0.00	595.80	465.00	602.93	0.00	602.97	12.06	3.01	154.45	133.89
19536.000	1225.00	0.00	0.00	595.80	690.00	603.85	0.00	603.98	10.86	3.08	376.02	209.35
~~19536.000~~	~~1225.00~~	~~0.00~~	~~0.00~~	~~595.80~~	~~755.00~~	~~604.02~~	~~0.00~~	~~604.14~~	~~10.33~~	~~3.04~~	~~452.53~~	~~234.06~~
19536.000	1225.00	0.00	0.00	595.80	1070.00	604.60	0.00	604.58	9.63	2.89	781.60	364.18
~~20836.000~~	~~1300.00~~	~~0.00~~	~~0.00~~	~~596.80~~	~~465.00~~ 12	~~604.26~~	~~0.00~~	~~604.39~~	~~9.97~~	~~2.90~~	~~160.16~~	~~147.24~~
20836.000	1300.00	0.00	0.00	596.80	690.00 50	605.32	0.00	605.51	12.29	3.55	200.30	196.90
20836.000	1300.00	0.00	0.00	596.80	755.00 100	605.49	0.00	605.71	13.31	3.76	208.10	206.95
~~20836.000~~	~~1300.00~~	~~0.00~~	~~0.00~~	~~596.80~~	~~1070.00~~	~~606.08~~	~~0.00~~	~~606.44~~	~~10.36~~	~~4.82~~	~~234.32~~	~~343.10~~

STATE OF MICHIGAN

JOHN ENGLER Governor

DEPARTMENT OF ENVIRONMENTAL QUALITY

HOLLISTER BUILDING PO BOX 30473 LANSING MI 48909-7973

RUSSELL J. HARDING Director

REPLY TO:

LAND & WATER MANAGEMENT DIVISION
PO BOX 30458
LANSING MI 48909-7958

May 31, 1996

Ms. Jennifer L. Chehab
Anderson, Eckstein and Westrick, Inc.
42800 Garfield Road
Mt. Clemens, Michigan 48043

Dear Ms. Chehab:

We have estimated the flood frequency discharges requested in your letter dated May 9, 1996, (Process No. H-96074), as follows.

1. Gloede Ditch at 21 Mile Road, Section 30, T3N, R13E, Macomb Township, Macomb County, has a drainage area of 7.3 square miles. The 10%, 2%, 1% and 0.2% chance peak flows are estimated to be 465 cfs, 690 cfs, 755 cfs and 1070 cfs, respectively.

2. Gloede Ditch at 22 Mile Road, Section 30, T3N, R13E, Macomb Township, Macomb County, has a drainage area of 6.6 square miles. The 10%, 2%, 1% and 0.2% chance peak flows are estimated to be 445 cfs, 655 cfs, 720 cfs and 1015 cfs, respectively.

Please include a copy of this letter with your application for permit. These estimates should be confirmed by our office if an application is not submitted within one year. If you have any questions concerning the discharge estimates, please do not hesitate to contact me. Any questions concerning the hydraulics or the proper procedure for filing for a permit should be directed to Mr. Ashok Punjabi at telephone number 313-953-0241.

Sincerely,

Gerald W. Fulcher, Jr., P.E., Chief
Hydrologic Studies Unit
Land and Water Management Division
517-335-3172

GWF:DJ/cg

cc: Mr. Ashok Punjabi, (T-31-NW and T-30-NE), DEQ

EQP 0100e
(10/95)

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (NGVD)	WITHOUT FLOODWAY (NGVD)	WITH FLOODWAY (NGVD)	INCREASE (FEET)
GLOEDE DITCH								
A	7825	37	187	7.3	596.0	595.0	595.0	0.0
B	8050	111	558	2.4	596.2	596.2	596.2	0.0
C	8215	34	310	4.3	596.2	596.2	596.2	0.0
D	8885	235	834	1.6	596.9	596.9	596.9	0.0
E	9155	423	1673	0.8	597.2	597.2	597.2	0.0
F	9625	263	759	1.8	597.4	597.4	597.4	0.0
G	9965	464	1277	1.1	597.5	597.5	597.5	0.0
H	11,445	170	649	1.2	597.9	597.9	597.9	0.0
I	12,545	173	605	1.3	598.0	598.0	598.0	0.0
J	13,453	153	540	1.4	598.1	598.1	598.1	0.0
K	13,653	105	412	1.9	598.2	598.2	598.2	0.0
L	14,328	157	478	1.6	598.5	598.5	598.5	0.0
M	15,097	58	262	2.9	599.1	599.1	599.1	0.0
N	15,957	327	342	2.2	600.3	600.3	600.3	0.0
O	17,401	66	322	2.3	601.0	601.0	601.0	0.0
P	18,011	47	244	3.1	601.4	601.4	601.4	0.0
Q	19,536	90	325	2.3	602.3	602.3	602.3	0.0
R	20,836	31	168	4.5	604.4	604.4	604.5	0.1

AREA OF REVISION

[1] FEET ABOVE MOUTH

REVISED TO REFLECT LOMR DATED JUN 1 6 1997

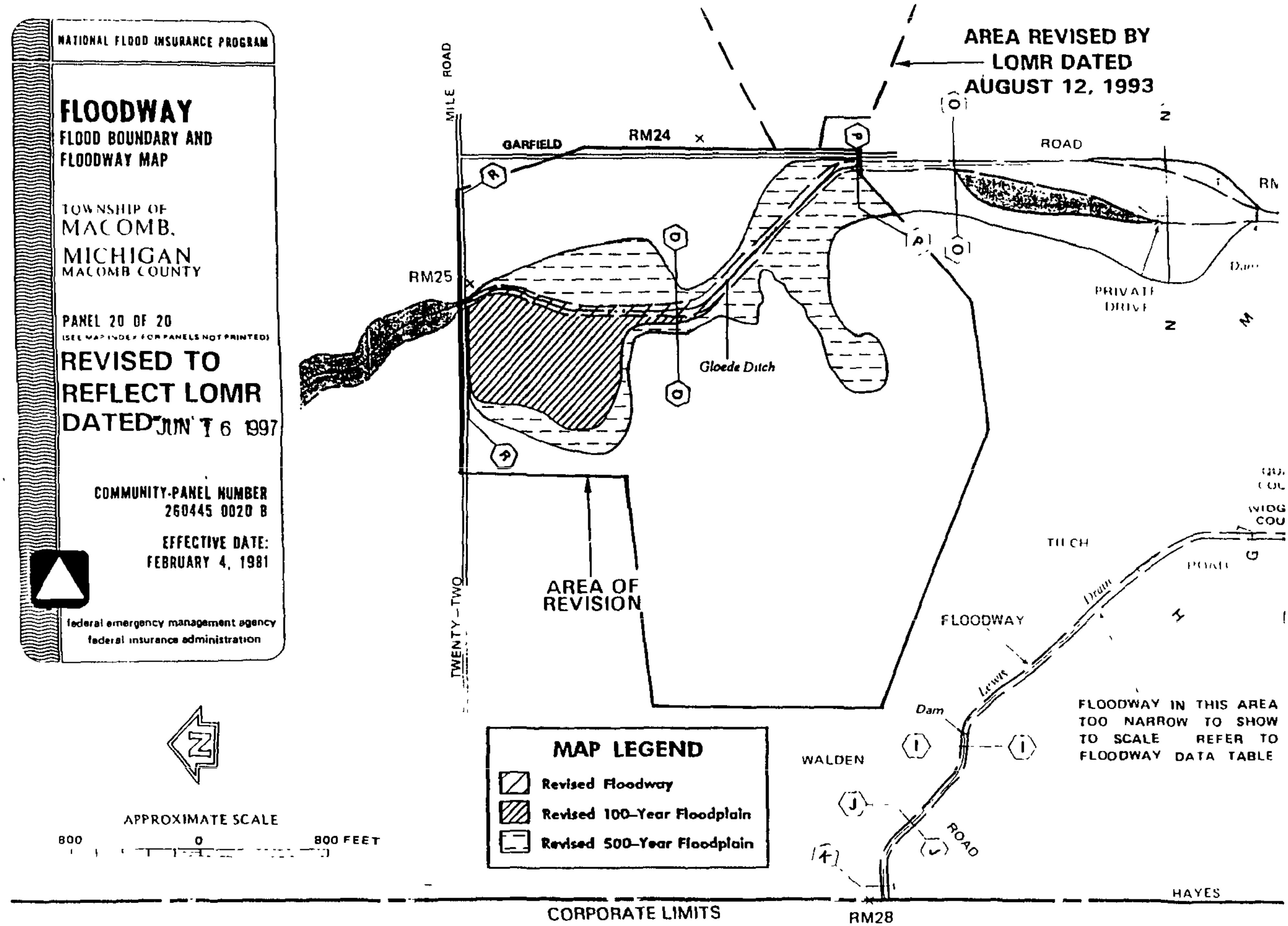
TABLE 2

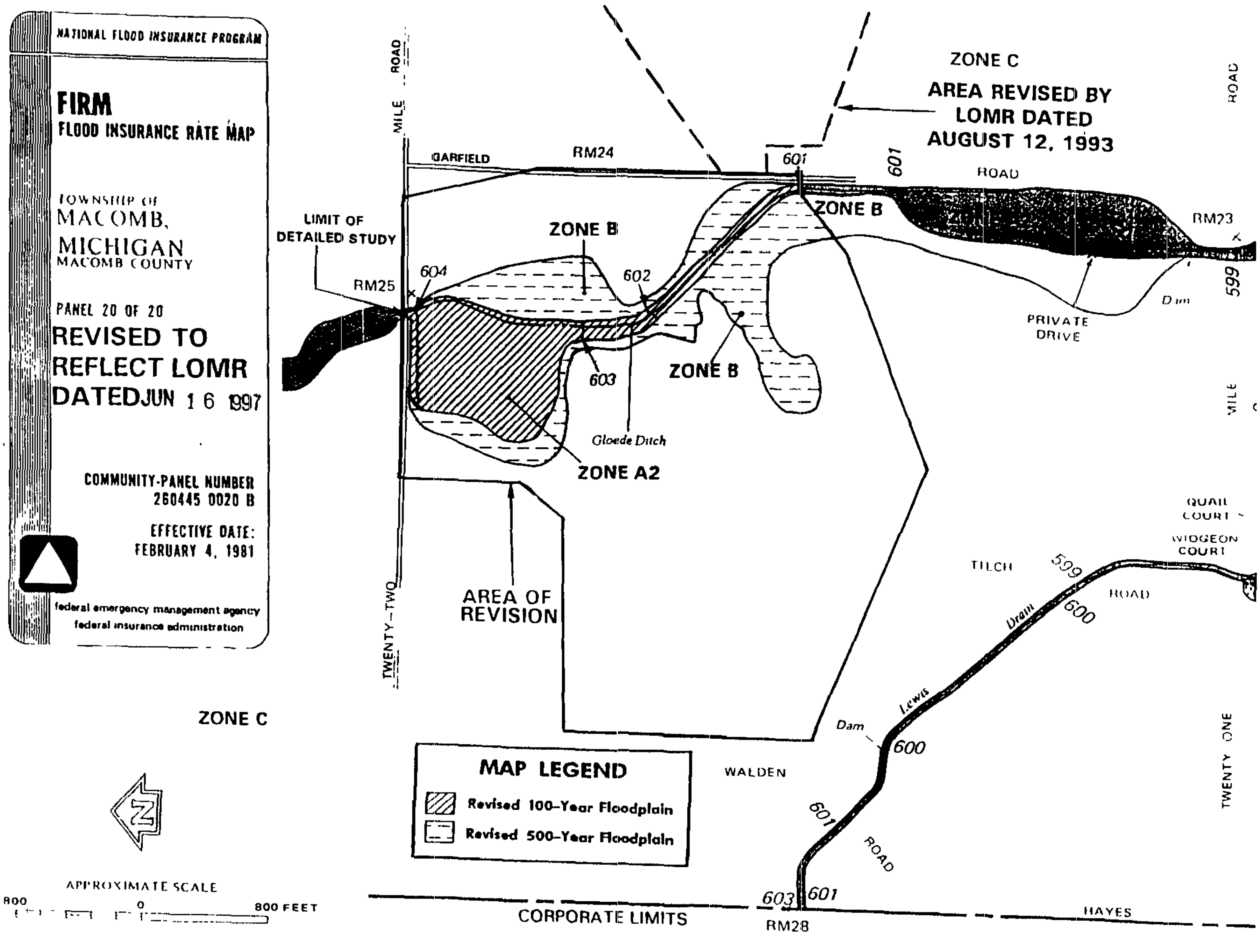
FEDERAL EMERGENCY MANAGEMENT AGENCY
Federal Insurance Administration

TOWNSHIP OF MACOMB, MI
(MACOMB CO.)

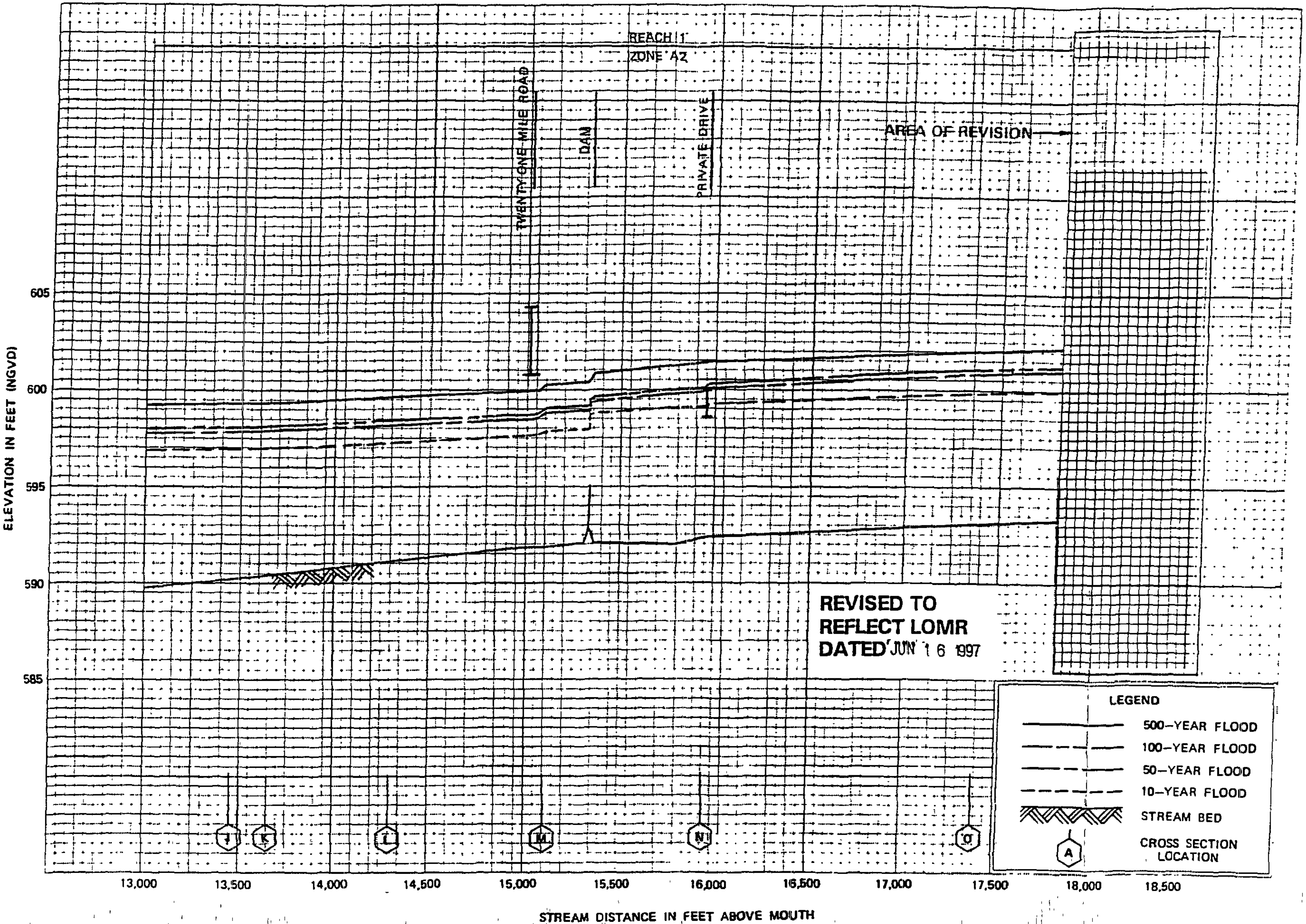
FLOODWAY DATA

GLOEDE DITCH


NATIONAL FLOOD INSURANCE PROGRAM
FLOODWAY
FLOOD BOUNDARY AND
FLOODWAY MAP
TOWNSHIP OF
MACOMB,
MICHIGAN
MACOMB COUNTY
PANEL 20 OF 20
(SEE MAP INDEX FOR PANELS NOT PRINTED)
REVISED TO
REFLECT LOMR
DATED JUN 16 1997
COMMUNITY-PANEL NUMBER
260445 0020 B
EFFECTIVE DATE:
FEBRUARY 4, 1981
federal emergency management agency
federal insurance administration
AREA REVISED BY
LOMR DATED
AUGUST 12, 1993
GARFIELD
RM24
ROAD
RM25
TWENTY-TWO MILE ROAD
Gloede Ditch
PRIVATE
DRIVE
AREA OF
REVISION
FLOODWAY
Lewis Drain
Dam
WALDEN
ROAD
FLOODWAY IN THIS AREA
TOO NARROW TO SHOW
TO SCALE REFER TO
FLOODWAY DATA TABLE
HAYES
CORPORATE LIMITS
RM28
MAP LEGEND
Revised Floodway
Revised 100-Year Floodplain
Revised 500-Year Floodplain
APPROXIMATE SCALE
800 0 800 FEET



NATIONAL FLOOD INSURANCE PROGRAM
FIRM
FLOOD INSURANCE RATE MAP
TOWNSHIP OF
MACOMB,
MICHIGAN
MACOMB COUNTY
PANEL 20 OF 20
REVISED TO
REFLECT LOMR
DATED JUN 16 1997
COMMUNITY-PANEL NUMBER
260445 0020 B
EFFECTIVE DATE:
FEBRUARY 4, 1981
federal emergency management agency
federal insurance administration
ZONE C
AREA REVISED BY
LOMR DATED
AUGUST 12, 1993
GARFIELD
RM24
601
ROAD
ZONE B
RM23
LIMIT OF
DETAILED STUDY
ZONE B
RM25
604
602
599
Dam
PRIVATE
DRIVE
603
ZONE B
Gloede Ditch
ZONE A2
MILE ROAD
TWENTY-TWO
AREA OF
REVISION
QUAIL
COURT
WIDGEON
COURT
TILCH
599
ROAD
600
Drain
Lewis
Dam
600
ZONE C
MAP LEGEND
Revised 100-Year Floodplain
Revised 500-Year Floodplain
WALDEN
601
ROAD
TWENTY ONE
MILE
APPROXIMATE SCALE
800 0 800 FEET
603
601
CORPORATE LIMITS
RM28
HAYES



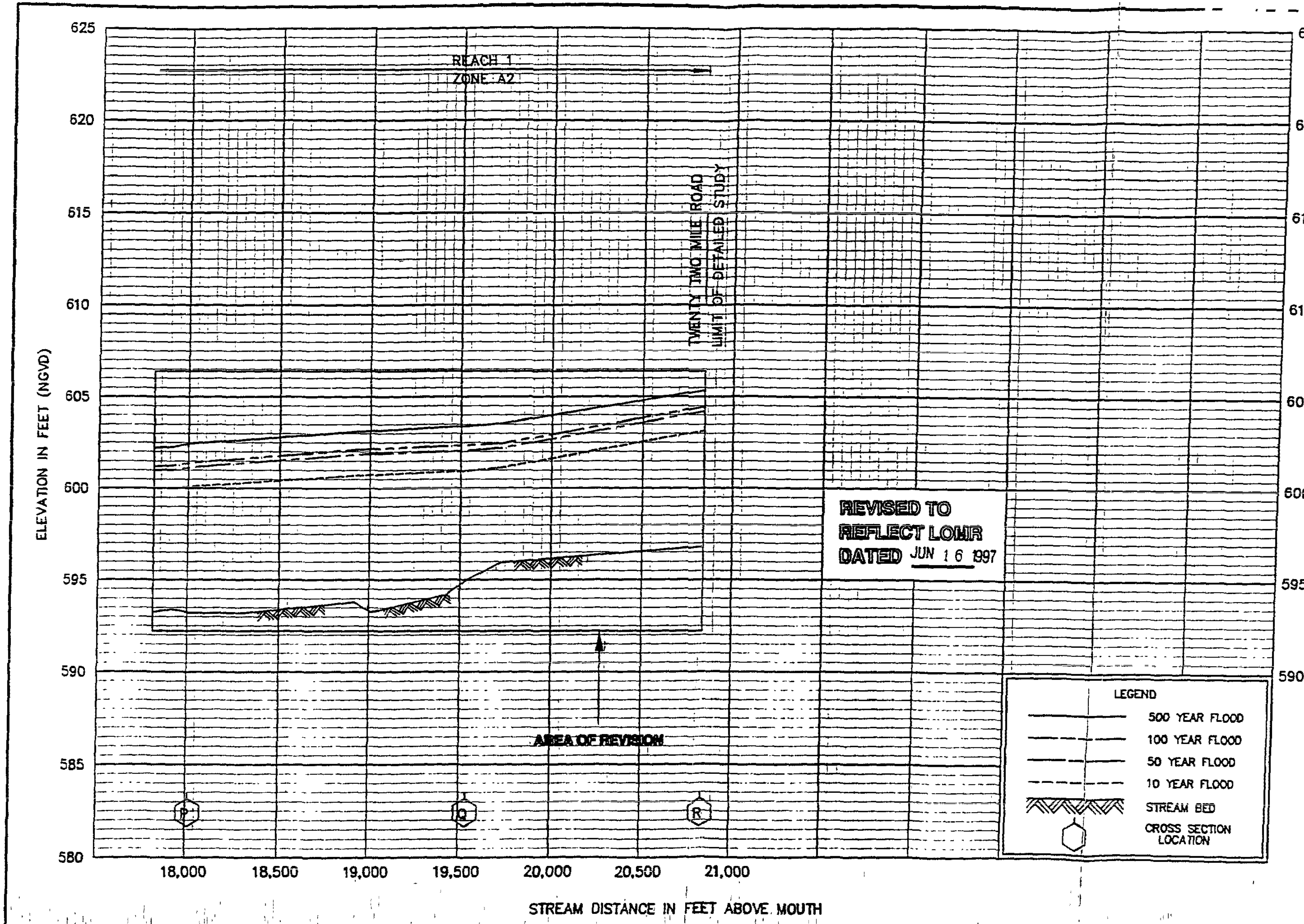
FLOOD PROFILES

GLOEDE DITCH

FEDERAL EMERGENCY MANAGEMENT AGENCY
Federal Insurance Administration

TOWNSHIP OF MACOMB, MI
(MACOMB CO.)

09P



FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWNSHIP OF MACOMB, MI

(MACOMB CO.)

FLOOD PROFILES

GLOEDE DITCH

10P

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Macomb Twp

3) WATERCOURSE: Gloede Ditch

4) DOCUMENT TYPE: Clomr- Forms

00BREAK00

FEDERAL EMERGENCY MANAGEMENT AGENCY

Mitigation Directorate
Hazard Identification and Risk Assessment Division

REVISIONS TO NATIONAL FLOOD INSURANCE PROGRAM MAPS

Application/Certification Forms and Instructions

for

Conditional Letters of Map Revision, Letters of Map Revision, and Physical Map Revisions

MT-2 FEMA FORM 81-89 SERIES, OCT 94 (SUPERSEDES RSD-1, JUL 93)

INSTRUCTIONS FOR COMPLETING THE APPLICATION/CERTIFICATION FORMS FOR CONDITIONAL LETTERS OF MAP REVISION, LETTERS OF MAP REVISION, AND PHYSICAL MAP REVISIONS

GENERAL

In 1968, the U.S. Congress passed the National Flood Insurance Act, which created the Natic .l Flood Insurance Program (NFIP). The NFIP was designed to reduce future flood losses through lc .l floodplain management and to provide protection for property owners against potenti. osses through flood insurance.

As part of the agreement for making flood insurance available in a community, the NFIP requires the participating community to adopt floodplain management ordinances containing certain minimum requirements intended to reduce future flood losses. The community is also responsible for submitting data to the Federal Emergency Management Agency (FEMA) reflecting revised flood hazard information so that NFIP maps can be revised as appropriate. This will allow risk premium rates and floodplain management requirements to be based on current data.

Submissions to FEMA for revisions to effective Flood Insurance Studies (FISs) by individual and community requestors will require the signing of application/certification forms. These forms will provide FEMA with assurance that all pertinent data relating to the revision is included in the submittal. They will also assure that: (a) the data and methodology are based on current conditions; (b) qualified professionals have assembled data and performed all necessary computations; and (c) all individuals and organizations impacted by proposed changes are aware of the changes and will have an opportunity to comment on them. The circumstances for which this package is applicable are as follows:

Conditional Letter of Map Revision (CLOMR)	A letter from FEMA commenting on whether a proposed project, if built as proposed, would justify a map revision (LOMR or PMR), or proposed hydrology changes (see 44 CFR Ch. I, Parts 60, 65, and 72).
Letter of Map Revision (LOMR)	A letter from FEMA officially revising the current NFIP map to show changes to floodplains, floodways, or flood elevations. LOMRs typically depict decreased flood hazards. (See 44 CFR Ch. I, Parts 60 and 65.)
Physical Map Revision (PMR)	A reprinted NFIP map incorporating changes to floodplains, floodways, or flood elevations. Because of the time and cost involved to change, reprint, and redistribute an NFIP map, a PMR is usually processed when a revision reflects increased flood hazards or large-scope changes. (See 44 CFR Ch. I, Parts 60 and 65.)

It should be noted that FEMA may decide to defer a revision until a future date. Please note that for the following circumstances, this package is not applicable. Instead, the package entitled Amendments and Revisions to National Flood Insurance Program Maps, Application/Certification Forms and Instructions for Conditional Letters of Map Amendment, Letters of Map Amendment, Conditional Letters of Map Revision (Based on Fill), and Letters of Map Revision (Based on Fill) is appropriate.

Letter of Map Amendment (LOMA)	A letter from FEMA removing an existing structure or a legally defined parcel of land unaltered by fill from an SFHA (see 44 CFR Ch. I, Part 70).
Conditional Letter of Map Amendment (CLOMA)	A letter from FEMA conditionally removing a proposed structure or a legally defined parcel of land unaltered by fill from an SFHA (see 44 CFR Ch. I, Parts 70 and 72).
Letter of Map Revision Based on Fill (LOMR-BOF)	A letter from FEMA removing an existing structure or a legally defined parcel of land elevated by the placement of fill from an SFHA (see 44 CFR Ch. I, Section 65.5).
Conditional Letter of Map Revision Based on Fill (CLOMR-BOF)	A letter from FEMA conditionally removing a proposed structure or a legally defined parcel of land to be elevated by the placement of fill from an SFHA (see 44 CFR Ch. I, Section 65.5 and Part 72).

NFIP regulation, CFR Ch.I, specifies the requirements regarding the submittal of revision requests to FEMA. A document entitled Appeals, Revisions, and Amendments to Flood Insurance Maps, A Guide for Community Officials, dated January 1990, provides background on the NFIP and an expanded explanation of these requirements.

NFIP Regulation, 44 CFR Ch. I, Part 59, contain general provisions of the NFIP with which all requestors and community officials involved in revision requests should be familiar.

NFIP Regulation, 44 CFR Ch. I, Section 65.2, contain definitions relative to certification of data, analyses, and structural works. This information is important to all professionals certifying technical information contained with revision requests and should be carefully reviewed prior to signing the application/certification forms.

Part 72 of the NFIP regulations, published at 44 CFR 72, presents information regarding the reimbursement procedure that FEMA has initiated to allow for the recovery of costs associated with the review of requests for Conditional LOMRs, LOMRs, or Physical Map Revisions. The initial, minimum fees for FEMA's review and processing of CLOMRs, LOMRs, and Physical Map Revisions requests are as follows:

	CLOMR	LOMR	PMR
• Bridge or culvert only	$560	$785	$785
• Channel modification only	$640	$865	$865
• Channel modification and new bridge or culvert	$840	$1,065	$1,065
• Levees, berms, or other structural modifications	$1,080	$1,305	$1,305
• Structural measures on alluvial fan	$2,800	$3,025	$3,025
• Review of revised hydrology	$280	—	—
• "As-Built" request for previous CLOMR	—	$225	$225

For requests involving a combination of the above, the highest fee will apply. Before a determination is issued, the requestor will be billed for any actual costs incurred during the review that exceed the initial fee. If the total cost will exceed $3,500, FEMA will advise the requestor and obtain approval in writing before costs in excess of $3,500 are incurred, except for requests involving structural measures on alluvial fan. For those requests, the requestor will be notified if costs will exceed $6,500.

If the revision requests results in either a LOMR or a Physical Map Revision, the requestor will be charged a fee of $410 per revised panel to cover the costs of cartographic preparation. Please note that any initial fee already submitted will be applied to this request only if all of the require ata are received within 90 days of the receipt of the original request by FEMA.

Payment may be in the form of a check or money order made payable to the National Flood Insurance Program. Please forward payment to the followi address:

Federal Emergency Management Agency
Revisions Fee-Collection System Administrator
P.O. Box 3173
Merrifield, Virginia 22116
Fax: (703) 849-0282

If paying by credit card, see the Credit Card Information Form.

Exempt from these reimbursement procedures for either proposed or "as-built" conditions are requests for projects that are for public benefit and are intended to reduce the flood hazard to existing development in identified flood hazard areas as opposed to planned floodplain development. Also exempt are requests based solely on the submission of more detailed information and requests to correct NFIP map errors.

A request for a revision to the effective FIS information (FIRM, FBFM, and /or FIS report) is usually a request that FEMA replace the effective floodplain boundaries, flood profiles, floodway boundaries, etc., with those determined by the requestor. Before FEMA will replace the effective FIS information with the revised, the requestor must: (a) provide all of the data used in determining the revised floodplain boundaries, flood profiles, floodway boundaries, etc. (b) provide all data necessary to demonstrate that the physical modifications to the floodplain have been adequately designed to withstand the impacts of the 100-year flood event and will be adequately maintained (c) demonstrate that the revised information (e.g., hydrologic and hydraulic analyses and the resulting floodplain and floodway boundaries) are consistent with the effective FIS information.

Completed application/certification forms should be neatly packaged in order, with the appropriate enclosure following each form submitted. A notebook-style format is ideal. **The complete package should be submitted to the appropriate FEMA Regional Office. The addresses and telephone numbers of the ten Regional Offices, as well as information regarding which areas they support, are provided inside the back cover of this document. The address and telephone number of the Headquarters office in Washington, DC, are also provided.**

If the request is a follow-up to a CLOMR for a project built as proposed, only the Revision Requestor and Community Official Form and the Professional Certification Form need to be completed.

Additional information is contained on the forms. Wherever necessary, attach additional sheets required to provide the information requested on the forms.

Commonly Used Acronyms

FEMA	Federal Emergency Management Agency.
NFIP	National Flood Insurance Program.
BFE	Base Flood Elevation. It is the height of the base flood, usually in feet, in relation to the datum used, or the depth of the base flood usually in feet, above the ground surface. The base flood is the flood that has a 1 percent probability of being equaled or exceeded in any given year (also referred to as the 100-year flood).
FIS	Flood Insurance Study. An engineering study performed under contract to FEMA to identify flood-prone areas and to determine BFEs, flood insurance rate zones, and other flood risk data for a community.
FIRM	Flood Insurance Rate Map. An official map of a community, on which the Administrator has delineated both the special hazard areas and the risk premium zones applicable to the community.
FBFM	The Flood Boundary and Floodway Map. The floodplain management map issued by FEMA that depicts, on the basis of detailed analyses, the boundaries of the 100- and 500- year floodplain and the regulatory 100-year floodway.
SFHA	Special Flood Hazard Area. Areas inundated by a flood having a 1 percent probability of being equaled or exceeded in any given year (also referred to as the 100-year flood).
FHBM	The Flood Hazard Boundary Map. The initial flood insurance map issued by FEMA that identified on the basis of approximate analyses, the areas of 100-year flood hazard in a community.
CHHA	Coastal High Hazard Area. An area of special flood hazard extending from offshore to the inland limit of a primary frontal dune along an open coast and any other area subject to high velocity wave action from storms or seismic sources.

INSTRUCTIONS FOR COMPLETING THE REVISION REQUESTOR AND COMMUNITY OFFICIAL FORM (FORM 1)

This form provides the basic information regarding revision requests and must be submitted with each request. It contains much of the material needed for FEMA to assess the nature and complexity of the proposed revision. It will identify: (a) those elements that will require supporting data and analyses; (b) items needing concurrence of others; and (c) the type of response expected from FEMA. This form will also assure that the community is aware of the impacts of the request and has notified impacted property owners, if required. All items must be completed accurately. If the revision request is being submitted by an individual, firm, or other non-community official, contact should be made with appropriate community officials. NFIP regulation 44CFR Ch. I, Section 65.4, requires that revisions based on new technical data be submitted by the Chief Executive Officer (CEO) of the community or a designated official. Should the CEO refuse to submit such a request on behalf of another party, FEMA will agree to review it only if written evidence is provided indicating the CEO or designee has been requested to do so.

Physical changes include watershed development, flood control structures, etc. Note that fees will be assessed for FEMA's review of proposed and "as-built" projects, as outlined in NFIP regulation 44 CFR Ch. I, Part 72. Improved methodology may be a different technique (model) or adjustments to models used in the effective FIS. Improved data include revised as well as new data. Floodway modifications involve any shift in the FEMA-designated floodway boundaries, regardless of whether the shift is mappable.

Flooding source refers to a specific lake, stream, ocean, etc. This should match the flooding source name shown on the FIRM, if it has been labeled. (Examples: Lake Michigan, Duck Pond, or Big Hollow Creek.) Project Name/Identifier can be the name of a flood control project or other pertinent structure having an impact on the effective FIS, the name of a subdivision or area, or some other identifying phrase.

The map number, panel number, community number and effective date can be obtained from the FIRM title block. The sample FIRM panels (Figures 1 and 2) provide a convenient source of information to fill in item 5.

NFIP Compliance

If the community or communities disagree with the proposed revision, a signed statement should be attached to the request explaining the reasons or bases for disagreement.

The community should refer to the document entitled Appeals, Revisions and Amendments to Flood Insurance Maps: A Guide for Community Officials, dated January 1990.

Requested Response from FEMA

In order to avoid confusion between FEMA and the revision requestor, the requestor should identify the desired response from FEMA. Brief descriptions of possible responses are provided in the introduction; more detail regarding these responses and the data required to obtain each response are provided in the NFIP regulations, 44 CFR Ch. I, and in the document entitled Appeals, Revisions and Amendments to Flood Insurance Maps: A Guide for Community Officials, dated January 1990.

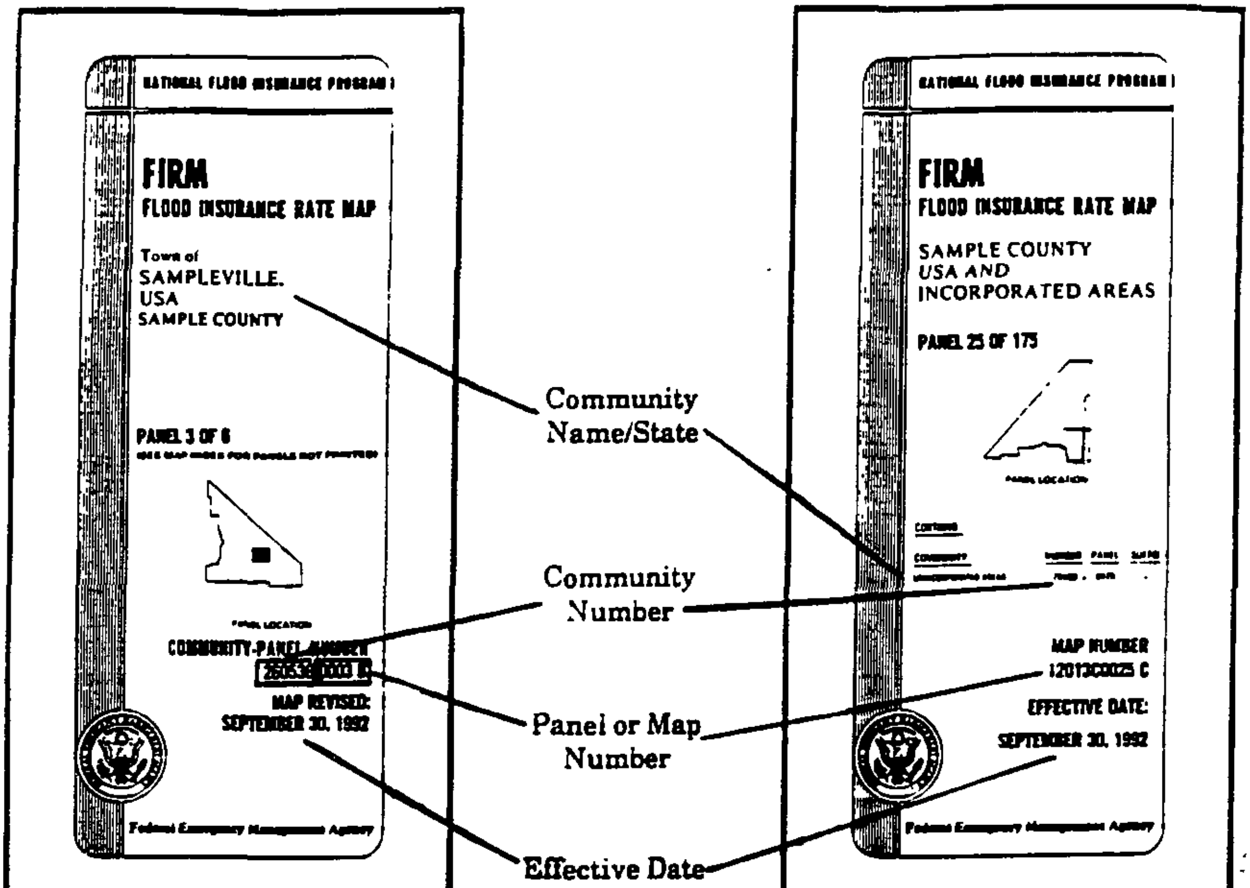


Figure 1. Sample FIRM Panel (Single Community)

Figure 2. Sample FIRM Panel (Countywide)

<u>Signature and Title of Revision Requestor</u>

The person signing this certification should own the property involved in the request or have legal authority to represent a group/firm/organization or other entity in legal actions pertaining to the NFIP.

<u>Signature and Title of Community Officials</u>

The person signing this certification should be the CEO for the community involved in this revision request or a legally designated official by the CEO. If more than one community is affected by the change, the community official from the community that is most affected should sign the form and letters from the other affected communities should be enclosed.

INSTRUCTIONS FOR COMPLETING THE PROFESSIONAL CERTIFICATION FORM (FORM 2)

The licensed professional engineer and/or land surveyor should have a current license in the State in which one of the impacted communities resides and should provide the number of years of experience in the specific area of expertise being certified, not the number of years as a licensed professional engineer and/or land surveyor. While the individual signing this form is not required to have obtained the supporting data or performed the analyses, he or she must have supervised and reviewed the work. This form must be submitted with each request.

Viewing the physical changes (Item 5) involves an on-site visit and observation of all features upon completion of the project. Examination of photographs is not a substitute for on-site visits.

If not familiar with all analyses conducted within the expertise cited on this form (Item 6) or with all construction procedures involved with the construction of the completed project (Item 7), the individual signing this form should attach a statement indicating the basis for concluding that all analyses and construction were performed in accordance with sound engineering practice. The individual signing this form should take care to identify other experts who may not be licensed engineers and their assistance regarding the assessment of analyses and construction practices.

Please note that more than one certification form may be required to include all disciplines involved in project completion.

A certification by a registered professional engineer or other party does not constitute a warranty or guarantee of performance, expressed or implied. Certification of data is a statement that the data is accurate to the best of the certifier's knowledge. Certification of analyses is a statement that the analyses have been performed correctly and in accordance with sound engineering practices. Certification of structural works is a statement that the works are designed in accordance with sound engineering practices to provide protection from the base flood. Certification of "as built" conditions is a statement that the structure(s) has been built according the the plans being certified, is in place, and is fully functioning.

If the requestor is a Federal agency who is responsible for the design and construction of flood control facilities, a letter stating that "the analyses submitted has been performed correctly and in accordance with sound engineering practices" may be submitted in lieu of this form. Regarding the certification of completion of flood control facilities, a letter from the Federal agency certifying its completion and the flood frequency event to which the project protects may be submitted in lieu of this form.

INSTRUCTIONS FOR COMPLETING THE HYDROLOGIC ANALYSIS FORM
(FORM 3)

This form is to be completed when discharges other than those used in the FIS are proposed. Information requested is used to compare revised data to FIS data, compare revised discharges to FIS discharges, and to determine the merit of using revised methods and data over those used in the FIS

For revisions based on alternative methodologies or improved data, an explanation as to why the alternative methodology or improved data provides better results over the FIS must be presented and supported throughout the form. Models submitted in support of a revision request must meet the requirements of Subparagraph 65.6(a)(6) of the NFIP regulations.

The data revision section should be completed as below:

Data Parameter	New	Revised	Data Source
Curve Number	☐	☒	Land Use Maps
	☐	☐	Published by SCS
	☐	☐	(Due to Extensive
	☐	☐	Development Since
	☐	☐	Effective FIS date)

Attachment A - Statistical Analysis of Gage Records (one per gage record):

Statistical analyses of gage data are based on the guidelines set out in Bulletin 17B by the Interagency Advisory Committee on Water Data.

Systematic data refer to peak discharge data observed and recorded regularly over a period of time by a government agency or private firm. Historical data refers to peak discharge data observed outside the systematic period and recording only isolated outstanding events. Historical data should be documented whenever possible.

For data to be homogeneous, the long-term trend of the data should remain constant. In other words, the probability distribution used to describe it is independent of time. An example of non-homogeneous data would be peak discharge data at the confluence of two streams following two different flow regimes.

Adjustments made to the statistical data/record, such as the use of a second gaging station to compensate for a short record or adjustments for zero flood years.

Bulletin 17B recommends the use of the log-Pearson Type III (LP3) distribution for the statistical analysis of flood data. However, there may be situations where the LP3 distribution is inappropriate and another probability distribution must be used. Other distributions include Extreme Value (Gumbel) and log-normal (Galton). The use of alternative distributions must be justified and fully documented.

Comparison with other analyses includes comparing the analysis with another station on a hydrologically similar stream or using an alternative analysis (e.g. regression equations) to verify the reasonableness and logic of the results.

Attachment B - Regression Analysis (one per stream)

The source of the regression equations must be given along with a proper bibliographical reference. The U.S. Geological Survey (USGS), in cooperation with State agencies in charge of monitoring water data, has developed regression equations on a state-by-state basis. As these are revised regularly, FEMA will accept only the most recently published regression equation report. Other agencies also put out regression analyses reports, or a regional analyses can be performed.

Stream stations are grouped in hydrologic regions in which certain basin parameters have been found to have roughly the same influence on the peak flows as evidenced by the multiple regression analysis. It can happen that a stream watershed may encompass more than one region, in which case some proportionality of the influence of each region upon the peak discharge must be considered.

Most regression equations are developed for rural or undeveloped conditions. These results can be modified to reflect urban or developed conditions. If urbanized conditions were considered, the methodology for developing the urban discharges must be described and/or referenced and the percentage of the watershed that is urbanized must be given.

Because regression equations are based on compilation of data from several gage stations, a certain amount of natural basin storage is inherent in the equations. However, regression equations are not designed to handle watersheds controlled by major storage features such as flood control structures. If such structures exist, a full account of how flood storage was considered must be given.

Attachment C - Precipitation/Runoff Model (One Per Model)

Baseflow is defined as the estimated flow occurring in the stream before the flood event occurs.

Because there are many different precipitation/runoff models, many with a different theoretical basis, it is very difficult, if not impossible, to prove that one model provides superior results over another. Therefore, it must be shown that the types of parameters, the theoretical basis, and source of data provide superior results.

If possible, a precipitation runoff model should be compared and calibrated to a known flood event in order to justify the values of the parameters and the assumptions made in the model. All calibration and verification runs should be described and the results discussed. Please attach hard copies of the calibration and verification model outputs.

Attachment D - Confidence Limits Evaluation

When revised discharges are not significantly different than the FIS discharges, FEMA may require a confidence limit analysis at a later date to complete the review.

INSTRUCTIONS FOR COMPLETING THE RIVERINE HYDRAULIC ANALYSIS FORM
(FORM 4)

This form is to be completed when the request involves a hydraulic analysis for riverine flooding that differs from that used to develop the FIRM.

To obtain copies of the effective FIS models, either the community or FEMA Regional offices should be contacted for direction. A list of FEMA Regional offices is located at the end of the instructions. If the effective models are not available, the requestor must generate models that duplicate the FIS profiles and the elevations shown in the Floodway Data Table in the FIS report to within 0.1 foot or contact FEMA Headquarters for guidance. FEMA Headquarters should be contacted if this model cannot be produced. If an alternative hydraulic model is used, it must be shown that the use of the original model is inappropriate and the new model must be calibrated to reproduce the FIS profiles within 0.1 foot.

Only the duplicate effective and the revised or post-project conditions models are required to be submitted. The corrected effective model may be submitted to provide a more detailed analysis than the duplicate effective model at the project site or fix any technical deficiencies. The existing or pre-project models may be required to support conclusions about the actual impacts of the project associated with the revised or post-project model or to establish more up-to-date models on which to base the revised or post-project conditions model. The revised or post-project conditions model must always include the existing and post-project conditions. Additional information about these models is contained on the form.

When the request is for a proposed project, the revised or post-project model should reflect proposed conditions. The information requested on the Hydraulic Analysis Form are intended to document the steps taken by the requestor in the process of preparing the revised or post-project conditions hydraulic models and the resulting revised FIS information. The following guidelines should be followed when completing the form:

(a) All changes to the duplicate and subsequent models must be supported by certified topographic information, bridge plans, constructions plans, survey notes, etc.

(b) Changes to the hydraulic models should be limited to the stream reach for which the revision is being requested. Cross-sections upstream and downstream of the revised reach should be identical to those in the effective model. If this is done, water surface elevations and topwidths computed by the revised models should match those in the effective models upstream and downstream of the revised reach as required.

(c) There must be consistency between the revised hydraulic models, the revised floodplain and floodway delineations, the revised flood profiles, topographic work map, annotated FIRMs and/or FBFMs, construction plans, bridge plans, etc.

For SFHAs designated as Zone A, the existing or pre-project model and the revised or post-project model,or other hydraulic analyses for existing and revised conditions are required to determine the 100-year flood profile. The existing model or analysis is required to support conclusions about the actual impacts of the project associated with the revised or post-project model or analysis.

INSTRUCTIONS FOR COMPLETING THE RIVERINE/COASTAL MAPPING FORM
(FORM 5)

This form is to be completed when mapping changes to either the FIRM or FBFM are proposed and to assure that the revised floodplain and floodway boundary information tie-into the effective information so that a consistent NFIP map is maintained. In addition, the questions asked a. information required are to determine the impacts of the revision, including increases in SF and shifts in floodway both on and off the requestor's property.

When fill is placed in the 100-year floodplain and the request is to alter 100-year flood bo· ıdary, in order to permanently remove the filled area from the floodplain, the fill must be compac.ed and protected against erosion from moving flood waters.

An insurable structure is defined as a walled and roofed building, other than a gas or liquid storage tank, that is principally above ground and affixed to a permanent site, as well as a manufactured home on a permanent foundation. For the latter purpose, the term includes a building while in the course of construction, alteration or repair, but does not include building materials or supplies intended for use in such construction, alteration or repair, unless such materials or supplies are within an enclosed building on the premises.

INSTRUCTIONS FOR COMPLETING THE CHANNELIZATION FORM
(FORM 6)

This form is to be completed when any portion of the stream channel is altered or relocated. When the Channelization Form is submitted, a Riverine Hydraulic Analysis Form must also be submitted.

The purpose of the Channelization Form is to assure that the channel will function properly as designed and pass the 100-year flood as determined by the hydraulic analysis. Typically, channelization increases the channel velocity above the natural channel velocity. Documentation must be provided that assures that the channel lining will withstand the velocities associated with the 100-year flood. Additional considerations are the stability of the flow regime and the affects of sediment transport.

INSTRUCTIONS FOR COMPLETING THE BRIDGE/CULVERT FORM (FORM 7)

This form is to be completed when the request involves a new bridge or culvert or a new or revised analysis of an existing bridge or culvert.

Typically a revision is not requested to reflect a new analysis of a previously studied existing structure. If this is the case, an explanation of why the new analysis was performed is required. Typically the structure is analyzed using the same method of analysis used for the flooding source. If a different method is used for the structure, justification why the hydraulic analysis utilized for the flooding source could not analyze the structure must be enclosed.

Culvert Length or Bridge Width:	The culvert length or bridge width in direction of flow must be entered.
Culvert/Bridge Area:	If a computer model is used to analyze the structure, the calculated culvert/bridge area may be different than the total culvert/bridge area in cases of low flow.
Elevations above which flow is effective for the entire cross section:	These elevations are needed to ensure that the flow is restricted to the effective cross section.
Top Widths:	Top widths are the horizontal distance between stations of the floodplain boundaries, floodway boundaries, and the limits of effective flow areas modelled in a cross section.

INSTRUCTIONS FOR COMPLETING THE LEVEE/FLOODWALL SYSTEM ANALYSES FORM
(FORM 8)

The purpose of this form is to assure that the levee or floodwall is designed and/or constructed to provide protection from the 100-year flood, in full compliance with 44 CFR Ch. I, Section 65.10 of t[illegible] National Flood Insurance Program (NFIP) regulations, before reflecting its effects on an NFIP map. [illegible] complete engineering analysis must be submitted in support of each section of this form. In add[illegible]n, a vicinity map along with a complete set of flood profile sheets, plan sheets, and layout detail sh[illegible]s must be submitted. These sheets must be numbered, and an index must be provided that clearly identifies those sheets specifically relating to the levee or floodwall in question.

INSTRUCTIONS FOR COMPLETING THE COASTAL ANALYSIS FORM
(FORM 9)

The information requested on the Coastal Analysis Form is intended to document the steps taken by the requestor in the process of preparing the revised models or analyses and the resulting revised FIS information. The following guidelines should be followed when completing the form:

a. All changes to effective models must be supported by certified topographic information, structure plans, survey notes, storm surge data, meteorological data, etc.

b. The reanalysis of the effective study must tie-in with areas not restudied.

c. All equations or models used must be referenced.

INSTRUCTIONS FOR COMPLETING THE COASTAL STRUCTURES FORM (FORM 10)

The Coastal Structures Form is to be completed when a revision to coastal flood hazard elevations and/or areas is requested based on coastal structures being credited as providing protection from the base flood. If the coastal structure is a levee/floodwall, complete the Levee/Floodwall System Analysis Form in lieu of this form. When the Coastal Structures Form is submitted, the Coastal Analysis Form should also be submitted.

The purpose of the Coastal Structures Form is to assure that the structure is designed and constructed to provide protection from the base flood without failing or causing an increase in flood hazards to adjacent areas. Documentation must be provided that assures a coastal structure is designed and constructed to withstand the wind and wave forces associated with the base flood. Additional concerns include the impact to areas directly landward of the structure that may be subjected to overtopping and erosion along with possible failure of the structure due to undermining from the backside and the possible increase in erosion at the ends of the structure to unprotected properties. The evaluation of protection provided by sand dunes must follow the criteria outlined in 44 CFR Ch. I, Section 65.11.

INSTRUCTIONS FOR COMPLETING THE DAM FORM
(FORM 11)

The Dam Form is to be filled out when there is an existing, proposed, or modified dam along a stream studied in detail. Any flood control storage to be considered in the hydrologic analysis for the dam should be totally dedicated to flood control. If the dam is not certified to safely pass the 100-year flood and the dam has a reasonable probability of failure during the 100-year flood, a dam break analysis should be submitted. The dam break analysis should provide consistent results, use empirical peak discharges from actual dam failures, require minimal input data, and perform river routing of the failure hydrograph by dynamic procedures, which includes attenuation and translation. The NFIP does not involve appraisal of dam safety adequacy; however, the FISs should include impacts of structures when subjected to 100-year flood hydrographs. Local, State, and/or Federal laws address dam safety features.

INSTRUCTIONS FOR COMPLETING THE ALLUVIAL FAN FLOODING FORM
(FORM 12)

The purpose of this form is to assure that a structural flood control measure in areas subj⸱ ⸱t to alluvial fan flooding is designed and/or constructed to provide protection from the 100-year floc , in compliance with 44 CFR Ch. I, Section 65.13 of the National Flood Insurance Program (NF regulations, before it is recognized on a NFIP map. Please be aware that elevation of a r cel of land or a structure by fill or other means only, will not serve as a basis for removing areas sub ct to alluvial fan flooding from an area of special flood hazards. See Section 65.13 of the NFIP regul ions. Complete engineering analyses must be submitted in support of each section of this f m. In addition, it may be necessary to complete other forms relating to specific flood contr measures, such as levees/floodwalls, channelization, or dams.

FEMA REGIONAL OFFICES

REGION I

(Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont)

Federal Emergency Management Agency
Mitigation Division
J.W. McCormack Post Office and
Courthouse Building, Room 462
Boston, Massachusetts 02109-4595
(617) 223-9559

REGION II

(New York, Puerto Rico, New Jersey)

Federal Emergency Management Agency
Mitigation Division
26 Federal Plaza, Room 1337
New York, New York 10278-0002
(212) 225-7203

REGION III

(Delaware, District of Columbia, Maryland, Pennsylvania, Virginia, and West Virginia)

Federal Emergency Management Agency
Mitigation Division
Liberty Square Building
(Second Floor)
105 South Seventh Street
Philadelphia, Pennsylvania 19106-3316
(215) 931-5750

REGION IV

(Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, and Tennessee)

Federal Emergency Management Agency
Mitigation Division
1371 Peachtree Street, Northeast
Suite 700
Atlanta, Georgia 30309-3108
(404) 853-4400

REGION V

(Illinois, Indiana, Michigan, Minnesota, Ohio, and Wisconsin)

Federal Emergency Management Agency
Mitigation Division
175 West Jackson Boulevard
(Fourth Floor)
Chicago, Illinois 60604-2698
(312) 408-5596

REGION VI

(Arkansas, Louisiana, New Mexico, Oklahoma, and Texas)

Federal Emergency Management Agency
Mitigation Division
Federal Regional Center
800 North Loop 288
Denton, Texas 76201-3698
(817) 898-5127

REGION VII

(Iowa, Kansas, Missouri, and Nebraska)

Federal Emergency Management Agency
Mitigation Division
Federal Office Building
911 Walnut Street, Room 200
Kansas City, Missouri 64106-2085
(816) 283-7002

REGION VIII

(Colorado, Montana, North Dakota, South Dakota, Utah, and Wyoming)

Federal Emergency Management Agency
Mitigation Division
Denver Federal Center, Building 710
Box 25267
Denver, Colorado 80225-0267
(303) 235-4830

REGION IX

(Arizona, California, Guam, Hawaii, and Nevada)

Federal Emergency Management Agency
Mitigation Division
Building 105
Presidio of San Francisco
San Francisco, California 94129-1250
(415) 923-7175

REGION X

(Alaska, Idaho, Oregon, and Washington)

Federal Emergency Management Agency
Mitigation Division
Federal Regional Center
130 228th Street, SW.
Bothell, Washington 98021-9796
(206) 487-4682

Inquiries to FEMA Headquarters should be forwarded to the following address:

Federal Emergency Management Agency
Mitigation Directorate
Hazard Identification and Risk Assessment Division
500 C Street, SW
Washington, D.C. 20472

(202)646-3680

FEDERAL EMERGENCY MANAGEMENT AGENCY REVISION REQUESTOR AND COMMUNITY OFFICIAL FORM	O M B Burden No 3067-0148 Expires July 31, 1997	FEMA USE ONLY

PUBLIC BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 2.13 hours per response. The burden estimate includes th time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, an completing and reviewing the form. Send comments regarding the accuracy of the burden estimate and any suggestion for reducing this burden, to: Information Collections Management, Federal Emergency Management Agency, 500 (Street, S.W., Washington, DC 20472; and to the Office of Management and Budget, Paperwork Reduction Project (3067 0148). Washington, DC 20503

1. OVERVIEW

1. The basis for this revision request is (are): *(check all that apply)*
   - ☒ Physical change
     - ☐ Existing
     - ☒ Proposed
   - ☐ Improved methodology
   - ☐ Improved data
   - ☐ Floodway revision
   - ☐ Other ____________

   Explain ____________

2. Flooding Source: Gloede Ditch

3. Project Name/Identifier: Merlini Property

4. FEMA zone designations affected: A2, B
   (example: A, AH, AO, A1-A30, A99, AE, V, V1-30, VE, B, C, D, X)

5. The NFIP map panel(s) affected for all impacted communities is (are):

Community No.	Community Name	County	State	Map No.	Panel No.	Effective Date
EX: 480301	Katy,City	Harris, Fort Bend	TX	480301	0005D	02/08/83
480287	Harris County	Harris	TX	48201C	0220G	09/28/90
260445	Macomb Twp	Macomb	MI	0020B	0020B	04/04/81

6. The area of revision encompasses the following types of flooding, structures, and associated disciplines: *(check all that apply)*

Types of Flooding
- ☒ Riverine
- ☐ Coastal
- ☐ Alluvial Fan
- ☐ Shallow Flooding *(e.g. Zones AO and AH)*
- ☐ Lakes

Affected by wind/wave action
- ☐ Yes
- ☐ No

Structures
- ☒ Channelization
- ☐ Levee/Floodwall
- ☐ Bridge/Culvert
- ☐ Dam
- ☐ Coastal
- ☐ Fill
- ☐ Pump Station
- ☐ None
- ☐ Channel Relocation
- ☐ Excavation
- ☐ Other *(describe)*

Disciplines*
- ☒ Water Resources
  - ☐ Hydrology
  - ☒ Hydraulics
  - ☐ Sediment Transport
  - ☐ Interior Drainage
- ☐ Structural
- ☐ Geotechnical
- ☐ Land Surveying
- ☐ Other *(describe)*

☐ Other(describe) ____________

* **Attach completed "Certification by Registered Professional Engineer and/or Land Surveyor" Form for each discipline checked. (Form 2)**

2. FLOODWAY INFORMATION

7. Does the affected flooding source have a floodway designated on the effective FIRM or FBFM? ☒ Yes ☐ No
8. Does the revised floodway delineation differ from that shown on the effective FIRM or FBFM ☒ Yes ☐ No
   If yes, give reason: The proposed project will improve the hydraulic characteristics of the channel and reduce the floodway width

Attach copy of either a public notice distributed by the community stating the community's intent to revise the floodway or a statement by the community that it has notified all affected property owners and affected adjacent jurisdictions.

9. Does the State have jurisdiction over the floodway or its adoption by communities participating in the NFIP?
☒ Yes ☐ No

If yes, attach a copy of a letter notifying the appropriate State agency of the floodway revision and documentation of the approval of the revised floodway by the appropriate State agency.

3. PROPOSED ENCROACHMENTS

10. With floodways:

1A. Does the revision request involve fill, new construction, substantial improvement, or other development in the floodway? ☐ Yes ☒ No

1B. If yes, does the development cause the 100-year water surface elevation to increase at any location by more than 0.000 feet? ☐ Yes ☐ No

11. Without floodways:

2A. Does the revision request involve fill, new construction, substantial improvement, or other development in the 100-year floodplain? ☐ Yes ☒ No

2B. If yes, does the cumulative effect of all development that has occurred since the effective SFHA was originally identified cause the 100-year water surface elevation to increase at any location by more than one foot (*or other surcharge limit if community or state has adopted more stringent criteria*)? ☐ Yes ☐ No

If the answer to either Items 1B or 2B is yes, please provide documentation that all requirements of Section 65.12 of the NFIP regulations have been met, regarding evaluation of alternatives, notice to individual legal property owners, concurrence of CEO, and certification that no insurable structures are impacted.

4. REVISION REQUESTOR ACKNOWLEDGMENT

12. Having read NFIP Regulations, 44 CFR Ch. I, parts 59, 60, 61, and 72, I believe that the proposed revision ☒ is ☐ is not in compliance with the requirements of the aforementioned NFIP Regulations.

5. COMMUNITY OFFICIAL ACKNOWLEDGMENT

13. Was this revision request reviewed by the community for compliance with the community's adopted floodplain management ordinances? ☒ Yes ☐ No

14. Does this revision request have the endorsement of the community? ☒ Yes ☐ No

If no to either of the above questions, please explain: ______________________________

Please note that community acknowledgment and /or notification is required for all requests as outlined in Section 65.4 (b) of the NFIP Regulations.

6. OPERATION AND MAINTENANCE

15. Does the physical change involve a flood control structure (e.g., levees, floodwalls, channelization, basins, dams)?
☐ Yes ☒ No

If yes, please provide the following information for each of the new flood control structures:

A. Inspection of the flood control project will be conducted periodically by ______________________________
entity
______________ with a maximum interval of ____________ months between inspections.

B. Based on the results of scheduled periodic inspections, appropriate maintenance of the flood control facilities will be conducted by ______________________________
(entity)
to ensure the integrity and degree of flood protection of the structure.

C. A formal plan of operation, including documentation of the flood warning system, specific actions and assignments of responsibility by individual name or title, and provisions for testing the plan at intervals not less than one year, ☐ has ☐ has not been prepared for the flood control structure.

D. The community is willing to assume responsibility for ☐ performing ☐ overseeing compliance with the maintenance and operation plans of the ______________________
(Name)

flood control structure. If not performed promptly by an owner other than the community, the community will provide the necessary services without cost to the Federal government.

Attach operation and maintenance plans

7. REQUESTED RESPONSE FROM FEMA

16. After examining the pertinent NFIP regulations and reviewing the document entitled "Appeals, Revisions, and Amendments to Flood Insurance Maps: A guide for Community Officials," dated January 1990, this request is for a:

_X_ a. CLOMR — A letter from FEMA commenting on whether a proposed project, if built as proposed, would justify a map revision *(LOMR or PMR)*, or proposed hydrology changes *(see 44 CFR Ch. I, Parts 60, 65, and 72)*

____ b. LOMR — A letter from FEMA officially revising the current NFIP map to show changes to floodplains, floodways, or flood elevations. LOMRs typically depict decreased flood hazards. *(See 44 CFR Ch. I Parts 60 and 65)*

____ c. PMR — A reprinted NFIP map incorporating changes to floodplains, floodways, or flood elevations. Because of the time and cost involved to change, reprint, and redistribute an NFIP map, a PMR is usually processed when a revision reflects increased flood hazards or large-scope changes. *(See 44 CFR Ch. I, Parts 60 and 65.)*

____ d. Other: Describe ______________________

8. FORMS INCLUDED

17. Form 2 entitled, "Certification By Registered Professional Engineer and/or Land Surveyor" must be submitted.

The following forms should be included with this request if (check the included forms):

• Hydrologic analysis for flooding source differs from that used to develop FIRM	☐ Hydrologic Analysis Form (Form 3)
• Hydraulic analysis for riverine flooding differs from that used to develop FIRM	☒ Riverine Hydraulic Analysis Form (Form 4)
• The request is based on updated topographic information or a revised floodplain or floodway delineation is requested	☒ Riverine /Coastal Mapping Form (Form 5)
• The request involves any type of channel modification	☒ Channelization Form (Form 6)
• The request involves new bridge or culvert or revised analysis of an existing bridge or culvert	☐ Bridge/Culvert Form (Form 7)
• The request involves a new revised levee/floodwall system	☐ Levee/Floodwall System Analysis Form (Form 8)
• The request involves analysis of coastal flooding	☐ Coastal Analysis Form (Form 9)
• The request involves coastal structures credited as providing protection from the 100-year flood	☐ Coastal Structures (Form 10)
• The request involves an existing, proposed, or modified dam	☐ Dam Form (Form 11)
• The request involves structures credited as providing protection from the 100-year flood on an alluvial fan	☐ Alluvial Fan Flooding Form (Form 12)

18. The minimum initial review fee for the appropriate request category has been included. ☒ Yes ☐ No

Initial fee amount: $ 3,100.00

Check or money order only. Make check or money order payable to : **National Flood Insurance Program.** If paying by Visa or Mastercard please refer to the credit card information form which follows this form.

or

19. This request is for a project that is for public benefit and is primarily intended for flood loss reduction to insurable structures in identified flood hazard areas which were in existence prior to the commencement of construction of the flood control project. ☐ Yes ☐ No

or

20. This request is to correct map errors, to include the effects of natural changes within the areas of special flood hazard, or solely to provide more detailed data. ☐ Yes ☒ No

Note: I understand that my signature indicates that all information submitted in support of this request is correct.

Signature of Revision Requester

Gordon B. Wilson, P.E.

Printed Name and Title of Revision Requester

Anderson, Eckstein and Westrick, Inc.

Company Name

(810) 726-1234

Telephone No Date

Note: Signature indicates that the community understands, from the revision requester, the impacts of the revision on flooding conditions in the community.

Signature of Community Official

Richard Young, Building Official

Printed Name and Title of Community Official

Macomb Township

Community Name

7/31/97

Date

Does this request impact any other communities? ☐ Yes ☒ No

If yes, attach letters from all affected jurisdictions acknowledging revision request and approving changes to floodway, if applicable.

Note: Although a photograph of physical changes is not required, it may be helpful for FEMA's review.

FEDERAL EMERGENCY MANAGEMENT AGENCY CREDIT CARD INFORMATION	O M B Burden No 3067-0148 Expires July 31, 1997	FEMA USE ONLY

PUBLIC BURDEN DISCLOSER NOTICE

"Public reporting burden for this form is estimated to average 6minutes per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing and reviewing the form. Send comments regarding the burden estimate and any suggestions for reduction this burden to: Information Collections Management, Federal Emergency Management Agency, 500 C Street, S.W., Washington, DC, 20472, and to the Office of Management and Budget, Paperwork Reduction Project (3067-0147), Washington, DC 20503".

If paying by credit card, this form must be completed. **THIS FORM SHOULD NOT BE INCLUDED WITH THE REST OF THE FORMS PACKAGE. IT MUST BE MAILED OR FAXED TO:**

Federal Emergency Management Agency
Revisions Fee-Collection System Administrator
P.O. Box 3173
Merrifield, Virginia 22116
Fax: (703) 849-0282

Case# ____________ (if known) Amount: $ ____________

☐ INITIAL FEE ☐ ADDITIONAL INITIAL FEE ☐ INVOICE

☐ VISA ☐ MASTERCARD

CARD NUMBER

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

EXP DATE

☐☐ – ☐☐
Month Year

____
Signature

NAME *(AS IT APPEARS ON CARD)*: ____________________

ADDRESS: ____________________

____

DAYTIME PHONE: ____________________

NOTICE: A COPY OF THE PROPERTY INFORMATION FORM BEING SUBMITTED FOR THIS REQUEST MUST BE ATTACHED TO THIS FORM.

FEDERAL EMERGENCY MANAGEMENT AGENCY CERTIFICATION BY REGISTERED PROFESSIONAL ENGINEER AND/OR LAND SURVEYOR FORM	O M B Burden No. 3067-0148 Expires July 31, 1997	FEMA USE ONLY

PUBLIC BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average .23 hour per response. The burden estimate includes th time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, an completing and reviewing the form. Send comments regarding the accuracy of the burden estimate and an suggestions for reducing this burden, to: Information Collections Management, Federal Emergency Managemen Agency, 500 C Street, S.W., Washington, DC 20472; and to the Office of Management and Budget, Paperwor Reduction Project (3067-0148), Washington, DC 20503.

1. This certification is in accordance with 44 CFR Ch. I, Section 65.2
2. I am licensed with an expertise in Hydraulics
   [example: water resources *(hydrology, hydraulics, sediment transport, interior drainage)** structural, geotechnical, land surveying.]
3. I have 11 years experience in the expertise listed above.
4. I have ☒ prepared ☐ reviewed the attached supporting data and analyses related to my expertise.
5. I ☒ have ☐ have not visited and physically viewed the project.
6. In my opinion, the following analyses and /or designs, is/are being certified:
   HEC-2 Hydraulic analysis of proposed Gloede Ditch cleanout
7. Base upon the following review, the modifications in place have been constructed in general accordance with plans and specifications.

   Basis for above statement: (check all that apply)

   a. ☐ Viewed all phases of actual construction.
   b. ☐ Compared plans and specifications with as-built survey information.
   c. ☐ Examined plans and specifications and compared with completed projects.
   d. ☒ Other Project has not yet been constructed. As-built will be submitted when constructed.
8. All information submitted in support of this request is correct to the best of my knowledge. I understand that any false statement may be punishable by fine or imprisonment under Title 18 of the United States Code, Section 1001.

Name: Gordon B. Wilson
(please print or type)

Title: Project Manager
(please print or type)

Registration No. 34055 Expiration Date. October 31, 1997

State Michigan

Type of License Professional Engineer

[signature]
Signature

7/31/97
Date

STATE OF MICHIGAN
GORDON B. WILSON ENGINEER No. 34055
LICENSED PROFESSIONAL ENGINEER

Seal
(Optional)

*Specify Subdiscipline

Note: Insert not applicable (N/A) when statement does not apply.

FEDERAL EMERGENCY MANAGEMENT AGENCY
RIVERINE HYDRAULIC ANALYSIS FORM

O M B Burden No 3067-0148
Expires July 31 1997

FEMA USE ONLY

PUBLIC BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 2.25 hours per response. The burden estimate includes t time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, a completing and reviewing the form. Send comments regarding the accuracy of the burden estimate and any suggestio for reducing this burden, to: Information Collections Management, Federal Emergency Management Agency, 500 Street, S.W., Washington, DC 20472; and to the Office of Management and Budget, Paperwork Reduction Project (306 0148), Washington, DC 20503.

Community Name: Macomb Township, Macomb County, Michigan

Flooding Source: Gloede Ditch
(One form for each flooding source)

Project Name/Identifier: Merlini Property

1. REACH TO BE REVISED

Downstream limit: 19011

Upstream limit: 20836 (Section R)

2. EFFECTIVE FIS

☐ Not studied

☐ Studied by approximate methods

Downstream limit of study

Upstream limit of study

☒ Studied by detailed methods

Downstream limit of study 19011

Upstream limit of study 20836 (Section R)

☒ Floodway delineated

Downstream limit of Floodway 19011

Upstream limit of Floodway 20836 (Section R)

3. HYDRAULIC ANALYSIS

Why is the hydraulic analysis different from that used to develop the FIRM. *(Check all that apply)*

☐ Not studied in FIS

☐ Improved hydrologic data/analysis. Explain.

☐ Improved hydraulic analysis. Explain:

☐ Flood control structure. Explain:

☒ Other. Explain: A Letter of Map Revision was issued for the Gloede Ditch downstream of this site, based on improved hydraulic conditions.

For areas which have detailed flooding:

Full input and output listings along with files on diskette (if available) for each of the models listed below (items 1, 2, 3, 4, and 5) and summary of the source of input parameters used in the models must be provided. The summ--y must include a complete description of any changes made from model to model (e.g. duplicate effective model t. orrected effective model) At a minimum, the Duplicate Effective (item 1) and the Revised or Post-Project Conditi (item 4) models must be submitted. See instructions for directions on when other models may be required.

For areas which do not have detailed flooding:

Only the 100-year flood profile is required. A hydraulic model is not required for areas which do not h. e detailed flooding; however, BFEs may not be added to the revised FIRM. If a hydraulic model is developed for :e area, items 3 and 4 described below must be submitted.

If hydraulic models are not developed, hydraulic analyses for existing or pre-project conditions and revised or post-project conditions must be submitted. All calculations must be submitted for these analyses. (See item 6 below)

1. Duplicate Effective Model — Natural ☒ Floodway ☒

Copies of the hydraulic analysis used in the effective FIS, referred to as the effective models *(10-, 50-, 100-, and 500-year multi-profile runs and the floodway run)* must be obtained and then reproduced on the requestor's equipment to produce the duplicate effective model. This is required to assure that the effective model input data has been transferred correctly to the requestor's equipment and to assure that the revised data will be integrated into the effective data to provide a continuous FIS model upstream and downstream of the revised reach.

2. Corrected Effective Model — Natural ☒ Floodway ☒

The corrected effective model is the model that corrects any errors that occur in the duplicate effective model, adds any additional cross sections to the duplicate effective model, or incorporates more detailed topographic information than that used in the currently effective model. The corrected effective model must not reflect any man-made physical changes since the date of the effective model. An error could be a technical error in the modeling procedures, or any construction in the floodplain that occurred prior to the date of the effective model but was not incorporated into the effective model.

3. Existing or Pre-Project Conditions Model — Natural ☒ Floodway ☒

The duplicate effective or corrected model is modified to produce the existing or pre-project conditions model to reflect any modifications that have occurred within the floodplain since the date of the effective model but prior to the construction of the project for which the revision is being requested. If no modification has occurred since the date of the effective model, then this model would be identical to the corrected effective or duplicate effective model.

4. Revised or Post-Project Conditions Model — Natural ☒ Floodway ☒

The existing or pre-project conditions model *(or duplicate effective or corrected effective model, as appropriate)* is revised to reflect revised or post-project conditions. This model must incorporate any physical changes to the floodplain since the effective model was produced as well as the effects of the project. When the request is for proposed project this model should reflect proposed conditions.

5. Other: Please attach a sheet describing all other models submitted. — Natural ☐ Floodway ☐

6. Hydraulic Analyses (Only if Hydraulic Models are not developed)

Please attach all calculations for the existing or pre-project conditions and the revised or post-project conditions. Proceed to Form 5, "Riverine/Coastal Mapping Form".

1. Discharges:

	Upstream Limit	Downstream Limit
10-year	465	465
50-year	690	690
100-year	755	755
500-year	1070	1070

Attach diagram showing changes in 100-year discharge

2. Explain how the starting water surface elevations were determined Taken from the effective model (based on the LOMR) at the downstream limit (Section 19011).

3. Give range of friction loss coefficients (*Manning's "N"*) Channel 0.040

Overbanks ...... 0.040 - 0.060

If friction loss coefficients are different anywhere along the revised reach from those used to develop the FIRM, give location, value used in the effective FIS, and revised values and an explanation as to how the revised values were determined.

Location	FIS	Revised

Explain:

4. Describe how the cross section geometry data were determined *(e.g., field survey, topographic map, taken from previous study)* and list cross sections that were added.

Field Survey

5. Were natural channel banks selected as the location of the left and right channel banks in the model?

☒ Yes ☐ No If no, explain why not:

6. Explain how reach lengths for channel and overbanks were determined.

Matched effective with three additional cross sections

5. RESULTS (from model used to revise 100-year water surface elevations)

1. Do the results indicate:

a. Water surface elevations higher than end points of cross sections? ☐ Yes ☒ No

b. Supercritical depth? ☐ Yes ☒ No

c. Critical depth? ☐ Yes ☒ No

d. Other unique situations ☐ Yes ☒ No

If yes to any of the above, attach an explanation that discusses the situation and how it is presented on the profiles, tables, and maps.

2. What is the maximum change in energy gradient between cross-sections? 0.82 feet

Specify location 20464-20726

3. What is the distance between the cross-sections in 2 above? 262 feet

4. What is the maximum distance between cross-sections? 415 feet

Specify location 19011-19426

5. Floodway determination

a. What is the maximum surcharge allowed by the community or State? 0 foot

b. What is the maximum surcharge for the revised conditions? 0 foot

Specify location ______

c. What is the maximum velocity? 5.45 fps

Specify location 20726

d. Are there any negative surcharge values at any cross-section? ☐ Yes ☒ No

If yes, the floodway may need to be widened. If it is not widened, please explain and indicate the maximum negative surcharge.

Explain: ______

6. Is the discharge value used to determine the floodway anywhere different from that used to determine the natural 100-year flood elevations? .... ☐ Yes ☒ No

If Yes, explain:

7. Do 100-year water surface elevations increase at any location? .... ☐ Yes ☒ No

If yes, please attach a list of the locations where the increases occur, state whether or not the increases are located on the requestor's property, and provide an explanation of the reason for the increases. *(For example: State if the increase is due to fill placed within the floodway fringe or placed within the currently adopted floodway limits)*

Please attach a completed comparison table entitled: Water Surface Elevation Check (See page 6)

6. REVISED FIRM/FBFM AND FLOOD PROFILES

A. The revised water surface elevations tie into those computed by the effective FIS Model *(10-, 50-, 100-, and 500-year)*, downstream of the project at cross-section 19011 within 0 feet *(vertical)* and upstream of the project at cross section 20726 (20836) within -0.90 feet *(vertical)*.

B. The revised floodway elevations tie into those computed by the effective FIS model, dowstream of the project at cross section 19011 within 0 feet *(vertical)* and upstream of the project at cross section 20726 (20836) within -0.90 feet *(vertical)*.

C. Attach profiles, at the same vertical and horizontal scale as the profiles in the effective FIS report, showing stream bed and profiles of all floods studied (without encroachment). Also, label all cross sections, road crossings (including low chord and top-of-road data), culverts, tributaries, corporate limits, and study limits. If channel distance has changed, the stationing should be revised for all profile sheets.

D. Attach a Floodway Data Table showing data for each cross section listed in the published Floodway Data Table in the FIS report.

Proceed to Riverine/Coastal Mapping Form

6. *Is the discharge value used to determine the floodway anywhere different from that used to determine the natural 100-year flood elevations?* .... ☐ Yes ☒ No

If Yes, explain:

____

____

____

7. Do 100-year water surface elevations increase at any location? .... ☐ Yes ☒ No

If yes, please attach a list of the locations where the increases occur, state whether or not the increases are located on the requestor's property, and provide an explanation of the reason for the increases. *(For example: State if the increase is due to fill placed within the floodway fringe or placed within the currently adopted floodway limits)*

____

____

____

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C. Attach profiles, at the same vertical and horizontal scale as the profiles in the effective FIS report, showing stream bed and profiles of all floods studied (without encroachment). Also, label all cross sections, road crossings (including low chord and top-of-road data), culverts, tributaries, corporate limits, and study limits. If channel distance has changed, the stationing should be revised for all profile sheets.

D. Attach a Floodway Data Table showing data for each cross section listed in the published Floodway Data Table in the FIS report.

Proceed to Riverine/Coastal Mapping Form

AL EMERGENCY MANAGMENT AGENCY

WATER SURFACE ELEVATION CHECK

COMMUNITY NAME	FLOODIND SOURCE	PROJECT NAME /IDENTIFIER
Macomb Township	Gloede Ditch	Merlini Property

	EFFECTIVE			DUPLICATE EFFECTIVE			CORRECTED EFFECTIVE			EXISTING/PRE-PROJECT			REVISED/PROJECT		
File Names				EFF, FWEFF			CORREFF		CORRFW	EXCOND		EXCONDFW	POSTPROJ		POSTFW
SECNO	NCWSEL[1]	FCWSEL[2]	SURC[3]	NCWSEL[1]	FCWSEL[2]	SURC.[3]	NCWSEL[1]	FCWSEL[2]	SURC[3]	NCWSEL[1]	FCWSEL[2]	SURC.[3]	NCWSEL[1]	FCWSEL[2]	SURC[3]
19011	602.14	602.1	0.	602.14	602.1	0.	602.14	602.1	0.	602.14	602.1	0.	602.14	602.1	0.
19426	602.29	602.3	0.	602.28	602.3	0.	602.27	602.3	0.	602.27	602.3	0.	602.27	602.3	0.
19536	602.33	602.3	0.	602.33	602.3	0.	602.31	602.3	0.	602.31	602.3	0.	602.31	602.3	0.
19726	602.47	602.5	0.	602.47	602.5	0.	602.47	602.5	0.	602.40	602.4	0.	602.39	602.4	0.
19950										603.04	603.0	0.	602.52	602.5	0.
20175										603.77	603.8	0.	602.65	602.6	0.
20350										604.03	604.0	0.	602.76	602.8	0.
20464										604.20	604.2	0.	602.80	602.8	0.
20836 20726*	604.44	604.5	0.1	604.44	604.5	0.1	604.39	604.4	0.	604.63	604.7	0.1	603.54	603.5	0.

COMMENTS:

*Cross section 20726 was labeled 20836 in the Effective and Duplicate Effective Model and was corrected to 20726 in the Corrected Effective, Existing Conditions, and Post Project Conditions Models based on the stream length.

1-100-year (natural) Water Surface Elevation 2-Encroachment (floodway) Water Surface Elevation 3-Surcharge Value

Include all cross sections in the models between tie-in points. Any interpolated values should be indicated in parentheses.

6 Is the discharge value used to determine the floodway anywhere different from that used to determine the natural 100-year flood elevations? .... ☐ Yes ☒ No

If Yes, explain:

____

____

____

7. Do 100-year water surface elevations increase at any location? .... ☐ Yes ☒ No

If yes, please attach a list of the locations where the increases occur, state whether or not the increases are located on the requestor's property, and provide an explanation of the reason for the increases. *(For example: State if the increase is due to fill placed within the floodway fringe or placed within the currently adopted floodway limits)*

____

____

____

Please attach a completed comparison table entitled: Water Surface Elevation Check (See page 6)

6. REVISED FIRM/FBFM AND FLOOD PROFILES

A. The revised water surface elevations tie into those computed by the effective FIS Model *(10-, 50-, 100-, and 500-year)*, downstream of the project at cross-section 19011 within 0 feet *(vertical)* and upstream of the project at cross section 20726 (20836) within -0.90 feet *(vertical)*.

B. The revised floodway elevations tie into those computed by the effective FIS model, dowstream of the project at cross section 19011 within 0 feet *(vertical)* and upstream of the project at cross section 20726 (20836) within -0.90 feet *(vertical)*.

C. Attach profiles, at the same vertical and horizontal scale as the profiles in the effective FIS report, showing stream bed and profiles of all floods studied (without encroachment). Also, label all cross sections, road crossings (including low chord and top-of-road data), culverts, tributaries, corporate limits, and study limits. If channel distance has changed, the stationing should be revised for all profile sheets.

D. Attach a Floodway Data Table showing data for each cross section listed in the published Floodway Data Table in the FIS report.

Proceed to Riverine /Coastal Mapping Form

FEDERAL EMERGENCY MANAGMENT AGENCY
WATER SURFACE ELEVATION CHECK

COMMUNITY NAME	FLOODIND SOURCE	PROJECT NAME /IDENTIFIER
Macomb Township	Gloede Ditch	Merlini Property

	EFFECTIVE			DUPLICATE EFFECTIVE			CORRECTED EFFECTIVE			EXISTING/PRE-PROJECT			REVISED/PROJECT		
File Names				EFF, FWEFF			CORREFF	CORRFW		EXCOND	EXCONDFW		POSTPROJ	POSTFW	
SECNO	NCWSEL¹	FCWSEL²	SURC³	NCWSEL¹	FCWSEL²	SURC³	NCWSEL¹	FCWSEL²	SURC³	NCWSEL¹	FCWSEL²	SURC³	NCWSEL¹	FCWSEL²	SURC³
19011	602.14	602.1	0.	602.14	602.1	0.	602.14	602.1	0.	602.14	602.1	0.	602.14	602.1	0.
19426	602.29	602.3	0.	602.28	602.3	0.	602.27	602.3	0.	602.27	602.3	0.	602.27	602.3	0.
19536	602.33	602.3	0.	602.33	602.3	0.	602.31	602.3	0.	602.31	602.3	0.	602.31	602.3	0.
19726	602.47	602.5	0.	602.47	602.5	0.	602.47	602.5	0.	602.40	602.4	0.	602.39	602.4	0.
19950										603.04	603.0	0.	602.52	602.5	0.
20175										603.77	603.8	0.	602.65	602.6	0.
20350										604.03	604.0	0.	602.76	602.8	0.
20464										604.20	604.2	0.	602.82	602.8	0.
20836) 20726*	604.44	604.5	0.1	604.44	604.5	0.1	604.39	604.4	0.	604.63	604.7	0.1	603.54	603.5	0.

COMMENTS:

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1-100-year (natural) Water Surface Elevation 2-Encroachment (floodway) Water Surface Elevation 3-Surcharge Value

Include all cross sections in the models between tie-in points. Any interpolated values should be indicated in parentheses.

PUBLIC BURDEN DISCLOSURE NOTICE

Community Name: Macomb Township, Macomb County, Michigan

Flooding Source: Gloede Ditch

Project Name/Identifier: Merlini Property

1. MAPPING CHANGES

1 A topographic work map of suitable scale, contour interval, and planimetric definition must be submitted showing (*indicate N/A when not applicable*):

	Item	Included		
A.	Revised approximate 100-year floodplain boundaries (Zone A)	☒ Yes	☐ No	☐ N/A
B.	Revised detailed 100- and 500-year floodplain boundaries	☒ Yes	☐ No	☐ N/A
C.	Revised 100-year floodway boundaries	☒ Yes	☐ No	☐ N/A
D.	Location and alignment of all cross sections used in the revised hydraulic model with stationing control indicated	☒ Yes	☐ No	☐ N/A
E.	Stream alignments, road and dam alignments	☒ Yes	☐ No	☐ N/A
F.	Current community boundaries	☐ Yes	☐ No	☒ N/A
G.	Effective 100- and 500-year floodplain and 100-year floodway boundaries from the FIRM/FBFM reduced or enlarged to the scale of the topographic work map	☒ Yes	☐ No	☐ N/A
H.	Tie-ins between the effective and revised 100- and 500-year floodplains and 100-year floodway boundaries	☒ Yes	☐ No	☐ N/A
I.	The requestor's property boundaries and community easements	☒ Yes	☐ No	☐ N/A
J.	The signed certification of a registered professional engineer	☒ Yes	☐ No	☐ N/A
K.	Location and description of reference marks	☒ Yes	☐ No	☐ N/A
L.	Vertical datum (example: NGVD, NAVD etc.) NGVD	☒ Yes	☐ No	☐ N/A
M.	Coastal zone designations tie into adjacent areas not being revised	☐ Yes	☐ No	☒ N/A
N.	Location and alignment of all coastal transects used to revise the coastal analyses	☐ Yes	☐ No	☒ N/A

If any of the items above are marked no or N/A, please explain: F. community boundaries are not within the project area M. & N. Coastal zone designations are not found in this area.

2. What is the source and date of the updated topographic information (*example: orthophoto maps, July 1985; field survey, May 1979, beach profiles, June 1987, etc.*)? ______

3. What is the scale and contour interval of the following workmaps?
   a. Effective FIS 1"=800' scale 1' Contour interval
   b. Revision Request 1"=40' scale 1' Contour interval

NOTE: Revised topographic information must be of equal or greater detail.

4. Attach an annotated FIRM and FBFM at the scale of the effective FIRM and FBFM showing the revised 100-year and 500-year floodplains and the 100-year floodway boundaries and how they tie into those shown on the effective FIRM and FBFM downstream and upstream of the revision or adjacent to the area of revision for coastal studies.

Attach additional pages if needed.

5. Flood Boundaries and 100-year water surface elevations:

Has the 100-year floodplain been shifted or increased or the 100-year water surface elevation increased at any location on property other than the requestor's or community's? ☐ Yes ☒ No

If yes, please give the location of shift or increase and an explanation for the increase.

a. Have the affected property owners been notified of this shift or increase and the effect it will have on their property? .... ☐ Yes ☐ No

If yes, please attach letters from these property owners stating they have no objections to the revised flood boundaries if a LOMR is being requested.

b. What is the number of insurable structures that will be impacted by this shift or increase? ______

6. Have the floodway boundaries shifted or increased at any location compared to those shown on the effective FBFM or FIRM? .... ☒ Yes ☐ No

If yes, explain:

At section 19726 the width increases from 49 feet to 81 feet because the improved drain section carries all the flow within the banks of a larger channel.

If a V-zone has been designated, has it been delineated to extend landward to the heel of the primary frontal dune? ☐ Yes ☐ No N/A

If no, explain:

8. Manual or digital map submission:

☒ Manual

☐ Digital

Digital map submissions may be used to update digital FIRMs (DFIRMs). For updating DFIRMs, these submissions must be coordinated with FEMA Headquarters as far in advance of submission as possible.

2. EARTH FILL PLACEMENT

1. The fill is: ☐ Existing ☐ Proposed N/A

2. Has fill been/will be placed in the regulatory floodway? .... ☐ Yes ☒ No
   If yes, please attach completed Riverine Hydraulic Analysis Form.

3. Has fill been/will be placed in floodway fringe *(area between the floodway and 100-year floodplain boundaries)*? .... ☐ Yes ☒ No

   If yes, then complete A, B, C, and D below.

   A. Are fill slopes for granular materials steeper than one vertical on one-and-one-half horizontal? .... ☐ Yes ☐ No

      If yes, justify steeper slopes ______________________________

      ____

   B. Is adequate erosion protection provided for fill slopes exposed to moving flood waters? *(Slopes exposed to flows with velocities of up to 5 feet per second (fps) during the 100-year flood must, at a minimum, be protected by a cover of grass, vines, weeds, or similar vegetation; slopes exposed to flows with velocities greater than 5 fps during the 100-year flood must, at a minimum, be protected by stone or rock riprap.)*
      .... ☐ Yes ☐ No

      If no, describe erosion protection provided ______________________________

      ____

   C. Has all fill placed in revised 100-year floodplain been compacted to 95 percent of the maximum density obtainable with the Standard Proctor Test Method or acceptable equivalent method? ☐ Yes ☐ No

   D. Can structures conceivably be constructed on the fill at any time in the future? ☐ Yes ☐ No

   If yes, provide certification of fill compaction (item C. above) by the community's NFIP permit official, a registered professional engineer, or an accredited soils engineer.

4. Has fill been/will be placed in a V-zone? ☐ Yes ☒ No

   If yes, is the fill protected from erosion by a flood control structure such as a revetment or seawall? ☐ Yes ☐ No

   If yes, attach the coastal structures form.

FEDERAL EMERGENCY MANAGEMENT AGENCY CHANNELIZATION FORM	O M B Burden No 3067-0148 Expires July 31, 1997	FEMA USE ONLY

PUBLIC BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 1.75 hours per response. The burden estimate includes th time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, an completing and reviewing the form. Send comments regarding the accuracy of the burden estimate and any suggestion for reducing this burden, to: Information Collections Management, Federal Emergency Management Agency, 500 Street, S.W., Washington, DC 20472; and to the Office of Management and Budget, Paperwork Reduction Project (3067 0148), Washington, DC 20503.

Community Name: Macomb Township, Macomb County, Michigan

Flooding Source: Gloede Ditch

Project Name/Identifier: Merlini Property

1. EXTENT OF CHANNELIZATION

Downstream limit: 19536

Upstream limit: 20414

2. CHANNEL DESCRIPTION

1. Describe the inlet to the channel Transition from existing channel to offset high flow channel. At upstream end, transition to existing channel.

2. Briefly describe the shape of the channel *(both cross sectional and planimetric configuration)* and its lining *(channel bottom and sides)* Section 19536-19726: transition from downstream cleanout to upstream cleanout; Section 19726-20414: 12' bottom with offset high flow channel; 20414: match existing channel; 20414-20726: existing conditions

3. Describe the outlet from the channel Section 19011 is the downstream limit of this study. At that section, it is the existing downstream channel.

4. The channelization includes:

   - ☐ Levees *(Attach Levee Form)*
   - ☐ Drop structures
   - ☐ Superelevated sections
   - ☒ Transitions in cross sectional geometry
   - ☐ Debris basin/detention basin
   - ☐ Energy dissipater
   - ☐ Other

5. Attach the following.

   a. Certified engineering drawings showing channel alignment and locations of inlet, outlet, and items checked in item 4

   b. Typical cross sections and profiles of channel banks and invert

1. What is the 100-year discharge? .... 755 cfs

2. Do the cross sections in the hydraulic model match the typical cross sections in the plans? ☒ Yes ☐ No

3. Are the channel banks higher than the 100- year flood elevations everywhere? ..... ☒ Yes ☐ No

4. Are the channel banks higher than the 100-year flood energy grade lines everywhere? . ☒ Yes ☐ No

5. Is the land on both sides of the channel above the adjacent 100-year flood elevation at all points along the channel? .... ☒ Yes ☐ No

6. What is the range of freeboard? .... — feet

7. What is the range of the 100-year flood velocities? .... — ft/sec

8. What is the lining type? (both bottom and sides) Vegetative cover proposed

Explain how the channel lining prevents erosion and maintains channel stability *(attach documentation)*

______

______

What is the design elevation in the channel based on?

☐ Subcritical flow
☐ Critical flow
☐ Supercritical flow
☒ Energy grade line

Is 100-year flood profile based on the above type of flow? .... ☒ Yes ☐ No

If no, explain: ______

______

10. Is there the potential for a hydraulic jump at the following locations?

Inlet to channel .... ☐ Yes ☒ No
Outlet of channel .... ☐ Yes ☒ No
At Drop Structures .... ☐ Yes ☒ No
At Transitions .... ☐ Yes ☒ No
Other locations. Explain: ______

If the answer to any of the above is yes, please explain how the hydraulic jump is controlled and the effects of the hydraulic jump on the stability of the channel.

Explain: ______

______

______

______

______

______

______

1. A. Is there any indication from historical records that sediment transport (including scour and deposition) can affect the 100-year water surface elevations and/or the capacity of the channel? ..... ☐ Yes ☒ No

   B. Based on the conditions of the watershed and stream bed, is there a potential for sediment transport (including scour and deposition) to affect the 100-year water surface elevations and /or the capacity of the channel? .... ☐ Yes ☒ No

2. If the answer to either 1A or 1B is yes:

   A. What is the estimated sediment (bed) load?
   ______________cfs (attach gradation curve)

   Explain method used to estimate load ____

   ____

   ____

   ____

   ____

   B. Is the 100-year flood velocity anywhere within the channel less than the 100-year flood velocity of the inlet? ☐ Yes ☐ No

   C. Will sediment accumulate anywhere within the channel? ☐ Yes ☐ No

   D. Will deposition or scour occur at or near the inlet? ☐ Yes ☐ No

   E. Will deposition or scour occur at or near the outlet? ☐ Yes ☐ No

Attach documentation showing affects on the Hydrologic and Hydraulic analyses

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Macomb Twp

3) WATERCOURSE: Gloede Ditch

4) DOCUMENT TYPE: Clomr - Post - Floodway

00BREAK00

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                                                                        THIS RUN EXECUTED 26JUL97    08:41:56
 ****************************************
  HEC-2 WATER SURFACE PROFILES

  Version   4.6.2:  May 1991
 ****************************************


 T1      GLOEDE DITCH - 21 TO 22 MILE ROAD - SECTIONS 29 & 30
 T2      100 YEAR EVENT - STARTING WATER SURFACE= 602.14 [FLOOD STUDY XSEC 19011]
 T3      POST PROJECT CONDITIONS - FLOODWAY  AEW JOB NO. 526-002 (POSTFW.DAT)

 J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC    HVINS     Q        WSEL      FQ

       0.       2.       0.       0.       0.       0.        0.       0.    602.14

 J2  NPROF    IPLOT    PRFVS    XSECV    XSECH     FN       ALLDC     IBW      CHNIM     ITRACE

      1.       0.       -1.


 J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    110.      200.

 J5  LPRNT    NUMSEC                    ********REQUESTED SECTION NUMBERS********

    -10.      -10.

 IT        2.      755.      755.
 ET                          1.4
 NC    0.060     0.040     0.040       .3        .5
 X1    19011.       8.       25.      122.        0.        0.        0.        0.        0.        0.
 GR    602.49       0.    602.49       25.    593.27       41.    593.27       49.    597.67       65.
 GR    599.05     105.    602.36      122.    602.36      139.

 X1    19426.       8.       25.      122.      415.      415.      415.        0.        0.        0.
 GR    603.00       0.    603.00       25.    594.19       41.    594.19       49.    597.86       65.
 GR    597.97     105.    602.84      122.    602.84      139.

          VALLEY SECTION NO. 2 (J&A)         SECT. AK  (Q)
 X1    19536.       6.        0.       97.      110.      110.      110.        0.        0.        0.
 GR    603.30       0.    594.31       22.    594.31       34.    598.31       46.    599.31       76.
 GR    603.67      97.

 X1    19726.       6.        0.       92.      190.      190.      190.        0.        0.        0.
 GR    604.37       0.    594.50       18.    594.50       30.    598.50       42.    599.50       72.
 GR    604.00      92.

 X1    19950.       6.        0.       95.      240.      220.      224.        0.        0.        0.
 GR    605.28       0.    594.72       22.    594.72       34.    598.72       46.    599.72       76.
 GR    604.46      95.
```

X1	20175.	6.	0.	92.	225.	225.	225.	0.	0.	0.
GR	604.70	0.	594.95	17.	594 95	29.	598.95	41.	599.95	71.
GR	605.23	92.								

X1	20350.	6.	0.	85.	175.	175.	175.	0.	0.	0.
GR	605.65	0.	595.12	18.	595.12	30.	599.14	42.	600.14	72.
GR	603.35	85.								

X1	20464.	4.	0.	44.	164.	164.	164.	0.	0.	0.
GR	604.64	0.	596.30	17.	596.30	29.	605.64	44.		

VALLEY SECTION NO. 1 (J&A) SECT. AL (R)

X1	20726.	17.	500.	532.	262.	262.	262.	0.	0.	0.
X3	10.									
GR	603.3	0.	604.3	100.0	604.3	200.0	604.5	300.0	604.6	400.0
GR	604.7	500.0	598.1	508.0	597.0	511.0	596.8	516.0	596.9	520.0
GR	597.9	524.0	604.9	532.0	604.6	600.0	605.4	700.0	604.8	800.0
GR	604.6	900.0	605.2	1000.0	0.	0.	0.	0.	0.	0.

T1 GLOEDE DITCH - 21 TO 22 MILE ROAD - SECTIONS 29 & 30
T2 100 YEAR EVENT - STARTING WATER SURFACE= 602.14 [FLOOD STUDY XSEC 19011]
T3 POST PROJECT CONDITIONS - FLOODWAY AEW JOB NO. 526-002 (POSTFW.DAT)

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	3.	0.	0.	0.	0.	0.	0.	602.14	

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	15.	0.	-1.							

THIS RUN EXECUTED 26JUL97 08:41:56

****
HEC-2 WATER SURFACE PROFILES

Version 4.6.2: May 1991
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

POST PROJECT CONDITIONS

SUMMARY PRINTOUT TABLE 110

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STE
	19011.000	602.14	.00	602.19	95.26	.00	755.00	.00	.00	.00	25.00	122.00	
	19011.000	602.14	.00	602.19	95.26	.00	755.00	.00	.00	25.00	25.00	122.00	122.
	19426.000	602.27	.00	602.32	93.73	.00	755.00	.00	.00	.00	25.00	122.00	
	19426.000	602.28	.00	602.32	93.68	.00	755.00	.00	.00	25.00	25.00	122.00	122.
	19536.000	602.31	.00	602.37	88.03	.00	755.00	.00	.00	.00	.00	97.00	
	19536.000	602.31	.00	602.37	88.06	.00	755.00	.00	.00	.00	.00	97.00	97.
	19726.000	602.39	.00	602.47	81.21	.00	755.00	.00	.00	.00	.00	92.00	.
	19726.000	602.40	.00	602.47	81.29	.00	755.00	.00	.00	.00	.00	92.00	92.
	19950.000	602.52	.00	602.59	81.40	.00	755.00	.00	.00	.00	.00	95.00	.
	19950.000	602.52	.00	602.59	81.44	.00	755.00	.00	.00	.00	.00	95.00	95.
	20175.000	602.65	.00	602.73	78.11	.00	755.00	.00	.00	.00	.00	92.00	.
	20175.000	602.64	.00	602.73	78.13	.00	755.00	.00	.00	.00	.00	92.00	92.
	20350.000	602.76	.00	602.85	77.61	.00	755.00	.00	.00	.00	.00	85.00	.
	20350.000	602.76	.00	602.85	77.64	.00	755.00	.00	.00	.00	.00	85.00	85.
*	20464.000	602.82	.00	603.18	35.75	.00	755.00	.00	.00	.00	.00	44.00	.
*	20464.000	602.81	.00	603.18	35.74	.00	755.00	.00	.00	.00	.00	44.00	44.
	20726.000	603.54	.00	604.00	29.04	.00	755.00	.00	.00	.00	500.00	532.00	.
	20726.000	603.54	.00	604.00	29.04	.00	755.00	.00	.00	500.00	500.00	532.00	532.

SUMMARY OF ERRORS AND SPECIAL NOTES

```
WARNING SECNO=  20464.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  20464.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
```

FLOODWAY DATA. POST PROJECT CONDITIONS
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WATER SURFACE ELEVATION WITHOUT FLOODWAY	WATER SURFACE ELEVATION DIFFERENCE
19011.000	95.	422.	1.8	602.1	602.1	.0
19426.000	94.	430.	1.8	602.3	602.3	.0
19536.000	88.	373.	2.0	602.3	602.3	.0
19726.000	81.	343.	2.2	602.4	602.4	.0
19950.000	81.	341.	2.2	602.5	602.5	.0
20175.000	78.	323.	2.3	602.6	602.6	.0
20350.000	78.	316.	2.4	602.8	602.8	.0
20464.000	36.	155.	4.9	602.8	602.8	.0
20726.000	29.	139.	5.4	603.5	603.5	.0

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Macomb Twp

3) WATERCOURSE: Gloede Ditch

4) DOCUMENT TYPE: Clomr- Post - natural

00BREAK00

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                                                                    THIS RUN EXECUTED 26JUL97    08:09:49

***************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
***************************************


T1      GLOEDE DITCH - 21 TO 22 MILE ROAD - SECTIONS 29 & 30
T2      10 YEAR EVENT STARTING WATER SURFACE= 600.75 [FLOOD STUDY XSEC 19011]
T3      POST PROJECT CONDITIONS - NATURAL    AEW JOB NO. 526-002 (POSTPROJ.DAT)

J1  ICHECK    INQ      NINV      IDIR      STRT     METRIC    HVINS     Q       WSEL     FQ

      0.       2.       0.        0.        0.        0.       0.       0.    600.75     0.

J2  NPROF    IPLOT    PRFVS     XSECV     XSECH      FN      ALLDC     IBW     CHNIM    ITRACE

     1.        0.      -1.


QT      4.      465.      690.      755.      1070.
NC   0.060     0.040     0.040        .3         .5
X1  19011.        8.       25.      122.         0.        0.        0.        0.        0.        0.
GR  602.49        0.    602.49       25.     593.27       41.    593.27       49.    597.67       65.
GR  599.05      105.    602.36      122.     602.36      139.

X1  19426.        8.       25.      122.       415.      415.      415.        0.        0.        0.
GR  603.00        0.    603.00       25.     594.19       41.    594.19       49.    597.86       65.
GR  597.97      105.    602.84      122.     602.84      139.

      VALLEY SECTION NO. 2 (J&A)             SECT. AK  (Q)
X1  19536.        6.        0.       97.       110.      110.      110.        0.        0.        0.
GR  603.30        0.    594.31       22.     594.31       34.    598.31       46.    599.31       76.
GR  603.67       97.

X1  19726.        6.        0.       92.       190.      190.      190.        0.        0.        0.
GR  604.37        0.    594.50       18.     594.50       30.    598.50       42.    599.50       72.
GR  604.00       92.

X1  19950.        6.        0.       95.       240.      220.      224.        0.        0.        0.
GR  605.28        0.    594.72       22.     594.72       34.    598.72       46.    599.72       76.
GR  604.46       95.

X1  20175.        6.        0.       92.       225.      225.      225.        0.        0.        0.
GR  604.70        0.    594.95       17.     594.95       29.    598.95       41.    599.95       71.
GR  605.23       92.

X1  20350.        6.        0.       85.       175       175.      175.        0.        0.        0.
GR  605.65        0.    595.12       18.     595.12       30.    599.14       42.    600.14       72.
GR  603.35       85.
```

X1	20464.	4.	0.	44.	164.	164.	164.	0.	0.	0.
GR	604.64	0.	596.30	17.	596.30	29.	605.64	44.		

VALLEY SECTION NO. 1 (J&A) SECT. AL (R)

X1	20726.	17.	500.	532.	262.	262.	262.	0.	0.	0.
X3	10.									
GR	603.3	0.	604.3	100.0	604.3	200.0	604.5	300.0	604.6	400.0
GR	604.7	500.0	598.1	508.0	597.0	511.0	596.8	516.0	596.9	520.0
GR	597.9	524.0	604.9	532.0	604.6	600.0	605.4	700.0	604.8	800.0
GR	604.6	900.0	605.2	1000.0	0.	0.	0.	0.	0.	0.

```
 SECNO      DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
 Q          QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
 TIME       VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
 SLOPE      XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


*PROF 1


CCHV=      .300 CEHV=      .500
*SECNO 19011.000
 19011.000       7.48    600.75       .00    600.75    600.79       .04       .00       .00    602.49
     465.0         .0     465.0        .0        .0     295.9        .0        .0        .0    602.36
       .00        .00      1.57       .00      .000      .040      .000      .000    593.27     28.02
   .000358         0.        0.        0.         0         0         0       .00     85.71    113.73


*SECNO 19426.000
 19426.000       6.70    600.89       .00       .00    600.93       .04       .14       .00    603.00
     465.0         .0     465.0        .0        .0     306.8        .0       2.9        .8    602.84
       .08        .00      1.52       .00      .000      .040      .000      .000    594.19     28.82
   .000319       415.      415.      415.         0         0         0       .00     86.41    115.22


*SECNO 19536.000
        VALLEY SECTION NO. 2 (J&A)             SECT. AK  (Q)
 19536.000       6.62    600.93       .00       .00    600.98       .05       .04       .01    603.30
     465.0         .0     465.0        .0        .0     258.5        .0       3.6       1.0    603.67
       .09        .00      1.80       .00      .000      .040      .000      .000    594.31      5.80
   .000492       110.      110.      110.         0         0         0       .00     78.01     83.81


*SECNO 19726.000
 19726.000       6.53    601.03       .00       .00    601.09       .06       .10       .00    604.37
     465.0         .0     465.0        .0        .0     237.5        .0       4.7       1.4    604.00
       .12        .00      1.96       .00      .000      .040      .000      .000    594.50      6.10
   .000599       190.      190.      190.         2         0         0       .00     72.69     78.79


*SECNO 19950.000
 19950.000       6.44    601.16       .00       .00    601.22       .06       .14       .00    605.28
     465.0         .0     465.0        .0        .0     236.0        .0       5.9       1.7    604.46
       .15        .00      1.97       .00      .000      .040      .000      .000    594.72      8.59
   .000616       240.      224.      220.         1         0         0       .00     73.18     81.76


*SECNO 20175.000
 20175.000       6.36    601.31       .00       .00    601.38       .07       .15       .00    604.70
     465.0         .0     465.0        .0        .0     222.7        .0       7.1       2.1    605.23
       .18        .00      2.09       .00      .000      .040      .000      .000    594.95      5.93
   .000714       225.      225.      225.         0         0         0       .00     70.44     76.37
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 20350.000

20350.000	6.32	601.44	.00	.00	601.51	.07	.13	.00	605.65
465.0	.0	465.0	.0	.0	218.4	.0	8.0	2.4	603.35
.20	.00	2.13	.00	.000	.040	.000	.000	595.12	7.21
.000755	175.	175.	175.	1	0	0	.00	70.01	77.23

*SECNO 20464.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE. KRATIO = .56

20464.000	5.24	601.54	.00	.00	601.81	.26	.20	.10	604.64
465.0	.0	465.0	.0	.0	113.2	.0	8.6	2.6	605.64
.22	.00	4.11	.00	.000	040	.000	.000	596.30	6.30
.002442	164.	164.	164.	1	0	0	.00	31.13	37.43

*SECNO 20726.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 604.70 ELREA= 604.90

VALLEY SECTION NO. 1 (J&A) SECT. AL (R)

20726.000	5.41	602.21	.00	.00	602.53	.32	.69	.03	604.70
465.0	.0	465.0	.0	.0	101.9	.0	9.2	2.7	604.90
.23	.00	4.56	.00	.000	040	.000	.000	596.80	503.02
.002861	262.	262.	262.	2	0	0	.00	25.90	528.92

```
T1     GLOEDE DITCH - 21 TO 22 MILE ROAD - SECTIONS 29 & 30
T2     50 YEAR EVENT STARTING WATER SURFACE= 601.88 (FLOOD STUDY LOMR XSEC 1901
T3     POST PROJECT CONDITIONS - NATURAL    AEW JOB NO. 526-002 (POSTPROJ.DAT)

J1  ICHECK    INQ      NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0.       3.       0.        0.        0.        0.        0.        0.     601.88

J2  NPROF     IPLOT    PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     2.                -1.
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  SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
  Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
  TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
  SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


*PROF 2


CCHV=      .300 CEHV=      .500
*SECNO 19011.000
 19011.000      8.61     601.88        .00     601.88     601.93        .05        .00        .00     602.49
     690.0        .0      690.0         .0         .0      397.1         .0         .0         .0     602.36
       .00       .00       1.74        .00       .000       .040       .000       .000     593.27      26.06
   .000332        0.         0.         0.          0          0          0        .00      93.48     119.53


*SECNO 19426.000
 19426.000      7.82     602.01        .00        .00     602.06        .04        .13        .00     603.00
     690.0        .0      690.0         .0         .0      406.9         .0        3.8         .9     602.84
       .07       .00       1.70        .00       .000        040       .000       .000     594.19      26.78
   .000301      415.       415.       415.          0          0          0        .00      92.35     119.13


*SECNO 19536.000
        VALLEY SECTION NO. 2 (J&A)               SECT. AK  (Q)
 19536.000      7.74     602.05        .00        .00     602.11        .06        .04        .01     603.30
     690.0        .0      690.0         .0         .0      350.2         .0        4.8        1.1     603.67
       .08       .00       1.97        .00       .000       .040       .000       .000     594.31       3.06
   .000450      110.       110.       110.          0          0          0        .00      86.13      89.19


*SECNO 19726.000
 19726.000      7.63     602.13        .00        .00     602.21        .07        .09        .01     604.37
     690.0        .0      690.0         .0         .0      321.2         .0        6.3        1.5     604.00
       .11       .00       2.15        .00       .000       .040       .000       .000     594.50       4.09
   .000546      190.       190.       190.          1          0          0        .00      79.58      83.67


*SECNO 19950.000
 19950.000      7.54     602.26        .00        .00     602.33        .07        .12        .00     605.28
     690.0        .0      690.0         .0         .0      319.4         .0        7.9        1.9     604.46
       .14       .00       2.16        .00       .000       .040       .000       .000     594.72       6.32
   .000556      240.       224.       220.          0          0          0        .00      79.82      86.13


*SECNO 20175.000
 20175.000      7.44     602.39        .00        .00     602.47        .08        .13        .00     604.70
     690.0        .0      690.0         .0         .0      302.2         .0        9.5        2.3     605.23
       .16       .00       2.28        .00       .000       .040       .000       .000     594.95       4.04
   .000637      225.       225.       225.          0          0          0        .00      76.63      80.67
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     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*SECNO 20350.000
  20350.000      7.38     602.50        .00        .00     602.58        .08        .11        .00     605.65
      690.0        .0      690.0         .0         .0      296.0         .0       10.7        2.6     603.35
        .19       .00       2.33        .00       .000       .040       .000       .000     595.12       5.40
    .000677      175.       175.       175.          0          0          0        .00      76.13      81.52

*SECNO 20464.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE.  KRATIO =    .51

  20464.000      6.27     602.57        .00        .00     602.91        .34        .20        .13     604.64
      690.0        .0      690.0         .0         .0      146.8         .0       11.5        2.8     605.64
        .19       .00       4.70        .00       .000       .040       .000       .000     596.30       4.23
    .002650      164.       164.       164.          2          0          0        .00      34.84      39.07

*SECNO 20726.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE. ELLEA=       604.70 ELREA=       604.90

        VALLEY SECTION NO. 1 (J&A)             SECT. AL  (R)
  20726.000      6.48     603.28        .00        .00     603.71        .43        .75        .04     604.70
      690.0        .0      690.0         .0         .0      131.1         .0       12.4        3.0     604.90
        .21       .00       5.26        .00       .000       .040       .000       .000     596.80     501.72
    .003143      262.       262.       262.          2          0          0        .00      28.42     530.15
```

T1 GLOEDE DITCH - 21 TO 22 MILE ROAD - SECTIONS 29 & 30
T2 100 YEAR EVENT STARTING WATER SURFACE= 602.14 [FLOOD STUDY XSEC 19011]
T3 POST PROJECT CONDITIONS - NATURAL AEW JOB NO. 526-002 (POSTPROJ.DAT)

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	4.	0.	0.	0.	0.	0.	0.	602.14	

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	3.		-1.							

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*PROF 3

CCHV= 300 CEHV= .500

*SECNO 19011.000

19011.000	8.87	602.14	.00	602.14	602.19	.05	.00	.00	602.49
755.0	.0	755.0	.0	.0	421.7	.0	.0	.0	602.36
.00	.00	1.79	.00	.000	.040	.000	.000	593.27	25.61
.000334	0.	0.	0.	0	0	0	.00	95.26	120.87

*SECNO 19426.000

19426.000	8.08	602.27	.00	.00	602.32	.05	.13	.00	603.00
755.0	.0	755.0	.0	.0	431.1	.0	4.1	.9	602.84
07	.00	1.75	.00	.000	040	.000	.000	594.19	26.31
000303	415.	415.	415.	0	0	0	.00	93.73	120.04

*SECNO 19536.000

VALLEY SECTION NO. 2 (J&A) SECT AK (Q)

19536.000	8.00	602.31	.00	.00	602.37	.06	.04	.01	603.30
755.0	.0	755.0	.0	.0	373.0	.0	5.1	1.1	603.67
.08	.00	2.02	.00	.000	.040	.000	.000	594.31	2.42
.000450	110.	110.	110.	0	0	0	.00	88.03	90.45

*SECNO 19726.000

19726.000	7.89	602.39	.00	.00	602.47	.08	.09	.01	604.37
755.0	.0	755.0	.0	.0	342.1	.0	6.6	1.5	604.00
.10	.00	2.21	.00	.000	040	.000	.000	594.50	3.62
.000544	190.	190.	190.	1	0	0	.00	81.21	84.83

*SECNO 19950.000

19950.000	7.80	602.52	.00	.00	602.59	.08	.12	.00	605.28
755.0	.0	755.0	.0	.0	340.3	.0	8.4	1.9	604.46
.13	.00	2.22	.00	.000	.040	.000	.000	594.72	5.77
.000554	240.	224.	220.	0	0	0	.00	81.40	87.18

*SECNO 20175.000

20175.000	7.70	602.65	.00	.00	602.73	.09	.13	.00	604.70
755.0	.0	755.0	.0	.0	322.3	.0	10.1	2.3	605.23
.16	.00	2.34	.00	.000	.040	.000	.000	594.95	3.59
.000632	225.	225.	225.	0	0	0	.00	78.11	81.70

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 SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
 Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
 TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
 SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


*SECNO 20350.000
 20350.000      7.64    602.76       .00       .00    602.85       .09       .11       .00    605.65
     755.0        .0     755.0        .0        .0     315.8        .0      11.4       2.6    603.35
       .18       .00      2.39       .00      .000      .040      .000      .000    595.12      4.96
   .000671      175.      175.      175.         0         0         0       .00     77.61     82.57

*SECNO 20464.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE.  KRATIO =   .50

 20464.000      6.52    602.82       .00       .00    603.18       .37       .20       .14    604.64
     755.0        .0     755.0        .0        .0     155.6        .0      12.3       2.9    605.64
       .19       .00      4.85       .00      .000      .040      .000      .000    596.30      3.72
   .002709      164.      164.      164.         2         0         0       .00     35.75     39.46

*SECNO 20726.000
3280 CROSS SECTION  20726.00 EXTENDED       .24 FEET

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE. ELLEA=       604.70 ELREA=       604.90

       VALLEY SECTION NO. 1 (J&A)           SECT. AL  (R)
 20726.000      6.74    603.54       .00       .00    604.00       .46       .77       .05    604.70
     755.0        .0     755.0        .0        .0     138.7        .0      13.2       3.1    604.90
       .20       .00      5.45       .00      .000      .040      .000      .000    596.80    501.40
   .003225      262.      262.      262.         2         0         0       .00     29.04    530.45
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T1      GLIDEDE DITCH - 21 TO 22 MILE ROAD - SECTIONS 29 & 30
T2      500 YEAR EVENT STARTING WATER SURFACE= 603.13 [FLOOD STUDY XSEC 19011]
T3      POST PROJECT CONDITIONS - NATURAL    AEW JOB NO. 526-002 (POSTPROJ.DAT)

J1  ICHECK   INQ     NINV    IDIR    STRT    METRIC   HVINS    Q      WSEL     FQ

      0.      5.      0.      0.      0.      0.       0.      0.    603.13

J2  NPROF    IPLOT   PRFVS   XSECV   XSECH   FN       ALLDC    IBW    CHNIM    ITRACE

     15.             -1.
```

```
 SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
 Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
 TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
 SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


*PROF 4


CCHV=     .300 CEHV=      .500
*SECNO 19011.000
3280 CROSS SECTION  19011.00 EXTENDED       .77 FEET

 19011.000      9.86    603.13       .00    603.13    603.19       .06       .00       .00    602.49
    1070.0       5.3    1057.4       7.3      16.0     517.5      13.1        .0        .0    602.36
       .00       .33      2.04       .56      .060      .040      .040      .000    593.27       .00
   .000340        0.        0.        0.         0         0         0       .00    139.00    139.00


*SECNO 19426.000
3280 CROSS SECTION  19426.00 EXTENDED       .43 FEET

 19426.000      9.08    603.27       .00       .00    603.33       .06       .14       .00    603.00
    1070.0       1.3    1066.0       2.8       6.8     526.4       7.3       5.2       1.3    602.84
       .06       .19      2.03       .38      .060      .040      .040      .000    594.19       .00
   .000326      415.      415.      415.         0         0         0       .00    139.00    139.00


*SECNO 19536.000
3280 CROSS SECTION  19536.00 EXTENDED       .01 FEET

       VALLEY SECTION NO. 2 (J&A)            SECT. AK  (Q)
 19536.000      8.99    603.30       .00       .00    603.39       .08       .04       .01    603.30
    1070.0        .0    1070.0        .0        .0     464.2        .0       6.4       1.6    603.67
       .07       .00      2.30       .00      .000      .040      .000      .000    594.31       .00
   .000484      110.      110.      110.         0         0         0       .00     95.24     95.24


*SECNO 19726.000
 19726.000      8.90    603.40       .00       .00    603.49       .10       .10       .01    604.37
    1070.0        .0    1070.0        .0        .0     426.6        .0       8.4       2.0    604.00
       .09       .00      2.51       .00      .000       040      .000      .000    594.50      1.79
   .000580      190.      190.      190.         1         0         0       .00     87.49     89.28


*SECNO 19950.000
 19950.000      8.81    603.53       .00       .00    603.62       .10       .13       .00    605.28
    1070.0        .0    1070.0        .0        .0     425.5        .0      10.6       2.5    604.46
       .12       .00      2.51       .00      .000      .040      .000      .000    594.72      3.67
   .000583      240.      224.      220.         0         0         0       .00     87.55     91.22
```

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 20175.000

20175.000	8.71	603.66	.00	.00	603.77	.11	.14	.01	604.70
1070.0	.0	1070.0	.0	.0	404.5	.0	12.7	2.9	605.23
.14	00	2.64	.00	.000	.040	.000	.000	594.95	1.82
.000657	225.	225.	225.	0	0	0	.00	83.92	85.74

*SECNO 20350.000
3280 CROSS SECTION 20350.00 EXTENDED .42 FEET

20350.000	8.65	603.77	.00	.00	603.89	.11	.12	.00	605.65
1070 0	.0	1070.0	.0	.0	397.5	.0	14.3	3.2	603.35
16	.00	2.69	.00	.000	.040	.000	.000	595.12	3.22
000678	175.	175.	175.	0	0	0	.00	81.78	85.00

*SECNO 20464.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE. KRATIO = .47

20464.000	7.50	603.80	.00	.00	604.28	.48	.21	.18	604.64
1070.0	.0	1070.0	.0	.0	192.3	.0	15.4	3.5	605.64
.17	.00	5.56	.00	.000	.040	.000	.000	596.30	1.72
.003061	164.	164.	164.	2	0	0	.00	39.32	41.04

*SECNO 20726.000
3280 CROSS SECTION 20726.00 EXTENDED 1.31 FEET

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 604.70 ELREA= 604.90

VALLEY SECTION NO. 1 (J&A) SECT. AL (R)

20726.000	7.81	604.61	.00	.00	605.22	.61	.87	.06	604.70
1070.0	.0	1070.0	.0	.0	170.9	.0	16.5	3.7	604.90
18	.00	6.26	.00	.000	.040	.000	.000	596.80	500.11
.003655	262.	262.	262.	2	0	0	.00	31.55	531.66

THIS RUN EXECUTED 26JUL97 08:09:49

****
HEC-2 WATER SURFACE PROFILES

Version 4.6.2: May 1991
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

POST PROJECT CONDITIONS

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01'
19011.000	.00	.00	.00	593.27	465.00	600.75	.00	600.79	3.58	1.57	295.89	245.
19011.000	.00	.00	.00	593.27	690.00	601.88	.00	601.93	3.32	1.74	397.13	378.
19011.000	.00	.00	.00	593.27	755.00	602.14	.00	602.19	3.34	1.79	421.67	412.
19011.000	.00	.00	.00	593.27	1070.00	603.13	.00	603.19	3.40	2.04	546.56	580.
19426.000	415.00	.00	.00	594.19	465.00	600.89	.00	600.93	3.19	1.52	306.82	260.
19426.000	415.00	.00	.00	594.19	690.00	602.01	.00	602.06	3.01	1.70	406.87	397.
19426.000	415.00	.00	.00	594.19	755.00	602.27	.00	602.32	3.03	1.75	431.14	433.
19426.000	415.00	.00	.00	594.19	1070.00	603.27	.00	603.33	3.26	2.03	540.46	592.
19536.000	110.00	.00	.00	594.31	465.00	600.93	.00	600.98	4.92	1.80	258.49	209.
19536.000	110.00	.00	.00	594.31	690.00	602.05	.00	602.11	4.50	1.97	350.25	325.
19536.000	110.00	.00	.00	594.31	755.00	602.31	.00	602.37	4.50	2.02	372.99	356.
19536.000	110.00	.00	.00	594.31	1070.00	603.30	.00	603.39	4.84	2.30	464.22	486.
19726.000	190.00	.00	.00	594.50	465.00	601.03	.00	601.09	5.99	1.96	237.54	189.
19726.000	190.00	.00	.00	594.50	690.00	602.13	.00	602.21	5.46	2.15	321.17	295.
19726.000	190.00	.00	.00	594.50	755.00	602.39	.00	602.47	5.44	2.21	342.13	323.
19726.000	190.00	.00	.00	594.50	1070.00	603.40	.00	603.49	5.80	2.51	426.55	444.
19950.000	224.00	.00	.00	594.72	465.00	601.16	.00	601.22	6.16	1.97	235.97	187.
19950.000	224.00	.00	.00	594.72	690.00	602.26	.00	602.33	5.56	2.16	319.36	292.
19950.000	224.00	.00	.00	594.72	755.00	602.52	.00	602.59	5.54	2.22	340.33	320.
19950.000	224.00	.00	.00	594.72	1070.00	603.53	.00	603.62	5.83	2.51	425.54	443.
20175.000	225.00	.00	.00	594.95	465.00	601.31	.00	601.38	7.14	2.09	222.68	174.
20175.000	225.00	.00	.00	594.95	690.00	602.39	.00	602.47	6.37	2.28	302.22	273.
20175.000	225.00	.00	.00	594.95	755.00	602.65	.00	602.73	6.32	2.34	322.29	300.
20175.000	225.00	.00	.00	594.95	1070.00	603.66	.00	603.77	6.57	2.64	404.54	417.
20350.000	175.00	.00	.00	595.12	465.00	601.44	.00	601.51	7.55	2.13	218.45	169.
20350.000	175.00	.00	.00	595.12	690.00	602.50	.00	602.58	6.77	2.33	296.00	265.
20350.000	175.00	.00	.00	595.12	755.00	602.76	.00	602.85	6.71	2.39	315.84	291.
20350.000	175.00	.00	.00	595.12	1070.00	603.77	.00	603.89	6.78	2.69	397.49	411.

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01
*	20464.000	164.00	.00	.00	596.30	465.00	601.54	.00	601.81	24.42	4.11	113.24	94.
*	20464.000	164.00	.00	.00	596.30	690.00	602.57	.00	602.91	26.50	4.70	146.78	134.
*	20464.000	164.00	.00	.00	596.30	755.00	602.82	.00	603.18	27.09	4.85	155.56	145.
*	20464.000	164.00	.00	.00	596.30	1070.00	603.80	.00	604.28	30.61	5.56	192.34	193.
	20726.000	262.00	.00	.00	596.80	465.00	602.21	.00	602.53	28.61	4.56	101.94	86.
	20726.000	262.00	.00	.00	596.80	690.00	603.28	.00	603.71	31.43	5.26	131.09	123.
	20726.000	262.00	.00	.00	596.80	755.00	603.54	.00	604.00	32.25	5.45	138.65	132.
	20726.000	262.00	.00	.00	596.80	1070.00	604.61	.00	605.22	36.55	6.26	170.92	176.

POST PROJECT CONDITIONS

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	19011.000	465.00	600.75	.00	.00	.00	85.71	.00
	19011.000	690.00	601.88	1.13	.00	.00	93.48	.00
	19011.000	755.00	602.14	.26	.00	.00	95.26	.00
	19011.000	1070.00	603.13	.99	.00	.00	139.00	.00
	19426.000	465.00	600.89	.00	.14	.00	86.41	415.00
	19426.000	690.00	602.01	1.12	.13	.00	92.35	415.00
	19426.000	755.00	602.27	.26	.13	.00	93.73	415.00
	19426.000	1070.00	603.27	.99	.14	.00	139.00	415.00
	19536.000	465.00	600.93	.00	.04	.00	78.01	110.00
	19536.000	690.00	602.05	1.12	.03	.00	86.13	110.00
	19536.000	755.00	602.31	.26	.03	.00	88.03	110.00
	19536.000	1070.00	603.30	1.00	.03	.00	95.24	110.00
	19726.000	465.00	601.03	.00	.10	.00	72.69	190.00
	19726.000	690.00	602.13	1.11	.09	.00	79.58	190.00
	19726.000	755.00	602.39	.26	.09	.00	81.21	190.00
	19726.000	1070.00	603.40	1.00	.09	.00	87.49	190.00
	19950.000	465.00	601.16	.00	.14	.00	73.18	224.00
	19950.000	690.00	602.26	1.09	.12	.00	79.82	224.00
	19950.000	755.00	602.52	.26	.12	.00	81.40	224.00
	19950.000	1070.00	603.53	1.01	.13	.00	87.55	224.00
	20175.000	465.00	601.31	.00	.15	.00	70.44	225.00
	20175.000	690.00	602.39	1.08	.13	.00	76.63	225.00
	20175.000	755.00	602.65	.26	.13	.00	78.11	225.00
	20175.000	1070.00	603.66	1.01	.13	.00	83.92	225.00
	20350.000	465.00	601.44	.00	.13	.00	70.01	175.00
	20350.000	690.00	602.50	1.06	.11	.00	76.13	175.00
	20350.000	755.00	602.76	.26	.11	.00	77.61	175.00
	20350.000	1070.00	603.77	1.02	.11	.00	81.78	175.00
*	20464.000	465.00	601.54	.00	.11	.00	31.13	164.00
*	20464.000	690.00	602.57	1.02	.07	.00	34.84	164.00
*	20464.000	755.00	602.82	.25	.06	.00	35.75	164.00
*	20464.000	1070.00	603.80	.98	.02	.00	39.32	164.00
	20726.000	465.00	602.21	.00	.66	.00	25.90	262.00
	20726.000	690.00	603.28	1.07	.71	.00	28.42	262.00
	20726.000	755.00	603.54	.26	.73	.00	29.04	262.00
	20726.000	1070.00	604.61	1.06	.81	.00	31.55	262.00

SUMMARY OF ERRORS AND SPECIAL NOTES

```
WARNING SECNO=  20464.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  20464.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  20464.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  20464.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
```

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Macomb Twp

3) WATERCOURSE: Gloede Ditch

4) DOCUMENT TYPE: Cloak - Sect 30 - Appendix A

00BREAK00

```
1****************************************                         ***************************************
 *  HEC-2 WATER SURFACE PROFILES          *                        *  U.S. ARMY CORPS OF ENGINEERS       *
 *                                        *                        *  HYDROLOGIC ENGINEERING CENTER      *
 *  Version   4 6.2;  May 1991            *                        *  609 SECOND STREET, SUITE D         *
 *                                        *                        *  DAVIS, CALIFORNIA 95616-4687       *
 *  RUN DATE    18JAN98    TIME   19 49:40 *                       *         (916) 756-1104              *
 ****************************************                          ***************************************


                    X     X  XXXXXXX   XXXXX             XXXXX
                    X     X  X        X     X           X     X
                    X     X  X        X                       X
                    XXXXXXX  XXXX     X         XXXXX    XXXXX
                    X     X  X        X                 X
                    X     X  X        X     X           X
                    X     X  XXXXXXX   XXXXX            XXXXXXX
1
   18JAN98      19:49:40                                                              PAGE    1


                                                            THIS RUN EXECUTED 18JAN98    19:49:40
 ************************************
  HEC-2 WATER SURFACE PROFILES

  Version   4.6.2;  May 1991
 ************************************


 T1    Macomb Township, Improv. of  Gloede  Ditch, CLOMR Application
 T2    100-year Flood Profile, Starting W.Surface elevation from FIS
 T3      Gloede Ditch, Duplicate Effective Model (File Name:EFF-NAT.dat)
 T4    Starting point of Study from section # 14886.00

 J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC    HVINS    Q       WSEL      FQ

                2                                            0.5              598.70

 J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN        ALLDC    IBW     CHNIM     ITRACE

                          -1


 QT    4.000       765      475       700       1085
 NC      .05       .05      .042
```

```
   Valley X-section 23+41  (AE&W)     Section Y
X1    14886         8      44.0      86.0                                                   -.24
X3                                   41.0
GR    600.5       0.0     597.0      14.0     596.0      44.0     592.0      60.0     592.0      70.0
GR    596.0      86.0     597.0     116.0     600.5     130.0

NC                                     .3        .5
X1    14981         8      83.0    117.01      95.0      95.0      95.0                -.24
X3       10                            83    604.36    117.01    604.36
GR    604.6       0.0     604.6      83.0     597.6     83.01     592.1      95.0     592.1     105.0
GR    597.6     117.0     604.6    117.01     604.6     200.0

NC      .04       .04      .021
X1    14982                                       1         1         1
BT       -4       0.0    604.36       0.0     83.00    604.36    600.76    117.01    604.36    600.76
BT              200.0    604.36       0.0
   Bridge X-section 24+56, 21 Mile Road (AE&W) Section Z

X1    15054                                      72        72        72
X2                                                                    1
    d/s limits of project property

NC     .035      .035      .033
X1    15055                                       1         1         1
X3       10                            83    604.36    117.01    604.36
1
   18JAN98      19:49:40
PAGE     2


NC      .04       .04      .037
QT        4       755       465       690      1070
   Valley X-section 25+33  (AE&W)     Section AA
X1    15097        10     191.0       257     42.00        42        42                -.24
GR    601.9       0.0     600.9     100.0     600.9     191.0     592.1     217.0     592.1     232.0
GR    600.4     257.0     600.6     300.0     600.8     400.0     601.2     500.0     601.4     600.0
   Valley X-section 26+83  (AE&W)     Section AB

X1    15228         8       267       333       131       131       131                -.24
GR    600.9       0.0     600.9     267.0     592.2     293.0     592.2     308.0     600.6     333.0
GR    600.8     400.0     600.9     500.0     601.1     600.0

X1    15303        12     282.0       322        75        75        75                -.24
X4        2     597.9       282     599.7       322
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GR   600.9      0.0    600.9    267.0    599.5    271.0    596.8    290.0    592.3    293.0
GR   592.3    309.0    596.8    316.0    598.3    326.0    600.6    333.0    600.8    400.0
GR   600.9    500.0    601.1    600.0

X1   15325                                  22       22       22                .7

NC     .05      .05      .03
X1   15328       14      267      333        3        3        3              -.24
GR   600.9      0.0    600.9    267.0    599.5    271.0    596.8    290.0    596.8    296.0
GR   595.3    296.0    595.3    308.0    596.8   308.01    596.8    316.0    598.3    326.0
GR   600.6    333.0    600.8    400.0    600.9    500.0    601.1    600.0
       Dam Section 27+83  (AE&W)   Section AC

X1   15329                                   1        1        1

X1   15332       12      282      322        3        3        3               .46
X4       2    597.9      282    599.7      322
GR   600.9      0.0    600.9      267    599.5      271    596.8      290    592.3      293
GR   592.3      309    596.8      316    598.3      326    600.6      333    600.8      400
GR   600.9      500    601.1      600

NC     .04      .04     .037
X1   15354                                  22       22       22               -.7

X1   15778      9.0      267      332      424      424      424              -.24
GR   600.9      0.0    600.9      100    600.9      267    592.5      292    592.2      307
GR   600.9      332    600.9      400    600.9      500    601.1      600

X1   15946       14      281      327      168      168      168              -.24
GR   600.3      0.0    600.1      100    600.1      200    600.3      281    598.3      284
GR   596.6    288.0    592.6      296    592.6      311    596.6      319    598.8      323
GR   600.6      327    600.6      400    600.8      500    601.2      600

NC    .035     .035      .08
X1   15947                                   1        1        1
X3      10                                                     599.5    599.5
1
   18JAN98      19:49:40
PAGE    3


SB                1.55     2.98             25.84             160.2        0   592.36   592.36
       Bridge Section 34+02 Private Bridge (AE&W)  Section AD
X1   15957                                  10       10       10
```

```
X2                           1  598.56  599.86
X3      10                                                      599.86  599.86
BT     -10       0  600.06     0.0     100  599.86     0.0     200  599.86     0.0
BT             281  600.06             284  600.16  598.06     323  600.26  598.56
BT             327  600.36             400  600.36             500  600.56
BT             600  600.96

NC    .058     .06    .038
X1   15958                               1       1       1
   Valley Section 42+07 (AE&W)       Section AE

X1   16752       7       0      67     794     794     794             -.24
X3                                             225
GR   601.2       0   593.0      26     593      41   600.9      67   600.9     122
GR   600.9     322   601.1     422
   Valley Section 43+56 (AE&W)       Section AF

X1   17401       7       0      69     649     649     649             -.24
GR   601.5       0   593.3      26   593.3      43   602.1      69   601.9     133
GR   602.2     138   602.0     338

X1   17764       7       0      76     363     363     363
GR  601.53       0  593.23      29  593.23      44   604.1      76   601.8     132
GR   601.9     220   602.0     300
   Valley Section 52+66 (AE&W)       Section AG

X1   17811       7       0      78      47      47      47             -.24
GR   601.8       0   593.5      30   593.5      45   604.7      78     602     130
GR   602.1     230   602.2     330
   Upstream property limits 15' upstream of section #17811=Sta.#17826
   Valley x-section obtained from AEW LOMR

NC     .06     .04     .04     0.3     0.5
X1   17911      10     283     333     100     100     100             -.24
GR   602.2       0   602.4     100     602     217   603.4     283  593.64     300
GR  593.64     314   604.7     333   602.0     400   602.1     500   602.2     600
   Valley X-section from AEW LOMR

X1   18011      10     283     333     100     100     100             -.24
GR   602.2       0   602.4     100     602     217   602.4     283  593.46     300
GR  593.46     313   602.4     333   602.0     400   602.1     500   602.2     600
   Valley Section from AEW LOMR

X1   18311      10     283     333     350     250     300             -.24
GR   602.2       0   602.4     100     602     217   603.3     283  593.43     300
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 GR   593.43         314      603.3         333         602         400      602.1          500        602.2          600
    Valley X-section from AEW LOMR
1
    18JAN98       19:49:40
PAGE     4


 X1    18911           8          0         139         600         600        600
 GR   602.33           0     602.33        17.0      599.14          34     598.28           74       593.79           90
 GR   593.79          98      602.5         114       602.5         139
    Valley x-section from AEW LOMR

 X1    19011           8          0         139         100         100        100
 GR   602.36           0     602.36          17      599.05          34     597.67           74       593.27           90
 GR   593.27          98     602.49         114      602.49         139
    valley x-section from AEW LOMR

 X1    19426           8          0         139         415         415        415
 GR   602.84           0     602.84          17      598.97          34     597.86           74       594.19           90
 GR   594.19          98      603.0         114       603.0         139
1
    18JAN98       19:49:40
PAGE     5

        SECNO      DEPTH      CWSEL      CRIWS      WSELK       EG         HV         HL         OLOSS      L-BANK ELEV
        Q          QLOB       QCH        QROB       ALOB        ACH        AROB       VOL        TWA        R-BANK ELEV
        TIME       VLOB       VCH        VROB       XNL         XNCH       XNR        WTN        ELMIN      SSTA
        SLOPE      XLOBL      XLCH       XLOBR      ITRIAL      IDC        ICONT      CORAR      TOPWID     ENDST


 *PROF 1
0

 *SECNO 14886.000

 3470 ENCROACHMENT STATIONS=       41.0      130.0  TYPE=       1  TARGET=       -41.000
  14886.000       6.94     598.70        .00     598.70     598.81        .11        .00        .00     595.76
      765.0        8.9      646.2      109.9        8.7      227.5       80.7         .0         .0     595.76
        .00       1.02       2.84       1.36       .050       .042       .050       .000     591.76      41.00
    .000699         0.         0.         0.          0          0          0        .00      82.76     123.76


 CCHV=      .300 CEHV=      .500
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 *SECNO 14981.000

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .54


 3470 ENCROACHMENT STATIONS=       83.0      117.0  TYPE=      1  TARGET=       34.010                       S
  ELENCL=    604.36  ELENCR=    604.36
                                                                                                            3
 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       604.36 ELREA=       604.36

  14981.000      6.84    598.70       .00       .00    599.03       .33       .11       .11    604.36         4
      765.0        .0     765.0        .0        .0     166.7        .0        .5        .1    604.36         E
        .01       .00      4.59       .00      .000      .042      .000      .000    591.86     83.01
    .002433       95.       95.       95.         2         0         0       .00     33.99    117.00         4

                                                                                                            1
 *SECNO 14982.000

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.00


 3370 NORMAL BRIDGE, NRD=   4 MIN ELTRD=   604.36 MAX ELLC=   600.76                                        S
                                                                                                            1
  14982.000      6.85    598.71       .00       .00    599.03       .33       .00       .00    604.36
      765.0        .0     765.0        .0        .0     166.7        .0        .5        .1    604.36
        .01       .00      4.59       .00      .000      .021      .000      .000    591.86     83.01
    .000608        1.        1.        1.         0         0         0       .00     33.99    117.00

                                                                                                            S
1                                                                                                           1
   18JAN98      19:49:40
PAGE    6


    SECNO      DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q          QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME       VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA          1
    SLOPE      XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


 *SECNO 15054.000

 3370 NORMAL BRIDGE, NRD=   4 MIN ELTRD=   604.36 MAX ELLC=   600.76

  15054.000      6.90    598.76       .00       .00    599.08       .32       .04       .00    604.36
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765.0	.0	765.0	.0	.0	168.5	.0	.8	.2	604.36
.01	.00	4.54	.00	.000	.021	.000	.000	591.86	83.01
000569	72.	72.	72.	2	0	0	.00	33.99	117.00

NO 15055.000

WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .64

ENCROACHMENT STATIONS= 83.0 117.0 TYPE= 1 TARGET= 34.010
NCL= 604.36 ELENCR= 604.36

OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 604.36 ELREA= 604.36

55.000	6.90	598.76	.00	.00	599.08	.32	.00	.00	604.36
765.0	.0	765.0	.0	.0	168.5	.0	.8	.2	604.36
.01	.00	4.54	.00	.000	.033	.000	.000	591.86	83.01
001454	1.	1.	1.	0	0	0	.00	33.99	117.00

NO 15097.000

097.000	7.19	599.05	.00	.00	599.18	.13	.04	.06	600.66
755.0	.0	755.0	.0	.0	262.1	.0	1.0	.2	600.16
.01	.00	2.88	.00	.000	.037	.000	.000	591.86	195.76
000725	42.	42.	42.	2	0	0	.00	57.90	253.66

NO 15228.000

228.000	7.18	599.14	.00	.00	599.27	.13	.09	.00	600.66
755.0	.0	755.0	.0	.0	262.0	.0	1.8	.4	600.36
.03	.00	2.88	.00	.000	.037	.000	.000	591.96	271.52
.000725	131.	131.	131.	0	0	0	.00	57.88	329.40

ECNO 15303.000

18JAN98 19:49:40
E 7

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3265 DIVIDED FLOW

15303.000	7.10	599.16	.00	.00	599.41	.25	.07	.06	597.66
755.0	9.0	742.8	3.3	7.7	185.5	3.6	2.2	.5	599.46
.03	1.16	4.00	.92	.040	.037	.040	.000	592.06	271.68
.001449	75.	75.	75.	2	0	0	.00	56.19	329.35

*SECNO 15325.000

3265 DIVIDED FLOW

15325.000	6.39	599.15	.00	.00	599.50	.35	.04	.05	598.36
755.0	2.1	752.6	.3	2.2	158.2	.5	2.3	.5	600.16
.03	.98	4.76	.59	.040	.037	.040	.000	592.76	276.55
.002407	22.	22.	22.	2	0	0	.00	45.69	327.20

*SECNO 15328.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .64

15328.000	3.98	599.04	.00	.00	599.63	.58	.01	.12	600.66
755.0	.0	755.0	.0	.0	123.1	.0	2.3	.5	600.36
.03	.00	6.13	.00	.000	.030	.000	.000	595.06	272.52
.005870	3.	3.	3.	3	0	0	.00	56.47	328.99

*SECNO 15329.000

15329.000	3.99	599.05	.00	.00	599.63	.59	.01	.00	600.66
755.0	.0	755.0	.0	.0	123.0	.0	2.3	.5	600.36
.03	.00	6.14	.00	.000	.030	.000	.000	595.06	272.53
.005881	1.	1.	1.	0	0	0	.00	56.46	328.99

*SECNO 15332.000

3265 DIVIDED FLOW

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.11

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

15332.000	6.65	599.41	.00	.00	599.72	.31	.01	.08	598.36
755.0	2.6	751.8	.6	3.8	167.9	1.2	2.3	.5	600.16
.03	.70	4.48	.49	.050	.030	.050	.000	592.76	274.80
.001318	3.	3.	3.	3	0	0	.00	49.47	327.97

*SECNO 15354.000

15354.000	7.52	599.58	.00	.00	599.78	.20	.03	.03	597.66
755.0	16.2	731.9	6.9	12.5	202.4	6.8	2.4	.6	599.46
.04	1.30	3.62	1.01	.040	.037	.040	.000	592.06	270.07
.001075	22.	22.	22.	3	0	0	.00	60.56	330.64

*SECNO 15778.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.48

15778.000	8.05	600.01	.00	.00	600.11	.10	.30	.03	600.66
755.0	.0	755.0	.0	.0	301.1	.0	5.0	1.2	600.66
.08	.00	2.51	.00	.000	.037	.000	.000	591.96	268.93
.000493	424.	424.	424.	2	0	0	.00	61.21	330.14

*SECNO 15946.000
3280 CROSS SECTION 15946.00 EXTENDED .03 FEET

15946.000	7.73	600.09	.00	.00	600.24	.15	.10	.03	600.06
755.0	14.7	740.3	.0	45.9	235.3	.0	6.1	1.9	600.36
.10	.32	3.15	.00	.040	.037	.000	.000	592.36	.00
.000760	168.	168.	168.	2	0	0	.00	326.40	326.40

*SECNO 15947.000
3280 CROSS SECTION 15947.00 EXTENDED .05 FEET

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .48

15947.000	7.75	600.11	.00	.00	600.24	.13	.00	.01	600.06
755.0	42.6	712.4	.0	52.2	236.3	.0	6.1	1.9	600.36
.10	.82	3.01	.00	.035	.080	.000	.000	592.36	.00
.003250	1.	1.	1.	2	0	0	.00	326.44	326.44

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

SPECIAL BRIDGE

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
.00	1.55	2.98	.00	25.84	.00	160.20	.00	592.36	592.36

*SECNO 15957.000
3280 CROSS SECTION 15957.00 EXTENDED .20 FEET

PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
600.64	600.24	.00	246.	512.	160.	160.	598.56	599.86	327.

15957.000	7.89	600.25	.00	.00	600.36	.10	.11	.00	600.06
755.0	96.6	658.4	.0	93.0	242.9	.0	6.2	2.0	600.36
.10	1.04	2.71	.00	.035	.080	.000	.000	592.36	.00
.002556	10.	10.	10.	2	0	3	.00	326.77	326.77

*SECNO 15958.000

3280 CROSS SECTION 15958.00 EXTENDED .19 FEET

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.91

15958.000	7.88	600.24	.00	.00	600.37	.13	.00	.02	600.06
755.0	29.3	725.7	.0	90.7	242.5	.0	6.2	2.0	600.36
.10	.32	2.99	.00	.058	.038	.000	.000	592.36	.00
.000704	1.	1.	1.	1	0	0	.00	326.75	326.75

*SECNO 16752.000
3280 CROSS SECTION 16752.00 EXTENDED .12 FEET

3470 ENCROACHMENT STATIONS= .0 225.0 TYPE= 1 TARGET= 224.999

16752.000	7.98	600.74	.00	.00	600.82	.08	.44	.02	600.96
755.0	.0	753.7	1.3	.0	325.5	12.9	12.3	7.0	600.66
.19	.00	2.32	.10	.000	.038	.060	.000	592.76	.69
.000440	794.	794.	794.	2	0	0	.00	224.31	225.00

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 17401.000

17401.000	7.96	601.02	.00	.00	601.10	.08	.28	.00	601.26
755.0	.0	755.0	.0	.0	330.1	.0	17.3	9.2	601.86
.27	.00	2.29	.00	.000	.038	.000	.000	593.06	.72
.000419	649.	649.	649.	1	0	0	.00	65.83	66.55

*SECNO 17764.000

17764.000	7.95	601.18	.00	.00	601.26	.08	.16	.00	601.53
755.0	.0	755.0	.0	.0	323.1	.0	20.0	9.7	604.10
.32	.00	2.34	.00	.000	.038	.000	.000	593.23	1.20
.000453	363.	363.	363.	1	0	0	.00	66.22	67.42

*SECNO 17811.000

17811.000	7.94	601.20	.00	.00	601.29	.08	.02	.00	601.56
755.0	.0	755.0	.0	.0	326.5	.0	20.3	9.8	604.46
.32	.00	2.31	.00	.000	.038	.000	.000	593.26	1.27
.000445	47.	47.	47.	0	0	0	.00	67.15	68.42

CCHV= .300 CEHV= .500

*SECNO 17911.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .63

17911.000	7.81	601.21	.00	.00	601.41	.19	.07	.05	603.16
755.0	.0	755.0	.0	.0	215.1	.0	21.0	9.9	604.46
.33	.00	3.51	.00	.000	.040	.000	.000	593.40	286.39
.001117	100.	100.	100.	2	0	0	.00	41.04	327.43

*SECNO 18011.000

18011.000	8.15	601.37	.00	.00	601.52	.15	.10	.01	602.16
755.0	.0	755.0	.0	.0	243.3	.0	21.5	10.0	602.16
.34	.00	3.10	.00	.000	.040	.000	.000	593.22	284.51
.000857	100.	100.	100.	2	0	0	.00	46.72	331.23

*SECNO 18311.000

18311.000	8.43	601.62	.00	.00	601.76	.14	.25	.00	603.06
755.0	.0	755.0	.0	.0	247.4	.0	23.2	10.3	603.06
.37	.00	3.05	.00	.000	.040	.000	.000	593.19	285.49
.000780	350.	300.	250.	2	0	0	.00	44.73	330.22

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 18911.000

18911.000	8.29	602.08	.00	.00	602.14	.06	.35	.03	602.33
755.0	.0	755.0	.0	.0	383.8	.0	27.5	11.3	602.50
.45	.00	1.97	.00	.000	.040	.000	.000	593.79	18.34
.000453	600.	600.	600.	2	0	0	.00	94.88	113.23

*SECNO 19011.000

19011.000	8.86	602.13	.00	.00	602.18	.05	.04	.00	602.36
755.0	.0	755.0	.0	.0	420.5	.0	28.5	11.5	602.49
.47	.00	1.80	.00	.000	.040	.000	.000	593.27	18.20
.000337	100.	100.	100.	2	0	0	.00	95.18	113.37

*SECNO 19426.000

19426.000	8.09	602.28	.00	.00	602.33	.05	.15	.00	602.84
755.0	.0	755.0	.0	.0	402.6	.0	32.4	12.4	603.00
.53	.00	1.88	.00	.000	.040	.000	.000	594.19	19.48
.000377	415.	415.	415.	3	0	0	.00	93.21	112.69

T1 Improvement of Gloede Ditch, CLOMR Application
T2 10 year flood profile, starting elevation from original FIS
T3 Gloede Ditch, Duplicate Effective Model
T4 Starting Point of study from section # 14886

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		3					0.5		597.58	

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	2		-1							

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV

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   Q          QLOB        QCH         QROB        ALOB        ACH         AROB        VOL         TWA         R-BANK ELEV
   TIME       VLOB        VCH         VROB        XNL         XNCH        XNR         WTN         ELMIN       SSTA
   SLOPE      XLOBL       XLCH        XLOBR       ITRIAL      IDC         ICONT       CORAR       TOPWID      ENDST

*PROF 2
0

*SECNO 14886.000

3470 ENCROACHMENT STATIONS=        41.0       130.0  TYPE=        1   TARGET=        -41.000
 14886.000       5.82     597.58        .00      597.58      597.66        .08         .00         .00      595.76
     475.0        4.4      433.1       37.5         5.3       180.4       40.9          .0          .0      595.76
       .00        .84       2.40        .92        .050        .042       .050        .000      591.76       41.00
   .000680         0.         0.         0.           0           0          0         .00       78.28      119.28

CCHV=      .300 CEHV=       .500
*SECNO 14981.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =    .58

3470 ENCROACHMENT STATIONS=        83.0       117.0  TYPE=        1   TARGET=         34.010
 ELENCL=     604.36  ELENCR=     604.36

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       604.36 ELREA=       604.36

 14981.000       5.76     597.62        .00         .00      597.83        .21         .10         .06      604.36
     475.0         .0      475.0         .0          .0       129.8         .0          .4          .1      604.36
       .01        .00       3.66        .00        .000        .042       .000        .000      591.86       83.01
   .001999        95.        95.        95.           2           0          0         .00       33.99      117.00

*SECNO 14982.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.00

3370 NORMAL BRIDGE, NRD=   4 MIN ELTRD=    604.36 MAX ELLC=    600.76

 14982.000       5.76     597.62        .00         .00      597.83        .21         .00         .00      604.36
     475.0         .0      475.0         .0          .0       129.8         .0          .4          .1      604.36
       .01        .00       3.66        .00        .000        .021       .000        .000      591.86       83.01
   .000500         1.         1.         1.           0           0          0         .00       33.99      117.00
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     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


 *SECNO 15054.000

 3370 NORMAL BRIDGE, NRD=   4 MIN ELTRD=   604.36 MAX ELLC=   600.76

  15054.000      5.80     597.66       .00        .00     597.87       .20        .04        .00     604.36
      475.0        .0      475.0        .0         .0      131.3        .0         .6         .2     604.36
        .01       .00       3.62       .00       .000       .021      .000       .000     591.86      83.01
    .000483       72.        72.       72.          2          0         0        .00      33.99     117.00


 *SECNO 15055.000

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .64


 3470 ENCROACHMENT STATIONS=       83.0      117.0  TYPE=       1  TARGET=       34.010
  ELENCL=    604.36  ELENCR=    604.36

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       604.36 ELREA=       604.36

  15055.000      5.80     597.66       .00        .00     597.87       .20        .00        .00     604.36
      475.0        .0      475.0        .0         .0      131.3        .0         .6         .2     604.36
        .01       .00       3.62       .00       .000       .033      .000       .000     591.86      83.01
    .001193        1.         1.        1.          0          0         0        .00      33.99     117.00


 *SECNO 15097.000
  15097.000      5.99     597.85       .00        .00     597.94       .09        .03        .04     600.66
      465.0        .0      465.0        .0         .0      196.9        .0         .8         .2     600.16
        .02       .00       2.36       .00       .000       .037      .000       .000     591.86     199.30
    .000596       42.        42.       42.          2          0         0        .00      50.74     250.04
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 *SECNO 15228.000
 15228.000      5.97    597.93       .00       .00    598.02       .09       .08       .00    600.66
     465.0        .0     465.0        .0        .0     195.7        .0       1.4        .4    600.36
       .03       .00      2.38       .00      .000      .037      .000      .000    591.96    275.17
   .000606      131.      131.      131.         2         0         0       .00     50.60    325.76

 *SECNO 15303.000
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     SECNO     DEPTH     CWSEL     CRIWS     WSELK      EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB       ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL        XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL     IDC       ICONT     CORAR     TOPWID    ENDST

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .67

 15303.000      5.89    597.95       .00       .00    598.12       .17       .07       .04    597.66
     465.0        .1     464.9        .0        .3     139.4        .0       1.6        .5    599.46
       .04       .37      3.34       .00      .040      .037      .000      .000    592.06    280.00
   .001349       75.       75.       75.         2         0         0       .00     38.87    318.88

 *SECNO 15325.000
 15325.000      5.19    597.95       .00       .00    598.20       .26       .04       .04    598.36
     465.0        .0     465.0        .0        .0     114.7        .0       1.7        .5    600.16
       .04       .00      4.05       .00      .000      .037      .000      .000    592.76    284.96
   .002203       22.       22.       22.         2         0         0       .00     32.47    317.43

 *SECNO 15328.000
 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
 15328.000      2.88    597.94    597.94       .00    598.69       .75       .01       .25    600.66
     465.0        .0     465.0        .0        .0      66.8        .0       1.7        .5    600.36
       .04       .00      6.97       .00      .000      .030      .000      .000    595.06    280.32
   .012758        3.        3.        3.        20        11         0       .00     44.85    325.17
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*SECNO 15329.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.41

 15329.000      3.26    598.32      .00      .00   598.78      .47      .01      .09   600.66
     465.0        .0     465.0       .0       .0     84.9       .0      1.7       .5   600.36
       .04       .00      5.48      .00     .000     .030     .000     .000   595.06   277.62
   .006443        1.        1.       1.        8        0        0      .00    49.17   326.79

*SECNO 15332.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.76

 15332.000      5.95    598.71      .00      .00   598.88      .17      .01      .09   598.36
     465.0        .1     464.9       .0       .4    141.4       .0      1.7       .5   600.16
       .04       .27      3.29      .00     .050     .030     .000     .000   592.76   279.62
   .000848        3.        3.       3.        3        0        0      .00    39.37   318.99

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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG     HV     HL     OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH    AROB   VOL    TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH   XNR    WTN    ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC    ICONT  CORAR  TOPWID    ENDST

*SECNO 15354.000

3265 DIVIDED FLOW

 15354.000      6.74    598.80      .00      .00   598.91      .11      .02      .02   597.66
     465.0       3.1     461.1       .8      4.6    171.9      1.7      1.8       .5   599.46
       .04       .68      2.68      .49     .040     .037     .040     .000   592.06   274.08
   .000703       22.       22.      22.        2        0        0      .00    51.01   328.29

*SECNO 15778.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.48
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 15778.000      7.11    599.07       .00       .00    599.12       .06       .19       .02    600.66
     465.0        .0     465.0        .0        .0     246.0        .0       3.9       1.0    600.66
       .11       .00      1.89       .00      .000      .037      .000      .000    591.96    271.74
   .000323      424.      424.      424.         2         0         0       .00     55.69    327.43


*SECNO 15946.000
 15946.000      6.76    599.12       .00       .00    599.21       .09       .07       .02    600.06
     465.0        .0     465.0        .0        .0     193.0        .0       4.7       1.2    600.36
       .13       .00      2.41       .00      .000      .037      .000      .000    592.36    282.41
   .000517      168.      168.      168.         2         0         0       .00     41.83    324.24


*SECNO 15947.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .46


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       599.50 ELREA=       599.50

 15947.000      6.76    599.12       .00       .00    599.21       .09       .00       .00    600.06
     465.0        .0     465.0        .0        .0     193.0        .0       4.7       1.2    600.36
       .13       .00      2.41       .00      .000      .080      .000      .000    592.36    282.41
   .002419        1.        1.        1.         0         0         0       .00     41.83    324.24


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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


 SPECIAL BRIDGE

 SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
       .00      1.55      2.98       .00     25.84       .00    160.20       .00    592.36    592.36

 *SECNO 15957.000
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PRESSURE FLOW

 EGPRS       EGLWC        H3         QWEIR       QPR        BAREA    TRAPEZOID       ELLC      ELTRD      WEIRLN
                                                                       AREA
   599.32     599.21        .00         0.         465.        160.      160.       598.56     599.86        0.


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       599.86 ELREA=      599.86

 15957.000       6.88    599.24       .00       .00     599.32       .09       .11       .00    600.06
   465.0          .0     465.0         .0        .0     198.0         .0       4.8       1.2    600.36
     .13         .00      2.35        .00      .000      .080       .000      .000    592.36    282.23
  .002256        10.       10.        10.         2          0         0       .00     42.27    324.51

*SECNO 15958.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.11

 15958.000       6.88    599.24       .00       .00     599.32       .09       .00       .00    600.06
   465.0          .0     465.0         .0        .0     198.0         .0       4.8       1.2    600.36
     .13         .00      2.35        .00      .000      .038       .000      .000    592.36    282.23
  .000509         1.        1.         1.         0          0         0       .00     42.27    324.51

*SECNO 16752.000

3470 ENCROACHMENT STATIONS=         .0      225.0  TYPE=       1  TARGET=      224.999
 16752.000       6.84    599.60       .00       .00     599.66       .05       .32       .01    600.96
   465.0          .0     465.0         .0        .0     254.0         .0       8.9       2.1    600.66
     .25         .00      1.83        .00      .000      .038       .000      .000    592.76      4.30
  .000329       794.      794.       794.         2          0         0       .00     59.22     63.52

*SECNO 17401.000
 17401.000       6.75    599.81       .00       .00     599.87       .05       .21       .00    601.26
   465.0          .0     465.0         .0        .0     254.6         .0      12.7       3.0    601.86
     .35         .00      1.83        .00      .000      .038       .000      .000    593.06      4.58
  .000321       649.      649.       649.         2          0         0       .00     58.38     62.96

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      SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
      Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
      TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
      SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*SECNO 17764.000
 17764.000       6.71     599.94        .00        .00     599.99        .06        .12        .00     601.53
     465.0         .0      465.0         .0         .0      245.4         .0       14.8        3.5     604.10
       .40        .00       1.90        .00       .000       .038       .000       .000     593.23       5.57
   .000361       363.       363.       363.          2          0          0        .00      58.17      63.74

*SECNO 17811.000
 17811.000       6.69     599.95        .00        .00     600.01        .05        .02        .00     601.56
     465.0         .0      465.0         .0         .0      247.8         .0       15.0        3.6     604.46
       .41        .00       1.88        .00       .000       .038       .000       .000     593.26       5.78
   .000355        47.        47.        47.          1          0          0        .00      58.96      64.74

CCHV=      .300 CEHV=       .500
*SECNO 17911.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =    .65

 17911.000       6.57     599.97        .00        .00     600.09        .12        .05        .03     603.16
     465.0         .0      465.0         .0         .0      166.8         .0       15.5        3.7     604.46
       .42        .00       2.79        .00       .000       .040       .000       .000     593.40     288.55
   .000847       100.       100.       100.          2          0          0        .00      36.74     325.29

*SECNO 18011.000
 18011.000       6.86     600.08        .00        .00     600.18        .10        .07        .01     602.16
     465.0         .0      465.0         .0         .0      186.6         .0       15.9        3.8     602.16
       .43        .00       2.49        .00       .000       .040       .000       .000     593.22     286.95
   .000666       100.       100.       100.          2          0          0        .00      41.39     328.35

*SECNO 18311.000
 18311.000       7.09     600.28        .00        .00     600.37        .09        .19        .00     603.06
     465.0         .0      465.0         .0         .0      190.6         .0       17.2        4.0     603.06
       .46        .00       2.44        .00       .000       .040       .000       .000     593.19     287.80
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.000601	350.	300.	250.	2	0	0	.00	39.83	327.63

*SECNO 18911.000

18911.000	6.89	600.68	.00	.00	600.73	.05	.35	.01	602.33
465.0	.0	465.0	.0	.0	257.8	.0	20.3	4.9	602.50
.55	.00	1.80	.00	.000	.040	.000	.000	593.79	25.81
.000557	600.	600.	600.	2	0	0	.00	84.84	110.65

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 19011.000

19011.000	7.47	600.74	.00	.00	600.78	.04	.04	.00	602.36
465.0	.0	465.0	.0	.0	294.5	.0	20.9	5.1	602.49
.57	.00	1.58	.00	.000	.040	.000	.000	593.27	25.35
.000363	100.	100.	100.	2	0	0	.00	85.60	110.95

*SECNO 19426.000

19426.000	6.71	600.90	.00	.00	600.94	.04	.16	.00	602.84
465.0	.0	465.0	.0	.0	279.5	.0	23.7	5.9	603.00
.64	.00	1.66	.00	.000	.040	.000	.000	594.19	25.56
.000423	415.	415.	415.	2	0	0	.00	84.61	110.17

T1 Improvment of Gloede Ditch, CLOMR Application
T2 50-year flood profile, Starting elevation from original FIS
T3 Gloede Ditch, Duplicate Effective Model
T4 Starting Point of Study from section # 14886

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J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                4                                               0   .5            598.47

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      3                  -1

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     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF 3
0

 *SECNO 14886.000

 3470 ENCROACHMENT STATIONS=       41.0      130.0  TYPE=       1  TARGET=      -41.000
  14886.000       6.71    598.47       .00    598.47    598.57       .10       .00       .00    595.76
      700.0        7.9     599.9      92.2       8.0     217.8      72.1        .0        .0    595.76
        .00        .99      2.75      1.28      .050      .042      .050      .000    591.76     41.00
    .000696         0.        0.        0.         0         0         0       .00     81.84    122.84

 CCHV=      .300 CEHV=      .500
 *SECNO 14981.000

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .55

 3470 ENCROACHMENT STATIONS=       83.0      117.0  TYPE=       1  TARGET=       34.010
  ELENCL=    604.36  ELENCR=    604.36

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       604.36 ELREA=       604.36

  14981.000       6.62    598.48       .00       .00    598.78       .30       .11       .10    604.36
      700.0         .0     700.0        .0        .0     159.1        .0        .5        .1    604.36
        .01        .00      4.40       .00      .000      .042      .000      .000    591.86     83.01
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   .002341        95.       95.       95.          2          0          0       .00     33.99    117.00

 *SECNO 14982.000

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.00

 3370 NORMAL BRIDGE, NRD=   4 MIN ELTRD=   604.36 MAX ELLC=   600.76

  14982.000       6.62    598.48       .00        .00    598.78        .30       .00       .00    604.36
      700.0         .0     700.0        .0         .0     159.2         .0        .5        .1    604.36
        .01        .00      4.40       .00       .000      .021       .000      .000    591.86     83.01
    .000585         1.        1.        1.          0          0          0       .00     33.99    117.00
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     SECNO      DEPTH     CWSEL     CRIWS      WSELK      EG        HV         HL        OLOSS     L-BANK ELEV
     Q          QLOB      QCH       QROB       ALOB       ACH       AROB       VOL       TWA       R-BANK ELEV
     TIME       VLOB      VCH       VROB       XNL        XNCH      XNR        WTN       ELMIN     SSTA
     SLOPE      XLOBL     XLCH      XLOBR      ITRIAL     IDC       ICONT      CORAR     TOPWID    ENDST

 *SECNO 15054.000

 3370 NORMAL BRIDGE, NRD=   4 MIN ELTRD=   604.36 MAX ELLC=   600.76

  15054.000       6.67    596.53       .00        .00    598.83        .29       .04       .00    604.36
      700.0         .0     700.0        .0         .0     160.9         .0        .8        .2    604.36
        .01        .00      4.35       .00       .000      .021       .000      .000    591.86     83.01
    .000566        72.       72.       72.          2          0          0       .00     33.99    117.00

 *SECNO 15055.000

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .64

 3470 ENCROACHMENT STATIONS=       83.0      117.0  TYPE=        1  TARGET=       34.010
  ELENCL=    604.36  ELENCR=    604.36
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 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       604.36 ELREA=       604.36

  15055.000       6.67     598.53       .00       .00    598.83       .29       .00       .00    604.36
      700.0         .0      700.0        .0        .0     160.9        .0        .8        .2    604.36
        .01        .00       4.35       .00      .000      .033      .000      .000    591.86     83.01
    .001398         1.         1.        1.         0         0         0       .00     33.99    117.00


 *SECNO 15097.000
  15097.000       6.94     598.80       .00       .00    598.92       .12       .04       .05    600.66
      690.0         .0      690.0        .0        .0     247.9        .0       1.0        .2    600.16
        .01        .00       2.78       .00      .000      .037      .000      .000    591.86    196.49
    .000704        42.        42.       42.         2         0         0       .00     56.42    252.91


 *SECNO 15228.000
  15228.000       6.93     598.89       .00       .00    599.01       .12       .09       .00    600.66
      690.0         .0      690.0        .0        .0     247.3        .0       1.7        .4    600.36
        .03        .00       2.79       .00      .000      .037      .000      .000    591.96    272.28
    .000708       131.       131.      131.         2         0         0       .00     56.35    328.63


 *SECNO 15303.000
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     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST



 3265 DIVIDED FLOW

  15303.000       6.85     598.91       .00       .00    599.14       .23       .07       .06    597.66
      690.0        5.5      682.8       1.6       5.4     175.7       2.1       2.1        .5    599.46
        .03       1.02       3.89       .77      .040      .037      .040      .000    592.06    273.40
    .001441        75.        75.       75.         2         0         0       .00     52.48    328.59


 *SECNO 15325.000
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3265 DIVIDED FLOW

15325.000	6.14	598.90	.00	.00	599.23	.33	.04	.05	598.36
690.0	.8	689.2	.0	1.0	148.7	.1	2.2	.5	600.16
.03	.76	4.64	.02	.040	.037	.040	.000	592.76	278.28
.002437	22.	22.	22.	2	0	0	.00	41.94	326.43

*SECNO 15328.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .58

15328.000	3.70	598.76	.00	.00	599.40	.64	.01	.15	600.66
690.0	.0	690.0	.0	.0	107.6	.0	2.2	.5	600.36
.03	.00	6.41	.00	.000	.030	.000	.000	595.06	274.50
.007185	3.	3.	3.	2	0	0	.00	53.63	328.14

*SECNO 15329.000

15329.000	3.71	598.77	.00	.00	599.41	.64	.01	.00	600.66
690.0	.0	690.0	.0	.0	107.7	.0	2.2	.5	600.36
.03	.00	6.41	.00	.000	.030	.000	.000	595.06	274.49
.007160	1.	1.	1.	0	0	0	.00	53.66	328.14

*SECNO 15332.000

3265 DIVIDED FLOW

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.41

SECNO Q TIME SLOPE	DEPTH QLOB VLOB XLOBL	CWSEL QCH VCH XLCH	CRIWS QROB VROB XLOBR	WSELK ALOB XNL ITRIAL	EG ACH XNCH IDC	HV AROB XNR ICONT	HL VOL WTN CORAR	OLOSS TWA ELMIN TOPWID	L-BANK ELEV R-BANK ELEV SSTA ENDST
15332.000	6.48	599.24	.00	.00	599.52	.28	.01	.11	598.36
690.0	1.6	688.1	.3	2.7	161.8	.7	2.2	.5	600.16

.04	.60	4.25	.39	.050	.030	.050	.000	592.76	275.89
.001235	3.	3.	3.	2	0	0	.00	47.10	327.49

*SECNO 15354.000

3265 DIVIDED FLOW

15354.000	7.33	599.39	.00	.00	599.57	.18	.02	.03	597.66
690.0	11.6	673.8	4.6	10.3	194.7	5.2	2.3	.5	599.46
.04	1.13	3.46	.88	.040	.037	.040	.000	592.06	270.62
.001031	22.	22.	22.	2	0	0	.00	59.11	330.06

*SECNO 15778.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.49

15778.000	7.84	599.80	.00	.00	599.88	.09	.28	.03	600.66
690.0	.0	690.0	.0	.0	288.0	.0	4.7	1.1	600.66
.09	.00	2.40	.00	.000	.037	.000	.000	591.96	269.57
.000464	424.	424.	424.	2	0	0	.00	59.94	329.51

*SECNO 15946.000

3265 DIVIDED FLOW

15946.000	7.50	599.86	.00	.00	600.01	.15	.10	.03	600.06
690.0	.0	690.0	.0	.4	225.2	.0	5.7	1.5	600.36
.10	.03	3.06	.00	.040	.037	.000	.000	592.36	97.80
.000746	168.	168.	168.	2	0	0	.00	148.58	325.90

*SECNO 15947.000

3265 DIVIDED FLOW

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .46

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
15947.000	7.51	599.87	.00	.00	600.01	.15	.00	.00	600.06
690.0	.0	690.0	.0	.5	225.2	.0	5.7	1.5	600.36
.10	.07	3.06	.00	.035	.080	.000	.000	592.36	97.44
.003484	1.	1.	1.	0	0	0	.00	149.25	325.90

SPECIAL BRIDGE

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
.00	1.55	2.98	.00	25.84	.00	160.20	.00	592.36	592.36

*SECNO 15957.000

3265 DIVIDED FLOW

PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
600.31	600.01	.00	110.	580.	160.	160.	598.56	599.86	292.

15957.000	7.70	600.06	.00	.00	600.18	.12	.17	.00	600.06
690.0	24.6	665.4	.0	38.0	234.0	.0	5.8	1.6	600.36
.10	.65	2.84	.00	.035	.080	.000	.000	592.36	.15
.002919	10.	10.	10.	2	0	4	.00	326.06	326.33

*SECNO 15958.000
3280 CROSS SECTION 15958.00 EXTENDED .00 FEET

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.05

15958.000	7.70	600.06	.00	.00	600.19	.13	.00	.00	600.06
690.0	7.5	682.5	.0	38.9	234.1	.0	5.8	1.6	600.36

```
      .10         .19        2.92         .00        .058        .038        .000        .000      592.36         .00
   .000692         1.          1.          1.           0           0           0         .00      326.34      326.34


 *SECNO 16752.000

 3470 ENCROACHMENT STATIONS=          .0      225.0  TYPE=       1  TARGET=       224.999
1
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      SECNO      DEPTH       CWSEL       CRIWS       WSELK       EG          HV          HL          OLOSS       L-BANK ELEV
      Q          QLOB        QCH         QROB        ALOB        ACH         AROB        VOL         TWA         R-BANK ELEV
      TIME       VLOB        VCH         VROB        XNL         XNCH        XNR         WTN         ELMIN       SSTA
      SLOPE      XLOBL       XLCH        XLOBR       ITRIAL      IDC         ICONT       CORAR       TOPWID      ENDST


  16752.000       7.79      600.55         .00         .00      600.62         .08         .42         .02      600.96
      690.0         .0       690.0          .0          .0       312.8          .0        11.1         5.2      600.66
        .20        .00        2.21         .00        .000        .038        .000        .000      592.76        1.31
    .000413       794.        794.        794.           2           0           0         .00       65.33       66.63


 *SECNO 17401.000
  17401.000       7.75      600.81         .00         .00      600.88         .07         .26         .00      601.26
      690.0         .0       690.0          .0          .0       315.7          .0        15.8         6.1      601.86
        .28        .00        2.19         .00        .000        .038        .000        .000      593.06        1.43
    .000395       649.        649.        649.           2           0           0         .00       64.47       65.90


 *SECNO 17764.000
  17764.000       7.73      600.96         .00         .00      601.03         .08         .15         .00      601.53
      690.0         .0       690.0          .0          .0       308.0          .0        18.4         6.7      604.10
        .33        .00        2.24         .00        .000        .038        .000        .000      593.23        2.01
    .000430       363.        363.        363.           0           0           0         .00       64.74       66.74


 *SECNO 17811.000
  17811.000       7.72      600.98         .00         .00      601.06         .08         .02         .00      601.56
      690.0         .0       690.0          .0          .0       311.1          .0        18.7         6.7      604.46
        .34        .00        2.22         .00        .000        .038        .000        .000      593.26        2.11
    .000423        47.         47.         47.           0           0           0         .00       65.63       67.74
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CCHV=      .300 CEHV=      .500
*SECNO 17911.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .64

  17911.000       7.59     600.99        .00        .00     601.17        .17        .06        .05     603.16
      690.0         .0      690.0         .0         .0      206.1         .0       19.3        6.9     604.46
        .34        .00       3.35        .00       .000       .040       .000       .000     593.40     286.77
    .001048       100.       100.       100.          2          0          0        .00      40.27     327.04


 *SECNO 18011.000
  18011.000       7.91     601.13        .00        .00     601.27        .14        .09        .01     602.16
      690.0         .0      690.0         .0         .0      232.5         .0       19.8        7.0     602.16
        .35        .00       2.97        .00       .000       .040       .000       .000     593.22     284.95
    .000809       100.       100.       100.          2          0          0        .00      45.75     330.70


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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


 *SECNO 18311.000
  18311.000       8.18     601.37        .00        .00     601.50        .13        .23        .00     603.06
      690.0         .0      690.0         .0         .0      236.6         .0       21.4        7.3     603.06
        .38        .00       2.92        .00       .000       .040       .000       .000     593.19     285.91
    .000735       350.       300.       250.          2          0          0        .00      43.84     329.75


 *SECNO 18911.000
  18911.000       8.02     601.81        .00        .00     601.87        .06        .34        .02     602.33
      690.0         .0      690.0         .0         .0      358.9         .0       25.5        8.2     602.50
        .47        .00       1.92        .00       .000       .040       .000       .000     593.79      19.76
    .000461       600.       600.       600.          2          0          0        .00      92.98     112.74


 *SECNO 19011.000
  19011.000       8.60     601.87        .00        .00     601.91        .05        .04        .00     602.36
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   690.0        .0      690.0        .0        .0     396.4        .0      26.4       8.4    602.49
     .48       .00       1.74       .00      .000      .040      .000      .000    593.27     19.50
 .000334      100.       100.      100.         0         0         0       .00     93.43    112.93


 *SECNO 19426.000
 19426.000      7.82     602.01       .00       .00    602.06       .05       .15       .00    602.84
    690.0        .0      690.0        .0        .0     378.9        .0      30.1       9.3    603.00
      .55       .00       1.82       .00      .000      .040      .000      .000    594.19     20.60
  .000377      415.       415.      415.         1         0         0       .00     91.62    112.22


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 T1      Improvement of Gloede Ditch project, CLOMR Application
 T2      500-year flood profile, starting elevation from original FIS
 T3      Gloede  Ditch, Duplicate Effective Model
 T4      Starting point of Study from section # 14886

 J1   ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                  5                                                  0.   5            599.84

 J2   NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

        4                   -1

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     SECNO      DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q          QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME       VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE      XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


 *PROF 4
0

 *SECNO 14886.000
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3470 ENCROACHMENT STATIONS=        41.0      130.0  TYPE=       1  TARGET=        -41.000
 14886.000       8.08    599.84       .00    599.84    599.97       .13       .00       .00    595.76
    1085.0       13.3     861.4     210.3      12.1     275.4     126.4        .0        .0    595.76
       .00       1.10      3.13      1.66      .050      .042      .050      .000    591.76     41.00
   .000657         0.        0.        0.         0         0         0       .00     87.32    128.32


CCHV=      .300 CEHV=      .500
*SECNO 14981.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .49


3470 ENCROACHMENT STATIONS=        83.0      117.0  TYPE=       1  TARGET=         34.010
 ELENCL=    604.36  ELENCR=    604.36

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       604.36 ELREA=       604.36

 14981.000       7.94    599.80       .00       .00    600.24       .44       .11       .16    604.36
    1085.0         .0    1085.0        .0        .0     203.8        .0        .7        .1    604.36
       .00        .00      5.32       .00      .000      .042      .000      .000    591.86     83.01
   .002692        95.       95.       95.         2         0         0       .00     34.00    117.00


*SECNO 14982.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.00


3370 NORMAL BRIDGE, NRD=   4 MIN ELTRD=   604.36 MAX ELLC=   600.76

 14982.000       7.94    599.80       .00       .00    600.24       .44       .00       .00    604.36
    1085.0         .0    1085.0        .0        .0     203.9        .0        .7        .1    604.36
       .01        .00      5.32       .00      .000      .021      .000      .000    591.86     83.01
   .000672         1.        1.        1.         0         0         0       .00     34.00    117.00
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
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TIME SLOPE	VLOB XLOBL	VCH XLCH	VROB XLOBR	XNL ITRIAL	XNCH IDC	XNR ICONT	WTN CORAR	ELMIN TOPWID	SSTA ENDST

*SECNO 15054.000

3370 NORMAL BRIDGE, NRD=   4 MIN ELTRD=   604.36 MAX ELLC=   600.76

15054.000	8.00	599.86	.00	.00	600.29	.43	.05	.00	604.36
1085.0	.0	1085.0	.0	.0	205.8	.0	1.0	.2	604.36
.01	.00	5.27	.00	.000	.021	.000	.000	591.86	83.01
.000653	72.	72.	72.	2	0	0	.00	34.00	117.00

*SECNO 15055.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO =   .64

3470 ENCROACHMENT STATIONS=   83.0   117.0 TYPE=   1 TARGET=   34.010
ELENCL=   604.36 ELENCR=   604.36

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=   604.36 ELREA=   604.36

15055.000	8.00	599.86	.00	.00	600.29	.43	.00	.00	604.36
1085.0	.0	1085.0	.0	.0	205.9	.0	1.0	.2	604.36
.01	.00	5.27	.00	.000	.033	.000	.000	591.86	83.01
.001613	1.	1.	1.	0	0	0	.00	34.00	117.00

*SECNO 15097.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.46

15097.000	8.40	600.26	.00	.00	600.42	.16	.04	.08	600.66
1070.0	.0	1069.9	.1	.0	336.5	1.1	1.3	.2	600.16
.01	.00	3.18	.14	.000	.037	.040	.000	591.86	192.18
.000736	42.	42.	42.	2	0	0	.00	86.33	278.51

*SECNO 15228.000

15228.000	8.40	600.36	.00	.00	600.51	.16	.10	.00	600.66
1070.0	.0	1070.0	.0	.0	336.1	.0	2.3	.5	600.36
.02	.00	3.18	.00	.000	.037	.000	.000	591.96	267.91
.000743	131.	131.	131.	2	0	0	.00	65.07	332.99

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 15303.000

15303.000	8.31	600.37	.00	.00	600.64	.27	.07	.06	597.66
1070.0	43.7	1003.8	22.5	22.8	233.8	14.6	2.8	.6	599.46
.03	1.92	4.29	1.55	.040	.037	.040	.000	592.06	267.83
.001250	75.	75.	75.	2	0	0	.00	68.34	336.17

*SECNO 15325.000

15325.000	7.59	600.35	.00	.00	600.73	.38	.03	.06	598.36
1070.0	24.7	1034.7	10.7	13.3	204.9	7.4	2.9	.6	600.16
.03	1.86	5.05	1.45	.040	.037	.040	.000	592.76	269.89
.002061	22.	22.	22.	2	0	0	.00	60.94	330.83

*SECNO 15328.000

15328.000	5.27	600.33	.00	.00	600.77	.44	.01	.03	600.66
1070.0	.0	1070.0	.0	.0	201.6	.0	3.0	.6	600.36
.03	.00	5.31	.00	.000	.030	.000	.000	595.06	267.95
.002739	3.	3.	3.	2	0	0	.00	64.96	332.90

*SECNO 15329.000

15329.000	5.27	600.33	.00	.00	600.77	.44	.00	.00	600.66
1070.0	.0	1070.0	.0	.0	201.7	.0	3.0	.6	600.36
.03	.00	5.30	.00	.000	.030	.000	.000	595.06	267.94
.002733	1.	1.	1.	0	0	0	.00	64.97	332.91

*SECNO 15332.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.43

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 15332.000      7.64    600.40       .00       .00    600.79       .39       .01       .01    598.36
    1070.0      17.1    1045.3       7.6      13.9     207.1       7.9       3.0        .6    600.16
       .03      1.23      5.05       .96      .050      .030      .050      .000    592.76    269.74
   .001335        3.        3.        3.         2         0         0       .00     61.26    331.00


*SECNO 15354.000
 15354.000      8.56    600.62       .00       .00    600.86       .24       .03       .04    597.66
    1070.0      49.9     988.5      31.5      26.4     243.8      29.8       3.1        .7    599.46
       .03      1.89      4.05      1.06      .040      .037      .040      .000    592.06    267.12
   .001054       22.       22.       22.         2         0         0       .00    192.62    459.73


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     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


*SECNO 15778.000
3280 CROSS SECTION  15778.00 EXTENDED       .42 FEET


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.53

 15778.000      9.12    601.08       .00       .00    601.18       .10       .28       .04    600.66
    1070.0      50.1     976.5      43.5     112.7     369.4     103.2       7.4       4.6    600.66
       .08       .44      2.64       .42      .040      .037      .040      .000    591.96       .00
   .000452      424.      424.      424.         2         0         0       .00    600.00    600.00


*SECNO 15946.000
3280 CROSS SECTION  15946.00 EXTENDED      1.15 FEET

 15946.000      8.84    601.20       .00       .00    601.26       .06       .07       .01    600.06
    1070.0     291.0     680.9      98.1     360.9     286.7     181.7      10.1       6.9    600.36
       .11       .81      2.37       .54      .040      .037      .040      .000    592.36       .00
   .000339      168.      168.      168.         0         0         0       .00    600.00    600.00
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*SECNO 15947.000
3280 CROSS SECTION  15947.00 EXTENDED      1.18 FEET

 15947.000       8.88     601.24       .00       .00    601.27       .03       .00       .01    600.06
    1070.0      472.4      432.6     165.0     370.2     288.3     190.8      10.2       6.9    600.36
       .11       1.28       1.50       .87      .035      .080      .035      .000    592.36       .00
   .000628         1.         1.        1.         2         0         0       .00    600.00    600.00


SPECIAL BRIDGE

SB  XK         XKOR       COFQ       RDLEN      BWC       BWP        BAREA      SS         ELCHU      ELCHD
       .00       1.55       2.98       .00     25.84       .00    160.20       .00    592.36    592.36

*SECNO 15957.000
6870 D.S. ENERGY OF   601.27 IS HIGHER THAN COMPUTED ENERGY OF   601.26
3280 CROSS SECTION  15957.00 EXTENDED      1.19 FEET

PRESSURE AND WEIR FLOW,  Weir Submergence Based on TRAPEZOIDAL Shape

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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


 EGPRS      EGLWC       H3        QWEIR      QPR        BAREA    TRAPEZOID     ELLC      ELTRD      WEIRLN
                                                                   AREA
    602.32    601.27       .00       944.       124.       160.       160.    598.56    599.86       600.


 15957.000       8.88     601.24       .00       .00    601.27       .03       .00       .00    600.06
    1070.0      473.2      430.2     166.6     372.3     288.6     192.8      10.4       7.0    600.36
       .11       1.27       1.49       .86      .035      .080      .035      .000    592.36       .00
   .000618        10.        10.       10.         1         0        11       .00    600.00    600.00


*SECNO 15958.000
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3280 CROSS SECTION 15958.00 EXTENDED 1.16 FEET

15958.000	8.86	601.22	.00	.00	601.30	.08	.00	.03	600.06
1070.0	232.3	761.3	76.4	363.1	287.1	183.8	10.4	7.0	600.36
.11	.64	2.65	.42	.058	.038	.060	.000	592.36	.00
.000445	1.	1.	1.	2	0	0	.00	600.00	600.00

*SECNO 16752.000
3280 CROSS SECTION 16752.00 EXTENDED .95 FEET

3470 ENCROACHMENT STATIONS= .0 225.0 TYPE= 1 TARGET= 224.999

16752.000	8.81	601.57	.00	.00	601.67	.10	.36	.01	600.96
1070.0	.0	998.0	72.0	.0	380.9	143.6	22.8	14.6	600.66
.20	.00	2.62	.50	.000	.038	.060	.000	592.76	.00
.000469	794.	794.	794.	2	0	0	.00	225.00	225.00

*SECNO 17401.000

3265 DIVIDED FLOW

3280 CROSS SECTION 17401.00 EXTENDED .61 FEET

17401.000	8.82	601.88	.00	.00	602.00	.12	.32	.01	601.26
1070.0	.0	1068.4	1.6	.0	387.2	14.4	29.7	18.1	601.86
.26	.00	2.76	.11	.000	.038	.060	.000	593.06	.00
.000531	649.	649.	649.	1	0	0	.00	251.57	338.00

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 17764.000

3265 DIVIDED FLOW

3280 CROSS SECTION 17764.00 EXTENDED .54 FEET

17764.000	8.85	602.08	.00	.00	602.20	.12	.20	.00	601.53
1070.0	.0	1064.3	5.7	.0	383.8	30.3	33.1	20.2	604.10
.30	.00	2.77	.19	.000	.038	.060	.000	593.23	.00
.000552	363.	363.	363.	1	0	0	.00	244.67	300.00

*SECNO 17811.000

3265 DIVIDED FLOW

3280 CROSS SECTION 17811.00 EXTENDED .55 FEET

17811.000	8.85	602.11	.00	.00	602.23	.11	.03	.00	601.56
1070.0	.0	1058.6	11.4	.0	388.8	50.2	33.5	20.5	604.46
.30	.00	2.72	.23	.000	.038	.060	.000	593.26	.00
.000532	47.	47.	47.	0	0	0	.00	277.71	330.00

CCHV= .300 CEHV= .500
*SECNO 17911.000

3265 DIVIDED FLOW

3280 CROSS SECTION 17911.00 EXTENDED .16 FEET

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .63

17911.000	8.72	602.12	.00	.00	602.37	.25	.08	.07	603.16
1070.0	7.7	1031.4	30.9	29.4	253.8	54.6	34.4	21.3	604.46
.31	.26	4.06	.57	.060	.040	.040	.000	593.40	.00
.001330	100.	100.	100.	2	0	0	.00	459.53	600.00

*SECNO 18011.000
3280 CROSS SECTION 18011.00 EXTENDED .40 FEET

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

18011.000	9.14	602.36	.00	.00	602.50	.15	.10	.03	602.16
1070.0	37.4	950.4	82.2	102.9	291.6	126.5	35.4	22.5	602.16
.32	.36	3.26	.65	.060	.040	.040	.000	593.22	.00
.000815	100.	100.	100.	2	0	0	.00	600.00	600.00

*SECNO 18311.000

3265 DIVIDED FLOW

3280 CROSS SECTION 18311.00 EXTENDED .66 FEET

18311.000	9.43	602.62	.00	.00	602.73	.11	.22	.01	603.06
1070.0	67.6	872.3	130.2	151.7	294.1	170.8	39.3	26.5	603.06
.35	.45	2.97	.76	.060	.040	.040	.000	593.19	.00
.000652	350.	300.	250.	2	0	0	.00	553.28	600.00

*SECNO 18911.000
3280 CROSS SECTION 18911.00 EXTENDED .73 FEET

18911.000	9.26	603.05	.00	.00	603.12	.07	.38	.01	602.33
1070.0	.0	1070.0	.0	.0	505.0	.0	47.0	31.3	602.50
.43	.00	2.12	.00	.000	.040	.000	.000	593.79	.00
.000607	600.	600.	600.	0	0	0	.00	139.00	139.00

*SECNO 19011.000
3280 CROSS SECTION 19011.00 EXTENDED .76 FEET

19011.000	9.85	603.12	.00	.00	603.18	.06	.05	.00	602.36
1070.0	.0	1070.0	.0	.0	544.5	.0	48.2	31.6	602.49
.45	.00	1.97	.00	.000	.040	.000	.000	593.27	.00
.000474	100.	100.	100.	0	0	0	.00	139.00	139.00

*SECNO 19426.000
3280 CROSS SECTION 19426.00 EXTENDED .49 FEET

19426.000	9.14	603.33	.00	.00	603.39	.07	.21	.00	602.84
1070.0	.0	1070.0	.0	.0	520.7	.0	53.3	32.9	603.00
.50	.00	2.05	.00	.000	.040	.000	.000	594.19	.00
.000546	415.	415.	415.	1	0	0	.00	139.00	139.00

THIS RUN EXECUTED 18JAN98
19:49:40

****
HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

Gloede Ditch, Duplicate

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	01K
	14886.000	.00	.00	.00	591.76	765 00	598.70	00	598 81	6.99	2.84	316.88	289.35
	14886.000	.00	.00	00	591.76	475.00	597.58	00	597 66	6.80	2.40	226.70	182.22
	14886.000	.00	.00	.00	591.76	700.00	598.47	00	598 57	6.96	2.75	297.94	265.33
	14886.000	.00	.00	.00	591.76	1085.00	599.84	.00	599.97	6.57	3.13	413.82	423.29
*	14981.000	95.00	.00	.00	591.86	765 00	598.70	.00	599.03	24.33	4.59	166.66	155.08
*	14981.000	95.00	.00	.00	591.86	475.00	597.62	.00	597.83	19.99	3 66	129.83	106.24
*	14981.000	95.00	.00	.00	591.86	700 00	598.48	.00	598.78	23.41	4 40	159 13	144.67
*	14981.000	95.00	.00	.00	591.86	1085.00	599.80	.00	600.24	26.92	5.32	203.80	209 13
*	14982.000	1.00	604.36	600.76	591.86	765.00	598.71	00	599.03	6.08	4.59	166.66	310.15
*	14982.000	1.00	604.36	600.76	591.86	475.00	597.62	00	597.83	5.00	3.66	129.83	212.48
*	14982.000	1.00	604.36	600.76	591.86	700.00	598.48	.00	598.78	5.85	4.40	159.19	289.50
*	14982.000	1.00	604.36	600.76	591.86	1085 00	599.80	.00	600.24	6.72	5.32	203.85	418.42
	15054 000	72.00	604.36	600.76	591.86	765.00	598.76	.00	599.08	5.89	4.54	168.48	315.24
	15054 000	72.00	604.36	600.76	591 86	475.00	597.66	00	597 87	4.83	3.62	131.26	216.07
	15054.000	72.00	604.36	600.76	591.86	700.00	598.53	00	598 83	5.66	4.35	160.87	294.11

	15054.000	72 00	604 36	600.76	591.86	1085.00	599 86	.00	600.29	6.53	5.27	205.85	424.46
*	15055.000	1.00	.00	.00	591.86	765 00	598.76	00	599.08	14.54	4 54	168.47	200.60
*	15055 000	1 00	.00	.00	591.86	475 00	597.66	00	597.87	11 93	3.62	131.26	137.50
*	15055.000	1.00	.00	.00	591.86	700 00	598.53	.00	598.83	13.98	4.35	160.89	187 19
*	15055.000	1.00	.00	.00	591.86	1085.00	599.86	00	600.29	16.13	5 27	205.87	270.15
	15097.000	42.00	.00	.00	591.86	755.00	599.05	.00	599.18	7.25	2.88	262 07	280 49
	15097 000	42.00	.00	.00	591.86	465 00	597.85	00	597.94	5.96	2 36	196.89	190.41
	15097.000	42.00	.00	.00	591.86	690.00	598.80	00	598.92	7.04	2.78	247 86	260.13
*	15097.000	42.00	.00	.00	591.86	1070.00	600.26	.00	600.42	7.36	3.18	337.57	394.28
	15228.000	131.00	00	.00	591.96	755.00	599.14	00	599.27	7.25	2.88	261 96	280.36
	15228.000	131.00	.00	.00	591 96	465.00	597.93	.00	598.02	6.06	2.38	195.73	188.91
	15228.000	131.00	.00	00	591.96	690 00	598.89	.00	599.01	7.08	2.79	247 32	259.38
	15228.000	131 00	.00	00	591.96	1070 00	600.36	00	600.51	7.43	3.18	336 11	392.43

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	15303.000	75.00	00	.00	592 06	755.00	599.16	.00	599.41	14.49	4.00	196.82	198.32
*	15303 000	75 00	.00	.00	592 06	465 00	597.95	00	598.12	13.49	3.34	139 66	126.59
	15303.000	75.00	.00	.00	592.06	690 00	598 91	00	599.14	14 41	3.89	183.26	181.74
	15303.000	75.00	.00	.00	592.06	1070.00	600 37	.00	600.64	12.50	4.29	271.11	302.61
	15325.000	22.00	.00	.00	592.76	755 00	599.15	.00	599.50	24.07	4.76	160.78	153.87
	15325.000	22.00	.00	.00	592.76	465 00	597 95	.00	598.20	22.03	4.05	114.74	99.07
	15325.000	22.00	.00	.00	592.76	690 00	598.90	.00	599.23	24.37	4.64	149.73	139.78
	15325.000	22.00	.00	00	592.76	1070 00	600.35	00	600.73	20.61	5.05	225 58	235.68
*	15328.000	3.00	.00	.00	595.06	755.00	599.04	.00	599.63	58 70	6.13	123.09	98.55
*	15328.000	3.00	.00	.00	595.06	465 00	597.94	597.94	598.69	127.58	6.97	66.75	41.17
*	15328.000	3.00	.00	.00	595.06	690.00	598.76	.00	599 40	71 85	6.41	107 59	81.40
	15328.000	3.00	.00	.00	595.06	1070.00	600.33	.00	600.77	27 39	5.31	201.57	204.45
	15329.000	1.00	.00	.00	595 06	755.00	599.05	.00	599.63	58.81	6.14	123.01	98 45
*	15329 000	1.00	00	.00	595.06	465 00	598.32	.00	598 78	64 43	5.48	84.85	57 93
	15329.000	1 00	.00	.00	595.06	690 00	598.77	.00	599.41	71.60	6.41	107.73	81.54
	15329.000	1.00	.00	.00	595.06	1070.00	600.33	.00	600.77	27 33	5.30	201.73	204 69
*	15332.000	3.00	.00	.00	592.76	755 00	599.41	.00	599.72	13.18	4.48	172.92	207.97
*	15332 000	3.00	.00	.00	592.76	465.00	598.71	.00	598.88	8.48	3.29	141.86	159.67
*	15332.000	3.00	.00	.00	592.76	690.00	599.24	.00	599.52	12.35	4.25	165.21	196 33
*	15332.000	3.00	.00	.00	592.76	1070.00	600.40	.00	600.79	13.35	5.05	228.91	292.84
	15354.000	22 00	.00	.00	592.06	755.00	599.58	.00	599.78	10.75	3.62	221.71	230.24
	15354.000	22.00	.00	.00	592 06	465.00	598.80	.00	598.91	7.03	2.68	178.11	175.42
	15354.000	22.00	.00	.00	592.06	690.00	599.39	.00	599.57	10.31	3.46	210.25	214.85
	15354.000	22.00	00	00	592.06	1070.00	600.62	.00	600.86	10.54	4.05	299 98	329.52
*	15778 000	424.00	.00	.00	591.96	755.00	600.01	00	600.11	4.93	2 51	301 07	340.08
*	15778.000	424.00	.00	.00	591.96	465 00	599.07	.00	599.12	3.23	1.89	245 98	258.83
*	15778.000	424.00	.00	.00	591.96	690 00	599.80	.00	599.88	4.64	2.40	287.98	320.27
*	15778.000	424.00	.00	.00	591.96	1070.00	601 08	.00	601.18	4.52	2 64	585.35	503 27

	15946.000	168.00	.00	.00	592.36	755 00	600.09	.00	600 24	7.60	3 15	281.21	273.80
	15946.000	168 00	00	.00	592.36	465 00	599.12	.00	599 21	5.17	2.41	193.02	204.43
	15946.000	168 00	00	.00	592.36	690 00	599.86	00	600 01	7 46	3 06	225.65	252 69
	15946.000	168.00	00	.00	592.36	1070.00	601.20	00	601 26	3 39	2 37	829.39	581.50
*	15947.000	1.00	.00	.00	592.36	755.00	600 11	.00	600.24	32.50	3.01	288 50	132.45
*	15947.000	1.00	00	.00	592.36	465.00	599.12	.00	599.21	24.19	2.41	193 01	94 54
*	15947.000	1.00	.00	.00	592.36	690 00	599 87	.00	600.01	34.84	3.06	225.76	116 90
	15947.000	1.00	00	.00	592 36	1070.00	601.24	.00	601.27	6.28	1.50	849 27	427.08
	15957.000	10.00	599.86	598.56	592 36	755.00	600.25	.00	600.36	25.56	2.71	335.92	149.34
	15957.000	10.00	599.86	598.56	592.36	465.00	599.24	.00	599.32	22.56	2.35	197 97	97.91
	15957.000	10.00	599.86	598.56	592 36	690.00	600.06	.00	600.18	29.19	2 84	272.00	127.70
	15957.000	10.00	599.86	598.56	592 36	1070 00	601.24	.00	601 27	6.18	1.49	853.74	430.32

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
*	15958.000	1.00	.00	00	592 36	755.00	600.24	00	600.37	7.04	2 99	333 23	284 60
*	15958 000	1.00	.00	.00	592 36	465.00	599.24	00	599.32	5.09	2.35	197 97	206.12
*	15958.000	1.00	.00	00	592 36	690.00	600.06	.00	600 19	6.92	2.92	273.02	262.35
	15958.000	1.00	.00	.00	592.36	1070.00	601.22	00	601.30	4.45	2.65	834.04	507 41
	16752.000	794.00	.00	.00	592 76	755.00	600 74	.00	600.82	4.40	2.32	338.45	359.75
	16752.000	794.00	.00	.00	592 76	465 00	599 60	.00	599.66	3.29	1.83	253.95	256.20
	16752.000	794.00	.00	.00	592 76	690 00	600.55	.00	600.62	4.13	2 21	312.79	339.39
	16752.000	794.00	.00	.00	592 76	1070 00	601 57	.00	601.67	4.69	2 62	524.51	493.88
	17401.000	649.00	.00	.00	593 06	755 00	601 02	.00	601.10	4.19	2.29	330.15	368.86
	17401.000	649 00	00	.00	593 06	465 00	599 81	.00	599.87	3 21	1.83	254.58	259.41
	17401.000	649 00	.00	.00	593 06	690.00	600 81	.00	600.88	3.95	2.19	315.66	347.14
	17401.000	649.00	.00	.00	593 06	1070.00	601.88	.00	602.00	5.31	2.76	401.59	464.16
	17764.000	363.00	.00	00	593 23	755.00	601 18	.00	601 26	4.53	2.34	323.06	354 80
	17764.000	363.00	00	.00	593 23	465.00	599 94	.00	599 99	3 61	1.90	245.37	244.78
	17764.000	363.00	.00	.00	593.23	690.00	600.96	.00	601.03	4.30	2.24	308.04	332 75
	17764 000	363.00	.00	.00	593.23	1070.00	602 08	.00	602.20	5 52	2.77	414.14	455.49
	17811.000	47.00	.00	.00	593 26	755.00	601 20	.00	601 29	4.45	2.31	326.50	358.01
	17811.000	47.00	.00	.00	593.26	465.00	599.95	.00	600.01	3 55	1.88	247 79	246.77
	17811.000	47.00	.00	.00	593.26	690.00	600 98	.00	601.06	4 23	2.22	311.07	335.41
	17811.000	47.00	.00	.00	593.26	1070.00	602 11	.00	602 23	5.32	2.72	439.01	463.69
*	17911.000	100.00	.00	.00	593.40	755.00	601.21	.00	601.41	11.17	3.51	215.05	225.92
*	17911.000	100 00	00	.00	593.40	465.00	599 97	.00	600 09	8.47	2.79	166.79	159 81
*	17911.000	100 00	.00	.00	593.40	690 00	600 99	.00	601.17	10 48	3.35	206.05	213.16
*	17911.000	100.00	00	.00	593.40	1070 00	602.12	.00	602.37	13 30	4.06	337.83	293 43
	18011.000	100.00	.00	.00	593.22	755 00	601.37	.00	601.52	8.57	3.10	243.28	257.92
	18011.000	100.00	.00	.00	593.22	465 00	600.08	.00	600.18	6 66	2.49	186.60	180 12
	18011.000	100.00	.00	.00	593.22	690 00	601.13	.00	601.27	8.09	2 97	232.47	242 56
	18011.000	100.00	.00	.00	593.22	1070.00	602.36	.00	602.50	8.15	3 26	520.97	374 80

18311.000	300 00	00	00	593 19	755 00	601 62	00	601 76	7.80	3.05	247 36	270.25
18311.000	300 00	00	00	593.19	465 00	600 28	00	600.37	6.01	2.44	190 61	189.72
18311.000	300 00	00	.00	593 19	690.00	601.37	00	601.50	7.35	2.92	236.60	254 45
18311.000	300.00	00	.00	593 19	1070 00	602 62	.00	602 73	6.52	2 97	616.70	418.98
18911.000	600.00	00	.00	593.79	755.00	602.08	.00	602.14	4.53	1 97	383.84	354.58
18911.000	600.00	00	00	593 79	465 00	600.68	.00	600.73	5.57	1.80	257.82	197.08
18911.000	600.00	.00	.00	593 79	690 00	601.81	.00	601.87	4.61	1.92	358.89	321.40
18911.000	600.00	.00	00	593.79	1070.00	603.05	.00	603.12	6 07	2 12	504.97	434.18
19011.000	100.00	00	00	593.27	755 00	602.13	.00	602.18	3.37	1 80	420.45	411.15
19011.000	100.00	.00	00	593.27	465.00	600.74	.00	600.78	3 63	1.58	294.53	244.13
19011 000	100 00	.00	.00	593 27	690 00	601.87	.00	601.91	3.34	1.74	396.45	377.50
19011.000	100 00	00	00	593 27	1070 00	603.12	.00	603.18	4 74	1.97	544.47	491.43

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SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
19426.000	415.00	.00	00	594 19	755 00	602.28	00	602 33	3.77	1.88	402 56	388.67
19426.000	415 00	00	.00	594 19	465 00	600.90	.00	600 94	4.23	1.66	279 47	226.07
19426.000	415 00	.00	00	594 19	690 00	602.01	00	602 06	3.77	1.82	378 87	355.46
19426.000	415 00	00	00	594 19	1070 00	603.33	00	603 39	5.46	2.05	520.73	457.99

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Gloede Ditch, Duplicate

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	14886 000	765 00	598 70	.00	.00	00	82.76	.00
	14886.000	475.00	597 58	-1 12	.00	00	78.28	00
	14886.000	700.00	598.47	89	.00	.00	81.84	.00
	14886.000	1085 00	599 84	1.37	00	.00	87.32	00
*	14981.000	765 00	598.70	00	00	00	33.99	95.00
*	14981.000	475.00	597.62	-1 08	.04	.00	33.99	95.00
*	14981.000	700 00	598.48	.86	01	00	33.99	95.00
*	14981.000	1085 00	599.80	1.31	- 04	.00	34.00	95.00
*	14982.000	765.00	598.71	.00	.00	.00	33.99	1.00
*	14982.000	475.00	597.62	-1.08	.00	.00	33.99	1.00
*	14982.000	700.00	598.48	.86	00	.00	33.99	1.00
*	14982.000	1085.00	599.80	1 31	.00	00	34.00	1.00
	15054.000	765 00	598.76	.00	.05	.00	33.99	72.00
	15054.000	475.00	597 66	-1 09	04	00	33.99	72.00
	15054.000	700 00	598.53	.87	.05	.00	33.99	72.00
	15054.000	1085.00	599.86	1 32	.06	00	34 00	72.00

*	15055 000	765 00	598.76	00	.00	.00	33.99	1.00
*	15055 000	475 00	597.66	-1.10	.00	00	33.99	1.00
*	15055 000	700.00	598.53	87	00	.00	33 99	1.00
*	15055.000	1085 00	599.86	1.32	.00	00	34.00	1 00
	15097.000	755.00	599.05	.00	.29	.00	57.90	42 00
	15097.000	465.00	597 85	-1.20	.19	00	50.74	42 00
	15097.000	690.00	598.80	95	.27	00	56.42	42.00
*	15097.000	1070.00	600.26	1.46	40	.00	86 33	42.00
	15228.000	755 00	599.14	.00	.09	.00	57.88	131.00
	15228.000	465 00	597.93	-1 22	.08	.00	50.60	131.00
	15228.000	690 00	598.89	.97	.09	.00	56.35	131 00
	15228.000	1070 00	600.36	1 46	.10	.00	65.07	131.00
	15303.000	755.00	599 16	.00	02	00	56 19	75.00
*	15303.000	465.00	597.95	-1.21	02	00	38.87	75.00
	15303 000	690.00	598.91	.96	.02	.00	52.48	75.00
	15303.000	1070.00	600.37	1.46	.01	.00	68.34	75.00
	15325.000	755.00	599.15	.00	-.01	00	45.69	22.00
	15325.000	465.00	597.95	-1.20	.00	00	32.47	22.00
	15325 000	690.00	598 90	.95	- 01	.00	41 94	22.00
	15325.000	1070 00	600 35	1.45	- 02	00	60.94	22 00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	15328.000	755.00	599.04	00	-.11	.00	56.47	3.00
*	15328.000	465 00	597.94	-1 11	- 01	.00	44.85	3 00
*	15328 000	690.00	598.76	.82	-.14	.00	53.63	3.00
	15328.000	1070 00	600.33	1.57	-.02	.00	64.96	3.00
	15329.000	755 00	599.05	.00	.01	.00	56.46	1 00
*	15329.000	465 00	598.32	-.73	.38	.00	49.17	1 00
	15329.000	690.00	598 77	.45	01	.00	53.66	1.00
	15329.000	1070.00	600.33	1 56	.00	.00	64.97	1.00
*	15332.000	755.00	599.41	.00	36	.00	49.47	3.00
*	15332.000	465.00	598 71	-.70	39	00	39.37	3.00
*	15332.000	690.00	599.24	.53	.47	00	47.10	3.00
*	15332.000	1070.00	600.40	1.16	.07	.00	61.26	3 00
	15354.000	755.00	599.58	.00	.17	.00	60.56	22 00
	15354.000	465.00	598.80	-.78	.09	.00	51.01	22.00
	15354.000	690.00	599.39	.59	15	.00	59.11	22.00
	15354.000	1070.00	600.62	1.23	.22	.00	192.62	22.00
*	15778 000	755.00	600.01	.00	.43	00	61.21	424.00
*	15778.000	465.00	599.07	-.94	.27	.00	55.69	424.00
*	15778 000	690 00	599.80	.73	40	.00	59 94	424.00
*	15778 000	1070.00	601.08	1 29	46	.00	600.00	424 00
	15946 000	755.00	600.09	00	.08	00	326.40	168 00

	15946.000	465 00	599.12	-.97	05	00	41 83	168.00
	15946.000	690 00	599.86	.75	07	.00	148.58	168.00
	15946.000	1070.00	601.20	1.34	12	00	600.00	168.00
*	15947 000	755.00	600 11	00	.02	.00	326.44	1.00
*	15947.000	465.00	599.12	-.99	00	00	41.83	1 00
*	15947.000	690.00	599.87	75	00	00	149.25	1 00
	15947.000	1070.00	601.24	1.38	.04	.00	600.00	1.00
	15957.000	755.00	600.25	.00	.14	00	326.77	10.00
	15957.000	465.00	599 24	-1 02	.12	.00	42.27	10.00
	15957.000	690.00	600.06	82	19	00	326.06	10.00
	15957 000	1070.00	601.24	1 18	.00	00	600.00	10.00
*	15958.000	755.00	600.24	.00	- 01	00	326.75	1 00
*	15958.000	465.00	599.24	-1.00	.00	00	42.27	1.00
*	15958.000	690.00	600 06	.82	.00	.00	326.34	1.00
	15958.000	1070.00	601 22	1.16	- 03	00	600.00	1 00
	16752.000	755.00	600.74	.00	.50	00	224.31	794 00
	16752.000	465.00	599 60	-1 14	36	.00	59.22	794.00
	16752.000	690.00	600 55	.94	49	00	65.33	794 00
	16752.000	1070.00	601.57	1.02	35	00	225.00	794 00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	17401.000	755 00	601.02	.00	.28	.00	65.83	649.00
	17401.000	465 00	599.81	-1.21	.21	.00	58.38	649 00
	17401.000	690.00	600.81	.99	.26	00	64.47	649 00
	17401.000	1070 00	601.88	1.07	.31	00	251.57	649.00
	17764.000	755.00	601.18	00	16	.00	66.22	363 00
	17764.000	465.00	599.94	-1.24	.12	00	58.17	363 00
	17764 000	690.00	600.96	1 02	.15	00	64.74	363.00
	17764 000	1070.00	602.08	1 12	.20	.00	244.67	363.00
	17811.000	755.00	601.20	.00	02	00	67.15	47 00
	17811.000	465.00	599.95	-1 25	.02	00	58.96	47.00
	17811.000	690.00	600.98	1 02	.02	.00	65.63	47 00
	17811.000	1070.00	602.11	1.13	03	.00	277.71	47 00
*	17911 000	755.00	601 21	.00	.01	.00	41.04	100 00
*	17911 000	465.00	599.97	-1.24	.02	.00	36.74	100.00
*	17911.000	690.00	600.99	1.02	01	00	40.27	100.00
*	17911.000	1070 00	602.12	1.13	01	.00	459.53	100.00
	18011.000	755.00	601 37	.00	15	.00	46.72	100.00
	18011.000	465.00	600.08	-1.29	11	.00	41.39	100.00
	18011.000	690.00	601.13	1.05	.14	.00	45.75	100.00
	18011.000	1070.00	602 36	1 22	.23	.00	600.00	100.00
	18311.000	755.00	601.62	00	.25	.00	44 73	300.00
	18311.000	465.00	600.28	-1.34	19	.00	39.83	300.00

18311.000	690 00	601.37	1.10	.24	.00	43.84	300.00
18311.000	1070.00	602.62	1.25	.26	.00	553 28	300 00
18911.000	755.00	602.08	.00	.46	.00	94.88	600 00
18911.000	465.00	600.68	-1.40	40	.00	84.84	600.00
18911.000	690.00	601.81	1.14	.44	.00	92.98	600.00
18911.000	1070.00	603.05	1.24	43	.00	139.00	600 00
19011.000	755.00	602.13	.00	05	.00	95.18	100.00
19011.000	465.00	600.74	-1 39	.06	.00	85.60	100.00
19011.000	690.00	601.87	1.13	05	.00	93.43	100.00
19011.000	1070.00	603.12	1.25	07	.00	139.00	100.00
19426.000	755.00	602.28	00	15	.00	93 21	415.00
19426.000	465.00	600.90	-1.38	.16	00	84 61	415.00
19426.000	690.00	602.01	1.11	.14	00	91 62	415 00
19426.000	1070.00	603.33	1.32	.21	00	139.00	415.00

SUMMARY OF ERRORS AND SPECIAL NOTES

WARNING SECNO= 14981.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 14981.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 14981.000 PROFILE= 3 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 14981.000 PROFILE= 4 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 14982.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 14982.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 14982.000 PROFILE= 3 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 14982.000 PROFILE= 4 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 15055.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 15055.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 15055.000 PROFILE= 3 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 15055.000 PROFILE= 4 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 15097.000 PROFILE= 4 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 15303.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 15328.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO= 15328.000 PROFILE= 2 CRITICAL DEPTH ASSUMED

```
CAUTION SECNO=  15328.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=  15328.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL
WARNING SECNO=  15328.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  15329.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  15332.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  15332.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  15332.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  15332.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  15778.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  15778.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  15778.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  15778.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  15947.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  15947.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  15947.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  15958.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  15958.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  15958.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  17911.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  17911.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  17911.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  17911.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
```

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Macomb Twp

3) WATERCOURSE: Glade Ditch

4) DOCUMENT TYPE: CLOMR - Sect 30 - Appendix B

00BREAK00

```
1*****************************************                    ***************************************
 *  HEC-2 WATER SURFACE PROFILES         *                    *  U.S. ARMY CORPS OF ENGINEERS       *
 *                                       *                    *  HYDROLOGIC ENGINEERING CENTER      *
 *  Version   4.6 2;  May 1991           *                    *  609 SECOND STREET, SUITE D         *
 *                                       *                    *  DAVIS, CALIFORNIA 95616-4687       *
 *  RUN DATE    18JAN98    TIME   20:52 10  *                 *          (916) 756-1104             *
 *****************************************                    ***************************************
```

```
X      X  XXXXXXX   XXXXX              XXXXX
X      X  X        X     X            X     X
X      X  X        X                        X
XXXXXXX  XXXX      X        XXXXX      XXXXX
X      X  X        X                  X
X      X  X        X     X            X
X      X  XXXXXXX   XXXXX             XXXXXXX
```

1
18JAN98 20:52:10
PAGE 1

THIS RUN EXECUTED 18JAN98

20:52:10

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**************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
**************************************
```

```
T1    Macomb Township, Improv. of  Gloede  Ditch, CLOMR Application
T2    100-year Flood Profile, Starting W.Surface elevation from FIS
T3      Gloede Ditch, Duplicate Effective Floodway Model (File Name:EFF-FLD.dat)
T4    Starting point of study from section # 12545.00
```

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		2					0.5		598.70	

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	1		-1							

```
J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    110        200

J5  LPRNT    NUMSEC                ********REQUESTED SECTION NUMBERS********

    -10       -10

QT        5        765        765       475        700        1085
NC      .05        .05       .042
   Valley X-section 23+41 (AE&W)    Section Y
X1    14886          8       44.0      86.0                                                   -.24
X3                                     41.0
GR    600.5        0.0      597.0      14.0      596.0        44.0      592.0       60.0      592.0      70.0
GR    596.0       86.0      597.0     116.0      600.5       130.0

NC                                       .3         .5
X1    14981          8       83.0    117.01       95.0        95.0       95.0                 -.24
X3       10                              83     604.36      117.01     604.36
GR    604.6        0.0      604.6      83.0      597.6       83.01      592.1       95.0      592.1     105.0
GR    597.6      117.0      604.6    117.01      604.6       200.0

NC      .04        .04       .021
X1    14982                                          1           1          1
BT       -4        0.0     604.36       0.0      83.00      604.36     600.76     117.01     604.36    600.76
BT               200.0     604.36       0.0
   Bridge X-section 24+56, 21 Mile Road (AE&W) Section Z
```



```
X1    15054                                         72          72         72
X2                                                                          1
    d/s limits of project property

NC     .035       .035       .033
X1    15055                                          1           1          1
X3       10                              83     604.36      117.01     604.36

NC      .04        .04       .037
QT        5        755        755       465        690        1070
   Valley X-section 25+33 (AE&W)    Section AA
```

```
X1    15097       10     191.0       257     42.00        42        42                 -.24
GR    601.9      0.0     600.9     100.0     600.9     191.0     592.1     217.0     592.1     232.0
GR    600.4    257.0     600.6     300.0     600.8     400.0     601.2     500.0     601.4     600.0
   Valley X-section 26+83 (AE&W)   Section AB

X1    15228        8       267       333       131       131       131                 -.24
GR    600.9      0.0     600.9     267.0     592.2     293.0     592.2     308.0     600.6     333.0
GR    600.8    400.0     600.9     500.0     601.1     600.0

X1    15303       12     282.0       322        75        75        75                 -.24
X4        2    597.9       282     599.7       322
GR    600.9      0.0     600.9     267.0     599.5     271.0     596.8     290.0     592.3     293.0
GR    592.3    309.0     596.8     316.0     598.3     326.0     600.6     333.0     600.8     400.0
GR    600.9    500.0     601.1     600.0

X1    15325                                     22        22        22                   .7

NC      .05      .05       .03
X1    15328       14       267       333         3         3         3                 -.24
GR    600.9      0.0     600.9     267.0     599.5     271.0     596.8     290.0     596.8     296.0
GR    595.3    296.0     595.3     308.0     596.8    308.01     596.8     316.0     598.3     326.0
GR    600.6    333.0     600.8     400.0     600.9     500.0     601.1     600.0
         Dam Section 27+83  (AE&W)   Section AC

X1    15329                                      1         1         1

X1    15332       12       282       322         3         3         3                  .46
X4        2    597.9       282     599.7       322
GR    600.9      0.0     600.9       267     599.5       271     596.8       290     592.3       293
GR    592.3      309     596.8       316     598.3       326     600.6       333     600.8       400
GR    600.9      500     601.1       600

NC      .04      .04      .037
X1    15354                                     22        22        22                  -.7

X1    15778      9.0       267       332       424       424       424                 -.24
GR    600.9      0.0     600.9       100     600.9       267     592.5       292     592.2       307
GR    600.9      332     600.9       400     600.9       500     601.1       600
1
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PAGE     3

X1    15946       14       281       327       168       168       168                 -.24
```

```
GR     600.3      0.0    600.1      100    600.1      200    600.3      281    598.3      284
GR     596.6    288.0    592.6      296    592.6      311    596.6      319    598.8      323
GR     600.6      327    600.6      400    600.8      500    601.2      600

NC      .035     .035      .08
X1     15947                                   1        1        1
X3        10                                                           599.5    599.5

SB                1.55     2.98             25.84             160.2        0   592.36   592.36
     Bridge Section 34+02 Private Bridge (AE&W)  Section AD
X1     15957                                  10       10       10
X2                            1   598.56   599.86
X3        10                                                          599.86   599.86
BT       -10         0   600.06      0.0      100   599.86      0.0      200   599.86      0.0
BT                 281   600.06               284   600.16   598.06      323   600.26   598.56
BT                 327   600.36               400   600.36               500   600.56
BT                 600   600.96

NC      .058      .06     .038
X1     15958                                   1        1        1
   Valley Section 42+07 (AE&W)      Section AE

X1     16752         7        0       67      794      794      794             -.24
X3                                                     225
GR     601.2         0    593.0       26      593       41    600.9       67    600.9      122
GR     600.9       322    601.1      422
   Valley Section 43+56 (AE&W)      Section AF

X1     17401         7        0       69      649      649      649             -.24
GR     601.5         0    593.3       26    593.3       43    602.1       69    601.9      133
GR     602.2       138    602.0      338

X1     17764         7        0       76      363      363      363
GR    601.53         0   593.23       29   593.23       44    604.1       76    601.8      132
GR     601.9       220    602.0      300
   Valley Section 52+66 (AE&W)      Section AG

X1     17811         7        0       78       47       47       47             -.24
GR     601.8         0    593.5       30    593.5       45    604.7       78      602      130
GR     602.1       230    602.2      330
   Upstream property limits 15' upstream of section #17811=Sta.#17826
   Valley x-section obtained from AEW LOMR

NC       .06       .04      .04      0.3      0.5
X1     17911        10      283      333      100      100      100             -.24
```

```
GR    602.2         0      602.4      100        602       217      603.4      283    593.64      300
GR   593.64       314      604.7      333      602.0       400      602.1      500     602.2      600
   Valley X-section from AEW LOMR
1
   18JAN98       20:52:10
PAGE    4


X1    18011        10        283      333        100       100        100               -.24
GR    602.2         0      602.4      100        602       217      602.4      283    593.46      300
GR   593.46       313      602.4      333      602.0       400      602.1      500     602.2      600
   Valley Section from AEW LOMR

X1    18311        10        283      333        350       250        300               -.24
GR    602.2         0      602.4      100        602       217      603.3      283    593.43      300
GR   593.43       314      603.3      333        602       400      602.1      500     602.2      600
   Valley X-section from AEW LOMR

X1    18911         8          0      139        600       600        600
GR   602.33         0     602.33     17.0     599.14        34     598.28       74    593.79       90
GR   593.79        98      602.5      114      602.5       139
   Valley x-section from AEW LOMR

X1    19011         8          0      139        100       100        100
GR   602.36         0     602.36       17     599.05        34     597.67       74    593.27       90
GR   593.27        98     602.49      114     602.49       139
   valley x-section from AEW LOMR

X1    19426         8          0      139        415       415        415
GR   602.84         0     602.84       17     598.97        34     597.86       74    594.19       90
GR   594.19        98      603.0      114      603.0       139
1
   18JAN98       20:52:10
PAGE    5

T1      Improvement of Gloede Ditch, CLOMR Application
T2      100 year flood profile, starting elevation from original FIS
T3      Gloede Ditch, Duplicate Effective Floodway Model File Name:EFF-FLD.dat
T4      Starting Point of study from section # 12545

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC    HVINS     Q       WSEL      FQ

              3                                             0.5              598.70
```

J2 NPROF IPLOT PREVS XSECV XSECH FN ALLDC IBW CHNIM ITRACE

15 -1

1
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PAGE 6

THIS RUN EXECUTED 18JAN98

20:52:10
****
HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

Gloede Ditch, Duplicate

SUMMARY PRINTOUT TABLE 110

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
	14886.000	598.70	00	598 81	82.76	8.86	646 25	109.89	-41.00	41 00	44.00	86 00	130.00
	14886.000	598.70	00	598.81	82.76	8.86	646.25	109.89	-41.00	41.00	44 00	86.00	130.00
*	14981.000	598.70	.00	599.03	33.99	.00	765.00	.00	34 01	83 00	83.00	117 01	117.01
*	14981.000	598.70	00	599.03	33.99	.00	765.00	.00	34.01	83 00	83.00	117.01	117.01
*	14982.000	598.71	.00	599.03	33.99	.00	765.00	.00	00	00	83.00	117 01	.00
*	14982.000	598.71	00	599.03	33.99	.00	765.00	.00	00	.00	83.00	117.01	.00
	15054.000	598.76	.00	599.08	33.99	.00	765.00	.00	00	.00	83.00	117.01	00
	15054 000	598.76	.00	599.08	33.99	.00	765.00	.00	00	.00	83.00	117.01	00
*	15055.000	598 76	.00	599 08	33.99	.00	765.00	.00	34.01	83.00	83.00	117.01	117.01
*	15055.000	598 76	.00	599 08	33.99	.00	765 00	.00	34.01	83.00	83.00	117.01	117.01
	15097.000	599.05	.00	599.18	57.90	.00	755 00	.00	00	.00	191.00	257.00	.00
	15097.000	599.05	.00	599.18	57 90	00	755.00	.00	00	.00	191.00	257.00	00
	15228.000	599.14	.00	599.27	57.88	.00	755 00	.00	.00	.00	267.00	333.00	.00

	15228.000	599.14	00	599.27	57 88	00	755 00	.00	.00	.00	267.00	333.00	.00
	15303.000	599 16	.00	599.41	56.19	8.97	742.75	3.27	00	.00	282.00	322.00	.00
	15303.000	599.16	00	599.41	56.19	8.97	742 75	3.27	00	.00	282.00	322 00	00
	15325 000	599 15	00	599 50	45.69	2.11	752 62	27	.00	.00	282.00	322.00	.00
	15325.000	599.15	00	599 50	45.69	2 11	752 62	.27	.00	.00	282.00	322.00	.00
*	15328.000	599 04	.00	599.63	56.47	.00	755.00	.00	.00	00	267.00	333.00	00
*	15328.000	599.04	00	599.63	56.47	.00	755 00	.00	.00	00	267.00	333.00	.00
	15329.000	599.05	.00	599.63	56.46	.00	755.00	.00	.00	.00	267.00	333.00	.00
	15329.000	599.05	00	599.63	56.46	.00	755.00	.00	.00	.00	267 00	333.00	.00

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
*	15332.000	599.41	00	599.72	49.47	2.63	751.76	.61	00	.00	282.00	322.00	00
*	15332.000	599.41	.00	599.72	49.47	2.63	751 76	.61	00	.00	282.00	322.00	.00
	15354.000	599.58	00	599.78	60.56	16.22	731.91	6 87	00	00	282.00	322 00	00
	15354.000	599.58	00	599.78	60.56	16.22	731.91	6 87	.00	.00	282.00	322 00	.00
*	15778.000	600.01	.00	600.11	61.21	.00	755 00	.00	.00	.00	267.00	332.00	00
*	15778.000	600.01	.00	600.11	61.21	.00	755.00	00	.00	00	267.00	332 00	.00
	15946.000	600.09	.00	600.24	326.40	14.73	740.27	.00	.00	00	281.00	327.00	00
	15946 000	600.09	.00	600.24	326.40	14.73	740.27	.00	.00	00	281.00	327 00	.00
*	15947.000	600.11	.00	600.24	326.44	42.64	712.35	.00	.00	00	281.00	327.00	00
*	15947 000	600.11	.00	600 24	326.44	42.64	712 35	00	.00	00	281.00	327.00	.00
	15957.000	600.25	.00	600.36	326.77	96.60	658.39	.00	.00	.00	281.00	327 00	.00
	15957 000	600 25	.00	600.36	326.77	96.60	658.39	.00	.00	00	281.00	327.00	.00
*	15958.000	600.24	.00	600.37	326.75	29.35	725 65	00	.00	00	281.00	327.00	.00
*	15958.000	600 24	.00	600.37	326.75	29.35	725.65	.00	.00	.00	281.00	327.00	.00
	16752.000	600 74	.00	600.82	224.31	.00	753 74	1.26	225.00	00	.00	67 00	225.00
	16752.000	600.74	00	600.82	224.31	.00	753.74	1.26	225.00	00	.00	67.00	225.00
	17401.000	601.02	.00	601.10	65.83	.00	755.00	.00	.00	00	.00	69.00	.00
	17401.000	601.02	00	601.10	65 83	.00	755.00	.00	.00	.00	.00	69 00	.00
	17764.000	601.18	00	601.26	66 22	.00	755.00	.00	.00	.00	.00	76.00	.00
	17764.000	601.18	.00	601.26	66.22	.00	755.00	.00	.00	00	.00	76.00	.00
	17811.000	601.20	.00	601 29	67 15	.00	755.00	.00	.00	00	.00	78 00	.00
	17811.000	601.20	.00	601.29	67 15	.00	755.00	00	.00	00	.00	78.00	.00
*	17911.000	601.21	.00	601.41	41.04	.00	755.00	.00	.00	.00	283.00	333.00	.00
*	17911.000	601.21	.00	601 41	41.04	.00	755.00	.00	.00	00	283.00	333.00	.00
	18011 000	601.37	.00	601.52	46.72	.00	755.00	.00	.00	00	283.00	333.00	.00

18011.000	601.37	.00	601 52	46.72	.00	755.00	00	00	00	283.00	333.00	.00
18311.000	601.62	.00	601 76	44.73	.00	755.00	.00	00	.00	283 00	333 00	.00
18311.000	601.62	.00	601.76	44.73	.00	755.00	00	00	00	283.00	333.00	.00
18911.000	602 08	.00	602.14	94.88	.00	755.00	00	00	.00	.00	139 00	.00
18911.000	602.08	.00	602 14	94.88	.00	755 00	.00	.00	.00	.00	139.00	.00
19011.000	602.13	.00	602 18	95.18	.00	755.00	.00	00	.00	.00	139.00	00
19011.000	602.13	.00	602 18	95.18	.00	755.00	00	.00	.00	.00	139.00	.00
19426.000	602.28	.00	602 33	93.21	.00	755 00	.00	.00	.00	.00	139 00	.00
19426 000	602.28	.00	602 33	93.21	.00	755.00	.00	.00	.00	00	139 00	.00

SUMMARY OF ERRORS AND SPECIAL NOTES

WARNING SECNO= 14981.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 14981.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 14982.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 14982.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 15055.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 15055.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 15328.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 15328.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 15332.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 15332.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 15778.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 15778.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 15947.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 15947.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 15958.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 15958.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 17911.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 17911.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

FLOODWAY DATA, Gloede Ditch, Duplicate
PROFILE NO. 2

	------- FLOODWAY	-------		WATER SURFACE ELEVATION		
STATION	WIDTH	SECTION AREA	MEAN VELOCITY	WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
14886.000	83.	317.	2.4	598.7	598.7	.0
14981.000	34.	167.	4.6	598.7	598.7	.0
14982.000	34.	167.	4.6	598.7	598.7	.0
15054.000	34.	168.	4.5	598.8	598.8	.0
15055.000	34.	168.	4.5	598.8	598.8	.0
15097.000	58.	262.	2.9	599.0	599.0	.0
15228.000	58.	262.	2.9	599.1	599.1	.0
15303.000	58.	197.	3.8	599.2	599.2	.0
15325.000	51.	161.	4.7	599.1	599.1	.0
15328.000	56.	123.	6.1	599.0	599.0	.0
15329.000	56.	123.	6.1	599.0	599.0	.0
15332.000	53.	173.	4.4	599.4	599.4	.0
15354.000	61.	222.	3.4	599.6	599.6	.0
15778.000	61.	301.	2.5	600.0	600.0	.0
15946.000	326.	281.	2.7	600.1	600.1	.0
15947.000	326.	288.	2.6	600.1	600.1	.0
15957.000	327.	336.	2.2	600.3	600.3	.0
15958.000	327.	333.	2.3	600.2	600.2	.0
16752.000	224.	338.	2.2	600.7	600.7	.0
17401.000	66.	330.	2.3	601.0	601.0	.0
17764.000	66.	323.	2.3	601.2	601.2	.0
17811.000	67.	326.	2.3	601.2	601.2	.0
17911.000	41.	215.	3.5	601.2	601.2	.0
18011.000	47.	243.	3.1	601.4	601.4	.0
18311.000	45.	247.	3.1	601.6	601.6	.0
18911.000	95.	384.	2.0	602.1	602.1	.0
19011.000	95.	420.	1.8	602.1	602.1	.0

19426.000	93.	403.	1.9	602.3	602.3	.0

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Macomb Twp

3) WATERCOURSE: Gloede Ditch

4) DOCUMENT TYPE: CLOMR- Sect 30-Appendix C

00BREAK00

```
1*****************************************                   **************************************
 *  HEC-2 WATER SURFACE PROFILES          *                   *  U.S  ARMY CORPS OF ENGINEERS       *
 *                                         *                   *  HYDROLOGIC ENGINEERING CENTER      *
 *  Version   4 6.2;  May 1991             *                   *  609 SECOND STREET, SUITE D         *
 *                                         *                   *  DAVIS, CALIFORNIA 95616-4687       *
 *  RUN DATE    18JAN98    TIME   21:07 23 *                   *         (916) 756-1104              *
 *****************************************                   **************************************
```

```
X     X  XXXXXXX   XXXXX           XXXXX
X     X  X        X     X         X     X
X     X  X        X                     X
XXXXXXX  XXXX     X         XXXXX  XXXXX
X     X  X        X               X
X     X  X        X     X         X
X     X  XXXXXXX   XXXXX          XXXXXXX
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1
18JAN98 21:07:23
PAGE 1

THIS RUN EXECUTED 18JAN98 21:07:23

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 ***********************************
  HEC-2 WATER SURFACE PROFILES

  Version   4.6.2;  May 1991
 ***********************************
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T1 Macomb Township, Improv. of Gloede Ditch
T2 100-year Flood Profile, Starting W.Surface elevation from FIS
T3 Gloede Ditch, Post Project Conditions Natural, File:Post-nat.dat
T4 Starting point of Study from section # 14886

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		2					0.5		598.7	

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
			-1							

```
QT     4.000       765       475       700      1085
NC       .05       .05      .042
   Valley X-section 23+41 (AE&W)    Section Y
X1     14886         8      44.0      86.0        85        85        85                 -.24
X3                                    41.0
GR     600.5       0.0     597.0      14.0     596.0      44.0     592.0      60.0     592.0      70.0
GR     596.0      86.0     597.0     116.0     600.5     130.0

NC                                      .3        .5
X1     14981         8      83.0    117.01      95.0      95.0      95.0                 -.24
X3        10                            83    604.36    117.01    604.36
GR     604.6       0.0     604.6      83.0     597.6     83.01     592.1      95.0     592.1     105.0
GR     597.6     117.0     604.6    117.01     604.6     200.0

NC       .04       .04      .021
X1     14982                                       1         1         1
BT        -4       0.0    604.36       0.0     83.00    604.36    600.76    117.01    604.36    600.76
BT               200.0    604.36       0.0
   Bridge X-section 24+56, 21 Mile Road (AE&W) Section Z

X1     15054                                      72        72        72
X2                                                                     1
    d/s limits of project property

NC      .035      .035      .033
X1     15055                                       1         1         1
X3        10                            83    604.36    117.01    604.36
1
   18JAN98       21:07:23
PAGE     2


NC       .04       .04      .035
QT         4       755       465       690      1070
   Improved Drain x-section
X1     15097        12       173       293     42.00        42        42
GR    601.66         0    600.66       100    600.66       173    591.86       217    591.86       232
GR    595.86       248    596.86       278    600.33       293    600.36       300    600.56       400
GR    600.96       500    601.16       600
  Improved Drain x-section

X1     15228        10       249       369       131       131       131
GR    600.66         0    600.66       249    591.96       293    591.96       308    595.96       324
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GR   596.96      354    600.46      369    600.56      400    600.66      500    600.86      60

X1    15303       10       249      369        75       75        75
GR   600.66        0    600.66      249    592.06      293    592.06      308    596.06      32
GR   597.06      354    600.46      369    600.56      400    600.66      500    600.86      60
  Improved Drain X-sections

X1    15332       10       249      369        29       29        29
GR   600.66        0    600.66      249    592.09      293    592.09      308    596.09      32
GR   597.09      354    600.46      369    600.56      400    600.66      500    600.86      60

X1    15778       12       248      368       446      446       446
GR   600.76        0    600.76      100    600.76      200    600.76      248    592.26      29
GR   592.26      307    596.26      323    597.26      353    600.76      368    600.76      40
GR   600.76      500    600.86      600

X1    15946       12       252      372       168      168       168
GR   600.06        0    599.86      100    599.86      200    599.99      252    592.36      29
GR   592.36      311    596.36      327    597.36      357    600.36      372    600.36      40
GR   600.56      500    600.96      600

NC      .04      .04      .035
  Location where proposed reallignment of Gloede Drain begins
  Improved Drain x-section
X1   16513         9       100      220       567      567       567
GR    601.5        0     600.9      100    592.66      144    592.66      159     596.7      17
GR    597.7      205     600.7      220     600.8      300     601.3      400
  Improved Drain x-section

X1    16752        9       100      220       257      144       212
GR    601.6        0    600.96      100    592.76      144    592.76      159    596.76      17
GR   597.76      205    600.76      220    600.86      300     601.4      400

NC                                  0.3        .5
   Improved Drain x-section
X1    17368        9       100      220       616      616       616
GR   601.84        0    601.24      100    593.04      144    593.04      159    597.04      17
GR   598.04      205    601.94      220    601.94      300     602.1      400
  One foot d/s of new proposed 24'span x 9' rise Con-span concrete bridge
1
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X1     17594        11     139.5     163.5       226       226       226
X3        10                                                                 602.5     602.5
GR     601.9         0     601.3       100     594.0     139.5     593.1       144     593.1       159
GR    594.29     163.5     597.1       175     598.1       205       602       220       602       300
GR    602.16       400
  d/s inside face of new proposed bridge 24'x9' con-span concrete bridge

NC                        .023
X1     17595        20     139.5     163.5         1         1         1
GR     601.9         0     601.3       100     593.1     139.5     593.1    139.51     593.1    139.98
GR     593.1    141.27     593.1     144.0     593.1    146.27     593.1     151.5     593.1    156.73
GR     593.1       159     593.1    161.73     593.1    163.02     593.1    163.49     593.1     163.5
GR     597.1       175     598.1       205     602.0       220     602.0       300    602.16       400
BT       -18         0     603.0     601.9       100     603.0     601.3     139.5     603.0     593.1
BT              139.51     603.0    597.17    139.98     603.0     598.8    141.27     603.0    599.91
BT              146.27     603.0    601.55     151.5     603.0     602.1    156.73     603.0    601.55
BT              161.73     603.0    599.91    163.02     603.0     598.8    163.49     603.0    597.17
BT               163.5     603.0     593.1       175     603.0     597.1       205     603.0     598.1
BT                 220     603.0     602.0       300     603.0     602.0       400     603.0    602.16

X1     17647                                      52        52        52                 .02
X2                                                                     1
  u/s of proposed bridge

NC                        .035
X1     17648                                       1         1         1
X3        10                                                                 603.0     603.0
  improved x-section of drain

X1     17764         8       100       220       116       116       116
GR     601.9         0    601.54       100    593.24       144    593.24       159    597.24       175
GR    598.24       205    601.84       220    601.94       330
   Upstream property limits, and end of Drain reallignment

NC     0.058      0.06     0.038
X1     17826         7         0        78        62        62        62
GR     601.9         0     593.6        30     593.6        45     604.7        78       602       130
GR     602.1       230     602.2       330

NC       .06       .06       .04       0.3       0.5
   Valley x-section obtained from AEW LOMR
X1     17911        10       283       333       100       100       100                -.24
GR     602.2         0     602.4       100       602       217     603.4       283    593.64       300
GR    593.64       314     604.7       333     602.0       400     602.1       500     602.2       600
   Valley x-section obtained from AEW LOMR
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 X1    18011          10        283        333         100         100         100                   -.24
 GR    602.2           0      602.4        100         602         217       602.4         283     593.46          300
 GR   593.46         313      602.4        333       602.0         400       602.1         500      602.2          600
    Valley x-section obtained from AEW LOMR
1
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 X1    18311          10        283        333         350         250         300                   -.24
 GR    602.2           0      602.4        100         602         217       603.3         283     593.43          300
 GR   593.43         314      603.3        333         602         400       602.1         500      602.2          600
    Valley x-section from AEW LOMR

 X1    18911           8          0        139         600         600         600
 GR   602.33           0     602.33       17.0      599.14          34      598.28          74     593.79           90
 GR   593.79          98      602.5        114       602.5         139
    Valley x-section obtained from AEW LOMR

 X1    19011           8          0        139         100         100         100
 GR   602.36           0     602.36         17      599.05          34      597.67          74     593.27           90
 GR   593.27          98     602.49        114      602.49         139
    Valley  x-section from  AEW LOMR

 X1    19426           8          0        139         415         415         415
 GR   602.84           0     602.84         17      598.97          34      597.86          74     594.19           90
 GR   594.19          98      603.0        114       603.0         139
1
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PAGE     5

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF 1
0

 *SECNO 14886.000
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3470 ENCROACHMENT STATIONS=        41.0      130.0  TYPE=       1  TARGET=       -41.000
 14886.000       6.94     598.70       .00     598.70    598.81       .11       .00       .00    595.76
     765.0        8.9      646.2     109.9        8.7     227.5      80.7        .0        .0    595.76
       .00       1.02       2.84      1.36       .050      .042      .050      .000    591.76     41.00
   .000699        85.        85.       85.          0         0         0       .00     82.76    123.76

CCHV=      .300 CEHV=      .500
*SECNO 14981.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .54

3470 ENCROACHMENT STATIONS=        83.0      117.0  TYPE=       1  TARGET=        34.010
 ELENCL=    604.36  ELENCR=    604.36

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       604.36 ELREA=       604.36

 14981.000       6.84     598.70       .00        .00    599.03       .33       .11       .11    604.36
     765.0         .0      765.0        .0         .0     166.7        .0        .5        .1    604.36
       .01        .00       4.59       .00       .000      .042      .000      .000    591.86     83.01
   .002433        95.        95.       95.          2         0         0       .00     33.99    117.00

*SECNO 14982.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.00

3370 NORMAL BRIDGE, NRD=   4 MIN ELTRD=   604.36 MAX ELLC=   600.76

 14982.000       6.85     598.71       .00        .00    599.03       .33       .00       .00    604.36
     765.0         .0      765.0        .0         .0     166.7        .0        .5        .1    604.36
       .01        .00       4.59       .00       .000      .021      .000      .000    591.86     83.01
   .000608         1.         1.        1.          0         0         0       .00     33.99    117.00
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG        HV        HL        OLOSS     L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH      XNR       WTN       ELMIN     SSTA
```

SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 15054.000

3370 NORMAL BRIDGE, NRD= 4 MIN ELTRD= 604.36 MAX ELLC= 600.76

15054.000	6.90	598.76	.00	.00	599.08	.32	.04	.00	604.36
765.0	.0	765.0	.0	.0	168.5	.0	.8	.2	604.36
.01	.00	4.54	.00	.000	.021	.000	.000	591.86	83.01
.000589	72.	72.	72.	2	0	0	.00	33.99	117.00

*SECNO 15055.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .64

3470 ENCROACHMENT STATIONS= 83.0 117.0 TYPE= 1 TARGET= 34.010
ELENCL= 604.36 ELENCR= 604.36

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 604.36 ELREA= 604.36

15055.000	6.90	598.76	.00	.00	599.08	.32	.00	.00	604.36
765.0	.0	765.0	.0	.0	168.5	.0	.8	.2	604.36
.01	.00	4.54	.00	.000	.033	.000	.000	591.86	83.01
.001454	1.	1.	1.	0	0	0	.00	33.99	117.00

*SECNO 15097.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.19

15097.000	7.27	599.13	.00	.00	599.18	.05	.02	.08	600.66
755.0	.0	755.0	.0	.0	420.1	.0	1.1	.3	600.33
.02	.00	1.80	.00	.000	.035	.000	.000	591.86	180.63
.000295	42.	42.	42.	2	0	0	.00	107.20	287.83

599.27

*SECNO 15228.000

15228.000	7.21	599.17	.00	.00	599.22	.05	.04	.00	600.66
755.0	.0	755.0	.0	.0	414.9	.0	2.4	.6	600.46
.04	.00	1.82	.00	.000	.035	.000	.000	591.96	256.53
.000307	131.	131.	131.	2	0	0	.00	106.95	363.48

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

599.41

*SECNO 15303.000

15303.000	7.13	599.19	.00	.00	599.25	.05	.02	.00	600.66
755.0	.0	755.0	.0	.0	408.4	.0	3.1	.8	600.46
.05	.00	1.85	.00	.000	.035	.000	.000	592.06	256.50
.000323	75.	75.	75.	2	0	0	.00	106.92	363.42

599.72

*SECNO 15332.000

15332.000	7.11	599.20	.00	.00	599.26	.05	.01	.00	600.66
755.0	.0	755.0	.0	.0	406.8	.0	3.3	.8	600.46
.05	.00	1.86	.00	.000	.035	.000	.000	592.09	256.48
.000328	29.	29.	29.	2	0	0	.00	106.93	363.41

*SECNO 15778.000

15778.000	7.09	599.35	.00	.00	599.40	.05	.15	.00	600.76
755.0	.0	755.0	.0	.0	405.0	.0	7.5	1.9	600.76
.12	.00	1.86	.00	.000	.035	.000	.000	592.26	255.30
.000331	446.	446.	446.	2	0	0	.00	106.66	361.96

*SECNO 15946.000

15946.000	7.05	599.41	.00	.00	599.46	.05	.05	.00	599.99
755.0	.0	755.0	.0	.0	416.8	.0	9.1	2.3	600.36
.14	.00	1.81	.00	.000	.035	.000	.000	592.36	255.35
.000320	168.	168.	168.	2	0	0	.00	111.90	367.25

*SECNO 16513.000

16513.000	6.94	599.60	.00	.00	599.66	.06	.20	.00	600.90
755.0	.0	755.0	.0	.0	392.6	.0	14.3	3.8	600.70
.23	.00	1.92	.00	.000	.035	.000	.000	592.66	106.94
.000371	567.	567.	567.	2	0	0	.00	107.57	214.51

603.42

*SECNO 16752.000

16752.000	6.92	599.68	.00	.00	599.74	.06	.08	.00	600.96
755.0	.0	755.0	.0	.0	392.8	.0	16.3	4.3	600.76
.26	.00	1.92	.00	.000	.035	.000	.000	592.76	106.87
.000371	257.	212.	144.	2	0	0	.00	107.73	214.60

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

CCHV= .300 CEHV= .500
*SECNO 17368.000

17368.000	6.87	599.91	.00	.00	599.97	.06	.23	.00	601.24
755.0	.0	755.0	.0	.0	385.5	.0	21.8	5.8	601.94
.34	.00	1.96	.00	.000	.035	.000	.000	593.04	107.13
.000383	616.	616.	616.	2	0	0	.00	105.06	212.20

*SECNO 17594.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .61

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 602.50 ELREA= 602.50

17594.000	6.80	599.90	.00	.00	600.25	.35	.13	.15	594.00
755.0	.0	755.0	.0	.0	158.5	.0	23.2	6.1	594.29
.36	.00	4.76	.00	.000	.035	.000	.000	593.10	139.50
.001031	226.	226.	226.	2	0	0	.00	24.00	163.50

*SECNO 17595.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.72

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 17595.000      7.15    600.25       .00       .00    600.33       .09       .00       .08    593.10
     755.0     124.4     485.5     145.1     123.0     171.5     147.4      23.2       6.1    593.10
       .36      1.01      2.83       .98      .040      .023      .040      .000    593.10    105.07
   .000139        1.        1.        1.         2         0         0       .00    108.18    213.26


*SECNO 17647.000
 17647.000      7.13    600.25       .00       .00    600.34       .09       .01       .00    593.12
     755.0     124.3     485.8     144.9     122.8     171.3     147.1      23.7       6.3    593.12
       .36      1.01      2.84       .99      .040      .023      .040      .000    593.12    105.11
   .000140       52.       52.       52.         1         0         0       .00    108.12    213.23


*SECNO 17648.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .41

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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


   u/s
3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       603.00 ELREA=       603.00
                                                    — 600.36 — Revised
 17648.000      7.02    600.14       .00       .00    600.45       .31       .00       .11    593.12
     755.0        .0     755.0        .0        .0     168.5        .0      23.7       6.3    593.12
       .36       .00      4.48       .00      .000      .035      .000      .000    593.12    139.50
   .000829        1.        1.        1.         2         0         0       .00     24.00    163.50


*SECNO 17764.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.72
                                                        601.76
 17764.000      7.29    600.53       .00       .00    600.58       .05       .05       .08    601.54
     755.0        .0     755.0        .0        .0     430.0        .0      24.5       6.4    601.84
       .38       .00      1.76       .00      .000      .035      .000      .000    593.24    105.33
   .000280      116.      116.      116.         2         0         0       .00    109.24    214.56
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*SECNO 17826.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .59

17826.000	6.92	600.52	.00	.00	600.65	.13	.03	.04	601.90
755.0	.0	755.0	.0	.0	261.7	.0	25.0	6.6	604.70
.39	.00	2.89	.00	.000	.038	.000	.000	593.60	4.98
.000810	62.	62.	62.	2	0	0	.00	60.60	65.58

CCHV= .300 CEHV= .500

*SECNO 17911.000

17911.000	7.17	600.57	.00	.00	600.82	.25	.11	.06	603.16
755.0	.0	755.0	.0	.0	189.4	.0	25.5	6.7	604.46
.40	.00	3.99	.00	.000	.040	.000	.000	593.40	287.51
.001577	100.	100.	100.	2	0	0	.00	38.82	326.32

*SECNO 18011.000

					601.52				
18011.000	7.56	600.78	.00	.00	600.97	.19	.14	.02	602.16
755.0	.0	755.0	.0	.0	216.8	.0	26.0	6.8	602.16
.40	.00	3.48	.00	.000	.040	.000	.000	593.22	285.61
.001170	100.	100.	100.	2	0	0	.00	44.31	329.93

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 18311.000

18311.000	7.94	601.13	.00	.00	601.30	.17	.32	.00	603.06
755.0	.0	755.0	.0	.0	225.7	.0	27.5	7.1	603.06
.43	.00	3.35	.00	.000	.040	.000	.000	593.19	286.34
.001001	350.	300.	250.	2	0	0	.00	42.92	329.26

*SECNO 18911.000

18911.000	7.92	601.71	.00	.00	601.79	.07	.45	.03	602.33
755.0	.0	755.0	.0	.0	350.3	.0	31.5	8.0	602.50
.51	.00	2.16	.00	.000	.040	.000	.000	593.79	20.25
.000593	600.	600.	600.	1	0	0	.00	92.31	112.57

*SECNO 19011.000

19011.000	8.51	601.78	.00	.00	601.84	.06	.05	.00	602.36
755.0	.0	755.0	.0	.0	387.5	.0	32.3	8.2	602.49
.52	.00	1.95	.00	.000	.040	.000	.000	593.27	20.00
.000427	100.	100.	100.	2	0	0	.00	92.77	112.76

*SECNO 19426.000

602.33

19426.000	7.77	601.96	.00	.00	602.03	.06	.19	.00	602.84
755.0	.0	755.0	.0	.0	373.4	.0	35.9	9.1	603.00
.58	.00	2.02	.00	.000	.040	.000	.000	594.19	20.86
.000471	415.	415.	415.	2	0	0	.00	91.25	112.11

T1 Improvement of Gloede Ditch, CLOMR Application
T2 10 year flood profile, starting elevation from original FIS
T3 Gloede Ditch, Duplicate Effective Model
T4 Starting Point of study from section # 12545

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		3					0.5		597.58	

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	2		-1							

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV

```
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


 *PROF 2
0

 *SECNO 14886.000

 3470 ENCROACHMENT STATIONS=       41.0      130.0  TYPE=      1  TARGET=       -41.000
  14886.000       5.82     597.58        .00     597.58     597.66        .08        .00        .00     595.76
      475.0        4.4      433.1       37.5        5.3      180.4       40.9         .0         .0     595.76
        .00        .84       2.40        .92       .050       .042       .050       .000     591.76      41.00
    .000680        85.        85.        85.          0          0          0        .00      78.28     119.28


 CCHV=     .300 CEHV=     .500
 *SECNO 14981.000

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .58


 3470 ENCROACHMENT STATIONS=       83.0      117.0  TYPE=      1  TARGET=        34.010
  ELENCL=    604.36  ELENCR=    604.36

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      604.36 ELREA=      604.36

  14981.000       5.76     597.62        .00        .00     597.83        .21        .10        .06     604.36
      475.0         .0      475.0         .0         .0      129.8         .0         .4         .1     604.36
        .01        .00       3.66        .00       .000       .042       .000       .000     591.86      83.01
    .001999        95.        95.        95.          2          0          0        .00      33.99     117.00


 *SECNO 14982.000

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.00


 3370 NORMAL BRIDGE, NRD=   4 MIN ELTRD=   604.36 MAX ELLC=   600.76

  14982.000       5.76     597.62        .00        .00     597.83        .21        .00        .00     604.36
      475.0         .0      475.0         .0         .0      129.8         .0         .4         .1     604.36
        .01        .00       3.66        .00       .000       .021       .000       .000     591.86      83.01
    .000500         1.         1.         1.          0          0          0        .00      33.99     117.00
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     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST
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*SECNO 15054.000

3370 NORMAL BRIDGE, NRD=    4 MIN ELTRD=    604.36 MAX ELLC=    600.76

 15054.000       5.80     597.66        .00        .00     597.87        .20        .04        .00     604.36
     475.0         .0      475.0         .0         .0      131.3         .0         .6         .2     604.36
       .01        .00       3.62        .00       .000       .021       .000       .000     591.86      83.01
   .000483        72.        72.        72.          2          0          0        .00      33.99     117.00

*SECNO 15055.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .64

3470 ENCROACHMENT STATIONS=       83.0     117.0  TYPE=       1  TARGET=       34.010
 ELENCL=    604.36  ELENCR=    604.36

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       604.36 ELREA=       604.36

 15055.000       5.80     597.66        .00        .00     597.87        .20        .00        .00     604.36
     475.0         .0      475.0         .0         .0      131.3         .0         .6         .2     604.36
       .01        .00       3.62        .00       .000       .033       .000       .000     591.86      83.01
   .001193         1.         1.         1.          0          0          0        .00      33.99     117.00

*SECNO 15097.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.91

 15097.000       6.04     597.90        .00        .00     597.94        .04        .02        .05     600.66
     465.0         .0      465.0         .0         .0      295.1         .0         .8         .2     600.33
```

.02	.00	1.58	.00	.000	.035	.000	.000	591.86	186.79
.000312	42.	42.	42.	2	0	0	.00	95.71	282.50

*SECNO 15228.000

15228.000	5.98	597.94	.00	.00	597.98	.04	.04	.00	600.66
465.0	.0	465.0	.0	.0	290.4	.0	1.7	.5	600.46
.04	.00	1.60	.00	.000	.035	.000	.000	591.96	262.75
.000328	131.	131.	131.	2	0	0	.00	95.46	358.21

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 15303.000

15303.000	5.91	597.97	.00	.00	598.01	.04	.03	.00	600.66
465.0	.0	465.0	.0	.0	284.3	.0	2.2	.7	600.46
.06	.00	1.64	.00	.000	.035	.000	.000	592.06	262.78
.000351	75.	75.	75.	2	0	0	.00	95.22	358.00

*SECNO 15332.000

15332.000	5.89	597.98	.00	.00	598.02	.04	.01	.00	600.66
465.0	.0	465.0	.0	.0	282.8	.0	2.4	.8	600.46
.06	.00	1.64	.00	.000	.035	.000	.000	592.09	262.78
.000357	29.	29.	29.	2	0	0	.00	95.17	357.95

*SECNO 15778.000

15778.000	5.88	598.14	.00	.00	598.18	.04	.16	.00	600.76
465.0	.0	465.0	.0	.0	282.9	.0	5.3	1.7	600.76
.14	.00	1.64	.00	.000	.035	.000	.000	592.26	261.56
.000357	446.	446.	446.	1	0	0	.00	95.22	356.78

*SECNO 15946.000

15946.000	5.84	598.20	.00	.00	598.24	.04	.06	.00	599.99

465.0	.0	465.0	.0	.0	289.1	.0	6.4	2.1	600.36
.17	.00	1.61	.00	.000	.035	.000	.000	592.36	262.34
.000348	168.	168.	168.	2	0	0	.00	98.85	361.19

*SECNO 16513.000

16513.000	5.75	598.41	.00	.00	598.45	.05	.21	.00	600.90
465.0	.0	465.0	.0	.0	271.6	.0	10.0	3.4	600.70
.26	.00	1.71	.00	.000	.035	.000	.000	592.66	113.31
.000408	567.	567.	567.	2	0	0	.00	95.23	208.54

*SECNO 16752.000

16752.000	5.73	598.49	.00	.00	598.54	.05	.09	.00	600.96
465.0	.0	465.0	.0	.0	273.0	.0	11.4	3.8	600.76
.29	.00	1.70	.00	.000	.035	.000	.000	592.76	113.19
.000403	257.	212.	144.	1	0	0	.00	95.52	208.71

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

CCHV= .300 CEHV= .500
*SECNO 17368.000

17368.000	5.71	598.75	.00	.00	598.79	.05	.25	.00	601.24
465.0	.0	465.0	.0	.0	269.4	.0	15.2	5.2	601.94
.39	.00	1.73	.00	.000	.035	.000	.000	593.04	113.38
.000415	616.	616.	616.	2	0	0	.00	94.33	207.71

*SECNO 17594.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 602.50 ELREA= 602.50

17594.000	5.69	598.79	.00	.00	598.99	.19	.12	.07	594.00
465.0	.0	465.0	.0	.0	132.1	.0	16.2	5.5	594.29
.41	.00	3.52	.00	.000	.035	.000	.000	593.10	139.50

.000717	226.	226.	226.	1	0	0	.00	24.00	163.50

*SECNO 17595.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.39

17595.000	5.86	598.96	.00	.00	599.02	.06	.00	.04	593.10
465.0	69.5	330.6	64.9	82.7	140.7	86.7	16.2	5.5	593.10
.41	.84	2.35	.75	.040	.023	.040	.000	593.10	111.27
.000125	1.	1.	1.	2	0	0	.00	97.05	208.31

*SECNO 17647.000

17647.000	5.85	598.97	.00	.00	599.03	.06	.01	.00	593.12
465.0	69.4	330.8	64.8	82.5	140.5	86.4	16.6	5.6	593.12
.42	.84	2.35	.75	.040	.023	.040	.000	593.12	111.30
.000126	52.	52.	52.	1	0	0	.00	96.99	208.29

*SECNO 17648.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .46

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 603.00 ELREA= 603.00

17648.000	5.79	598.91	.00	.00	599.09	.17	.00	.05	593.12
465.0	.0	465.0	.0	.0	139.0	.0	16.6	5.6	593.12
.42	.00	3.34	.00	.000	.035	.000	.000	593.12	139.50
.000596	1.	1.	1.	2	0	0	.00	24.00	163.50

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 17764.000

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  17764.000      5.90    599.14       .00       .00    599.18       .04       .05       .04    601.54
      465.0        .0     465.0        .0        .0     286.6        .0      17.2       5.8    601.84
        .44       .00      1.62       .00      .000      .035      .000      .000    593.24    112.74
    .000345      116.      116.      116.         2         0         0       .00     96.00    208.74


*SECNO 17826.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .66

  17826.000      5.54    599.14       .00       .00    599.24       .10       .03       .03    601.90
      465.0        .0     465.0        .0        .0     184.2        .0      17.5       5.9    604.70
        .44       .00      2.52       .00      .000      .038      .000      .000    593.60      9.98
    .000795       62.       62.       62.         2         0         0       .00     51.49     61.47


CCHV=      .300 CEHV=      .500
*SECNO 17911.000
  17911.000      5.81    599.21       .00       .00    599.38       .17       .10       .04    603.16
      465.0        .0     465.0        .0        .0     139.6        .0      17.9       6.0    604.46
        .45       .00      3.33       .00      .000      .040      .000      .000    593.40    289.89
    .001379      100.      100.      100.         2         0         0       .00     34.09    323.97


*SECNO 18011.000
  18011.000      6.15    599.37       .00       .00    599.51       .13       .12       .01    602.16
      465.0        .0     465.0        .0        .0     158.5        .0      18.2       6.0    602.16
        .46       .00      2.93       .00      .000      .040      .000      .000    593.22    288.29
    .001039      100.      100.      100.         2         0         0       .00     38.48    326.77


*SECNO 18311.000
  18311.000      6.49    599.68       .00       .00    599.79       .12       .28       .00    603.06
      465.0        .0     465.0        .0        .0     167.4        .0      19.3       6.3    603.06
        .49       .00      2.78       .00      .000      .040      .000      .000    593.19    288.84
    .000857      350.      300.      250.         2         0         0       .00     37.64    326.48


*SECNO 18911.000
  18911.000      6.47    600.26       .00       .00    600.32       .07       .51       .02    602.33
      465.0        .0     465.0        .0        .0     223.5        .0      22.0       7.1    602.50
        .57       .00      2.08       .00      .000      .040      .000      .000    593.79     28.01
    .000854      600.      600.      600.         1         0         0       .00     81.89    109.89
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 19011.000

19011.000	7.08	600.35	.00	.00	600.39	.05	.07	.01	602.36
465.0	.0	465.0	.0	.0	261.5	.0	22.6	7.3	602.49
.59	.00	1.78	.00	.000	.040	.000	.000	593.27	27.36
.000516	100.	100.	100.	2	0	0	.00	82.91	110.27

*SECNO 19426.000

19426.000	6.38	600.57	.00	.00	600.62	.05	.23	.00	602.84
465.0	.0	465.0	.0	.0	252.1	.0	25.0	8.1	603.00
.65	.00	1.84	.00	.000	.040	.000	.000	594.19	26.99
.000577	415.	415.	415.	2	0	0	.00	82.58	109.58

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T1 Improvment of Gloede Ditch, CLOMR Application
T2 50-year flood profile, Starting elevation from original FIS
T3 Gloede Ditch, Duplicate Effective Model
T4 Starting Point of Study from section # 12545

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		4					0.5		598.47	

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	3		-1							

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    SECNO       DEPTH       CWSEL       CRIWS       WSELK       EG          HV          HL          OLOSS       L-BANK ELEV
    Q           QLOB        QCH         QROB        ALOB        ACH         AROB        VOL         TWA         R-BANK ELEV
    TIME        VLOB        VCH         VROB        XNL         XNCH        XNR         WTN         ELMIN       SSTA
    SLOPE       XLOBL       XLCH        XLOBR       ITRIAL      IDC         ICONT       CORAR       TOPWID      ENDST

 *PROF 3
0

 *SECNO 14886.000

 3470 ENCROACHMENT STATIONS=       41.0      130.0  TYPE=       1  TARGET=       -41.000
  14886.000        6.71     598.47         .00     598.47     598.57         .10         .00         .00      595.76
      700.0         7.9      599.9        92.2        8.0      217.8        72.1          .0          .0      595.76
        .00         .99       2.75        1.28       .050       .042        .050        .000      591.76       41.00
   .000696          85.         85.        85.          0          0           0         .00       81.84      122.84


 CCHV=      .300 CEHV=      .500
 *SECNO 14981.000

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .55


 3470 ENCROACHMENT STATIONS=       83.0      117.0  TYPE=       1  TARGET=        34.010
  ELENCL=    604.36  ELENCR=    604.36

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       604.36 ELREA=       604.36

  14981.000        6.62     598.48         .00        .00     598.78         .30         .11         .10      604.36
      700.0          .0      700.0          .0         .0      159.1          .0          .5          .1      604.36
        .01         .00       4.40         .00       .000       .042        .000        .000      591.86       83.01
   .002341          95.        95.         95.          2          0           0         .00       33.99      117.00


 *SECNO 14982.000

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.00


 3370 NORMAL BRIDGE, NRD=   4 MIN ELTRD=   604.36 MAX ELLC=   600.76
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 14982.000        6.62    598.48        .00        .00    598.78        .30        .00        .00     604.36
     700.0          .0     700.0         .0         .0     159.1         .0         .5         .1     604.36
       .01         .00      4.40        .00       .000      .021       .000       .000     591.86      83.01
   .000585          1.        1.         1.          0         0          0        .00      33.99     117.00


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     SECNO      DEPTH     CWSEL     CRIWS     WSELK      EG        HV        HL        OLOSS     L-BANK ELEV
     Q          QLOB      QCH       QROB      ALOB       ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME       VLOB      VCH       VROB      XNL        XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE      XLOBL     XLCH      XLOBR     ITRIAL     IDC       ICONT     CORAR     TOPWID    ENDST


 *SECNO 15054.000

 3370 NORMAL BRIDGE, NRD=   4 MIN ELTRD=   604.36 MAX ELLC=   600.76

 15054.000        6.67    598.53        .00        .00    598.83        .29        .04        .00     604.36
     700.0          .0     700.0         .0         .0     160.9         .0         .8         .2     604.36
       .01         .00      4.35        .00       .000      .021       .000       .000     591.86      83.01
   .000566         72.       72.        72.          2         0          0        .00      33.99     117.00


 *SECNO 15055.000

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .64


 3470 ENCROACHMENT STATIONS=       83.0      117.0  TYPE=      1  TARGET=       34.010
  ELENCL=     604.36  ELENCR=    604.36

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       604.36 ELREA=       604.36

 15055.000        6.67    598.53        .00        .00    598.83        .29        .00        .00     604.36
     700.0          .0     700.0         .0         .0     160.9         .0         .8         .2     604.36
       .01         .00      4.35        .00       .000      .033       .000       .000     591.86      83.01
   .001399          1.        1.         1.          0         0          0        .00      33.99     117.00


 *SECNO 15097.000
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3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.13

15097.000	7.02	598.88	.00	.00	598.93	.05	.02	.07	600.66
690.0	.0	690.0	.0	.0	393.1	.0	1.0	.3	600.33
.02	.00	1.76	.00	.000	.035	.000	.000	591.86	181.91
.000299	42.	42.	42.	2	0	0	.00	104.82	286.73

*SECNO 15228.000

15228.000	6.96	598.92	.00	.00	598.97	.05	.04	.00	600.66
690.0	.0	690.0	.0	.0	388.0	.0	2.2	.6	600.46
.04	.00	1.78	.00	.000	.035	.000	.000	591.96	257.81
.000311	131.	131.	131.	2	0	0	.00	104.57	362.39

SECNO Q TIME SLOPE	DEPTH QLOB VLOB XLOBL	CWSEL QCH VCH XLCH	CRIWS QROB VROB XLOBR	WSELK ALOB XNL ITRIAL	EG ACH XNCH IDC	HV AROB XNR ICONT	HL VOL WTN CORAR	OLOSS TWA ELMIN TOPWID	L-BANK ELEV R-BANK ELEV SSTA ENDST

*SECNO 15303.000

15303.000	6.88	598.94	.00	.00	598.99	.05	.02	.00	600.66
690.0	.0	690.0	.0	.0	381.6	.0	2.9	.7	600.46
.05	.00	1.81	.00	.000	.035	.000	.000	592.06	257.80
.000328	75.	75.	75.	2	0	0	.00	104.50	362.29

*SECNO 15332.000

15332.000	6.86	598.95	.00	.00	599.00	.05	.01	.00	600.66
690.0	.0	690.0	.0	.0	379.9	.0	3.1	.8	600.46
.05	.00	1.82	.00	.000	.035	.000	.000	592.09	257.78
.000333	29.	29.	29.	2	0	0	.00	104.50	362.28

*SECNO 15778.000

15778.000	6.84	599.10	.00	.00	599.15	.05	.15	.00	600.76
690.0	.0	690.0	.0	.0	378.5	.0	7.0	1.9	600.76
.12	.00	1.82	.00	.000	.035	.000	.000	592.26	256.60
.000336	446.	446.	446.	2	0	0	.00	104.28	360.88

*SECNO 15946.000

15946.000	6.80	599.16	.00	.00	599.21	.05	.06	.00	599.99
690.0	.0	690.0	.0	.0	389.0	.0	8.5	2.3	600.36
.15	.00	1.77	.00	.000	.035	.000	.000	592.36	256.80
.000326	168.	168.	168.	2	0	0	.00	109.19	365.99

*SECNO 16513.000

16513.000	6.69	599.35	.00	.00	599.41	.06	.20	.00	600.90
690.0	.0	690.0	.0	.0	366.3	.0	13.4	3.7	600.70
.23	.00	1.88	.00	.000	.035	.000	.000	592.66	108.26
.000378	567.	567.	567.	2	0	0	.00	105.01	213.27

*SECNO 16752.000

16752.000	6.67	599.43	.00	.00	599.49	.05	.08	.00	600.96
690.0	.0	690.0	.0	.0	367.7	.0	15.2	4.2	600.76
.26	.00	1.88	.00	.000	.035	.000	.000	592.76	108.13
.000375	257.	212.	144.	1	0	0	.00	105.28	213.42

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

CCHV= .300 CEHV= .500
*SECNO 17368.000

17368.000	6.63	599.67	.00	.00	599.73	.06	.24	.00	601.24
690.0	.0	690.0	.0	.0	360.3	.0	20.3	5.7	601.94
.35	.00	1.92	.00	.000	.035	.000	.000	593.04	108.43
.000389	616.	616.	616.	2	0	0	.00	102.83	211.26

*SECNO 17594.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .63

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3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       602.50 ELREA=       602.50

 17594.000       6.57    599.67       .00       .00    599.99       .32       .13       .13    594.00
     690.0         .0     690.0        .0        .0     153.0        .0      21.7       6.0    594.29
       .37        .00      4.51       .00      .000      .035      .000      .000    593.10    139.50
   .000968       226.      226.      226.         2         0         0       .00     24.00    163.50

*SECNO 17595.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.65

 17595.000       6.88    599.98       .00       .00    600.06       .08       .00       .07    593.10
     690.0      111.6     452.6     125.8     113.9     165.0     134.1      21.7       6.0    593.10
       .37        .98      2.74       .94      .040      .023      .040      .000    593.10    106.38
   .000138         1.        1.        1.         2         0         0       .00    105.84    212.22

*SECNO 17647.000
 17647.000       6.86    599.98       .00       .00    600.06       .08       .01       .00    593.12
     690.0      111.5     452.9     125.6     113.6     164.9     133.8      22.2       6.1    593.12
       .37        .98      2.75       .94      .040      .023      .040      .000    593.12    106.41
   .000138        52.       52.       52.         1         0         0       .00    105.78    212.19

*SECNO 17648.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .42
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     SECNO      DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q          QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME       VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE      XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       603.00 ELREA=       603.00
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17648.000	6.76	599.88	.00	.00	600.16	.28	.00	.10	593.12
690.0	.0	690.0	.0	.0	162.3	.0	22.2	6.1	593.12
.37	.00	4.25	.00	.000	.035	.000	.000	593.12	139.50
.000784	1.	1.	1.	2	0	0	.00	24.00	163.50

*SECNO 17764.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.64

17764.000	7.00	600.24	.00	.00	600.29	.05	.05	.07	601.54
690.0	.0	690.0	.0	.0	398.2	.0	22.9	6.3	601.84
.39	.00	1.73	.00	.000	.035	.000	.000	593.24	106.89
.000292	116.	116.	116.	2	0	0	.00	106.44	213.33

*SECNO 17826.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .60

17826.000	6.63	600.23	.00	.00	600.35	.12	.03	.04	601.90
690.0	.0	690.0	.0	.0	244.2	.0	23.4	6.4	604.70
.40	.00	2.83	.00	.000	.038	.000	.000	593.60	6.04
.000815	62.	62.	62.	2	0	0	.00	58.67	64.71

CCHV= .300 CEHV= .500
*SECNO 17911.000

17911.000	6.88	600.28	.00	.00	600.52	.23	.11	.05	603.16
690.0	.0	690.0	.0	.0	178.4	.0	23.9	6.5	604.46
.41	.00	3.87	.00	.000	.040	.000	.000	593.40	288.01
.001551	100.	100.	100.	2	0	0	.00	37.82	325.83

*SECNO 18011.000

18011.000	7.27	600.49	.00	.00	600.67	.18	.13	.02	602.16
690.0	.0	690.0	.0	.0	203.9	.0	24.3	6.6	602.16
.41	.00	3.38	.00	.000	.040	.000	.000	593.22	286.17
.001154	100.	100.	100.	2	0	0	.00	43.09	329.27

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 18311.000

18311.000	7.64	600.83	.00	.00	600.99	.16	.32	.00	603.06
690.0	.0	690.0	.0	.0	212.9	.0	25.7	6.9	603.06
.44	.00	3.24	.00	.000	.040	.000	.000	593.19	286.86
.000979	350.	300.	250.	2	0	0	.00	41.83	328.69

*SECNO 18911.000

18911.000	7.62	601.41	.00	.00	601.48	.07	.47	.03	602.33
690.0	.0	690.0	.0	.0	322.7	.0	29.4	7.8	602.50
.52	.00	2.14	.00	.000	.040	.000	.000	593.79	21.86
.000630	600.	600.	600.	1	0	0	.00	90.15	112.01

*SECNO 19011.000

19011.000	8.21	601.48	.00	.00	601.54	.06	.05	.00	602.36
690.0	.0	690.0	.0	.0	360.1	.0	30.2	8.0	602.49
.53	.00	1.92	.00	.000	.040	.000	.000	593.27	21.53
.000442	100.	100.	100.	2	0	0	.00	90.71	112.24

*SECNO 19426.000

19426.000	7.48	601.67	.00	.00	601.73	.06	.19	.00	602.84
690.0	.0	690.0	.0	.0	347.0	.0	33.6	8.9	603.00
.59	.00	1.99	.00	.000	.040	.000	.000	594.19	22.15
.000488	415.	415.	415.	2	0	0	.00	89.44	111.58

T1 Improvement of Gloede Ditch
T2 500-year flood profile, starting elevation from original FIS
T3 Gloede Ditch, Duplicate Effective Model
T4 Starting point of Study from section # 12545

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 J1   ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

                    5                                                    0.5                  599.84

 J2   NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

         4                   -1

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      SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
      Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
      TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
      SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


 *PROF 4
0

 *SECNO 14886.000

 3470 ENCROACHMENT STATIONS=        41.0       130.0   TYPE=       1   TARGET=       -41.000
  14886.000       8.08     599.84        .00     599.84     599.97        .13        .00        .00     595.76
     1085.0       13.3      861.4      210.3       12.1      275.4      126.4         .0         .0     595.76
        .00       1.10       3.13       1.66       .050       .042       .050       .000     591.76      41.00
    .000657        85.        85.        85.          0          0          0        .00      87.32     128.32


 CCHV=      .300 CEHV=      .500
 *SECNO 14981.000

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =    .49


 3470 ENCROACHMENT STATIONS=        83.0       117.0   TYPE=       1   TARGET=        34.010
  ELENCL=    604.36  ELENCR=    604.36

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       604.36 ELREA=       604.36

  14981.000       7.94     599.80        .00        .00     600.24        .44        .11        .16     604.36
     1085.0         .0     1085.0         .0         .0      203.8         .0         .7         .1     604.36
        .00        .00       5.32        .00       .000       .042       .000       .000     591.86      83.01
```

```
 .002692      95.      95.      95.        2        0        0      .00    34.00   117.00

 *SECNO 14982.000

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.00

 3370 NORMAL BRIDGE, NRD=   4 MIN ELTRD=   604.36 MAX ELLC=   600.76

  14982.000     7.94   599.80      .00      .00   600.24      .44      .00      .00   604.36
     1085.0       .0   1085.0       .0       .0    203.8       .0       .7       .1   604.36
        .01      .00     5.32      .00     .000     .021     .000     .000   591.86    83.01
    .000673       1.       1.       1.        0        0        0      .00    34.00   117.00

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     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *SECNO 15054.000

 3370 NORMAL BRIDGE, NRD=   4 MIN ELTRD=   604.36 MAX ELLC=   600.76

  15054.000     8.00   599.86      .00      .00   600.29      .43      .05      .00   604.36
     1085.0       .0   1085.0       .0       .0    205.8       .0      1.0       .2   604.36
        .01      .00     5.27      .00     .000     .021     .000     .000   591.86    83.01
    .000653      72.      72.      72.        2        0        0      .00    34.00   117.00

 *SECNO 15055.000

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .64

 3470 ENCROACHMENT STATIONS=      83.0     117.0  TYPE=      1  TARGET=      34.010
  ELENCL=    604.36  ELENCR=    604.36
```

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 604.36 ELREA= 604.36

15055.000	8.00	599.86	.00	.00	600.29	.43	.00	.00	604.36
1085.0	.0	1085.0	.0	.0	205.8	.0	1.0	.2	604.36
.01	.00	5.27	.00	.000	.033	.000	.000	591.86	83.01
.001614	1.	1.	1.	0	0	0	.00	34.00	117.00

*SECNO 15097.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.45

15097.000	8.51	600.37	.00	.00	600.42	.06	.02	.11	600.66
1070.0	.0	1070.0	.0	.0	559.6	.2	1.4	.3	600.33
.01	.00	1.91	.04	.000	.035	.040	.000	591.86	174.46
.000261	42.	42.	42.	2	0	0	.00	129.60	304.06

*SECNO 15228.000

15228.000	8.44	600.40	.00	.00	600.46	.06	.03	.00	600.66
1070.0	.0	1070.0	.0	.0	553.5	.0	3.1	.6	600.46
.03	.00	1.93	.00	.000	.035	.000	.000	591.96	250.31
.000271	131.	131.	131.	2	0	0	.00	118.44	368.75

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 15303.000

15303.000	8.36	600.42	.00	.00	600.48	.06	.02	.00	600.66
1070.0	.0	1070.0	.0	.0	546.8	.0	4.0	.8	600.46
.04	.00	1.96	.00	.000	.035	.000	.000	592.06	250.22
.000282	75.	75.	75.	2	0	0	.00	118.60	368.83

*SECNO 15332.000

15332.000	8.34	600.43	.00	.00	600.49	.06	.01	.00	600.66

1070.0	.0	1070.0	.0	.0	545.0	.0	4.4	.9	600.46
.05	.00	1.96	.00	.000	.035	.000	.000	592.09	250.19
.000285	29.	29.	29.	2	0	0	.00	118.68	368.86

*SECNO 15778.000

15778.000	8.30	600.56	.00	.00	600.62	.06	.13	.00	600.76
1070.0	.0	1070.0	.0	.0	540.6	.0	9.9	2.1	600.76
.11	.00	1.98	.00	.000	.035	.000	.000	592.26	249.05
.000291	446.	446.	446.	2	0	0	.00	118.08	367.13

*SECNO 15946.000

3280 CROSS SECTION 15946.00 EXTENDED .56 FEET

15946.000	8.26	600.62	.00	.00	600.67	.04	.04	.00	599.99
1070.0	79.2	986.4	4.4	178.5	559.0	23.9	12.4	3.4	600.36
.14	.44	1.76	.18	.040	.035	.040	.000	592.36	.00
.000226	168.	168.	168.	2	0	0	.00	515.32	515.32

*SECNO 16513.000

16513.000	8.10	600.76	.00	.00	600.83	.06	.15	.01	600.90
1070.0	.0	1069.9	.1	.0	524.6	1.6	20.8	7.8	600.70
.22	.00	2.04	.07	.000	.035	.040	.000	592.66	100.73
.000326	567.	567.	567.	2	0	0	.00	170.31	271.04

*SECNO 16752.000

16752.000	8.07	600.83	.00	.00	600.90	.06	.07	.00	600.96
1070.0	.0	1069.8	.2	.0	523.9	2.1	23.4	8.6	600.76
.25	.00	2.04	.07	.000	.035	.040	.000	592.76	100.68
.000327	257.	212.	144.	2	0	0	.00	177.44	278.12

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

CCHV= .300 CEHV= .500

*SECNO 17368.000

17368.000	8.00	601.04	.00	.00	601.11	.07	.21	.00	601.24
1070.0	.0	1070.0	.0	.0	509.8	.0	30.7	10.7	601.94
.33	.00	2.10	.00	.000	.035	.000	.000	593.04	101.09
.000344	616.	616.	616.	2	0	0	.00	115.44	216.53

*SECNO 17594.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .52

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 602.50 ELREA= 602.50

17594.000	7.84	600.94	.00	.00	601.47	.53	.13	.23	594.00
1070.0	.0	1070.0	.0	.0	183.5	.0	32.5	11.0	594.29
.34	.00	5.83	.00	.000	.035	.000	.000	593.10	139.50
.001269	226.	226.	226.	2	0	0	.00	24.00	163.50

*SECNO 17595.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 3.04

17595.000	8.40	601.50	.00	.00	601.60	.10	.00	.13	593.10
1070.0	193.2	630.7	246.1	173.4	201.7	213.0	32.5	11.0	593.10
.34	1.11	3.13	1.16	.040	.023	.040	.000	593.10	66.08
.000137	1.	1.	1.	2	0	0	.00	152.01	218.09

*SECNO 17647.000

17647.000	8.39	601.51	.00	.00	601.61	.10	.01	.00	593.12
1070.0	193.0	631.1	245.9	172.8	201.5	212.6	33.2	11.2	593.12
.34	1.12	3.13	1.16	.040	.023	.040	.000	593.12	67.44
.000138	52.	52.	52.	1	0	0	.00	150.62	218.06

*SECNO 17648.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .37

1

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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       603.00 ELREA=       603.00

 17648.000       8.21     601.33        .00        .00     601.79        .46        .00        .18     593.12
    1070.0         .0     1070.0         .0         .0      197.0         .0       33.2       11.2     593.12
       .34        .00       5.43        .00       .000       .035       .000       .000     593.12     139.50
   .000988         1.         1.         1.          2          0          0        .00      24.00     163.50


*SECNO 17764.000
3280 CROSS SECTION  17764.00 EXTENDED       .01 FEET


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.10

 17764.000       8.67     601.91        .00        .00     601.96        .05        .05        .12     601.54
    1070.0        3.4     1066.5         .1       18.6      588.4        2.4       34.3       11.6     601.84
       .36        .18       1.81        .06       .040       .035       .040       .000     593.24        .00
   .000223       116.       116.       116.          2          0          0        .00     292.86     292.86


*SECNO 17826.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .55

 17826.000       8.28     601.88        .00        .00     602.03        .15        .02        .05     601.90
    1070.0         .0     1070.0         .0         .0      350.1         .0       35.0       11.9     604.70
       .37        .00       3.06        .00       .000       .038       .000       .000     593.60        .07
   .000742        62.        62.        62.          2          0          0        .00      69.55      69.62


CCHV=      .300 CEHV=      .500
*SECNO 17911.000

3265 DIVIDED FLOW
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 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .69

  17911.000       8.51    601.91       .00       .00    602.21       .30       .10       .08    603.16
     1070.0         .7    1067.0       2.3       3.8     244.4      11.6      35.7      12.2    604.46
        .37        .18      4.37       .20      .060      .040      .060      .000    593.40    172.98
    .001576       100.      100.      100.         2         0         0       .00    248.82    550.52
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     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


 *SECNO 18011.000
 3280 CROSS SECTION  18011.00 EXTENDED        .20 FEET

  18011.000       8.94    602.16       .00       .00    602.36       .20       .13       .03    602.16
     1070.0       12.2    1031.6      26.3      47.3     281.7      74.0      36.4      13.2    602.16
        .38        .26      3.66       .35      .060      .040      .060      .000    593.22       .00
    .001077       100.      100.      100.         3         0         0       .00    600.00    600.00


 *SECNO 18311.000

 3265 DIVIDED FLOW

 3280 CROSS SECTION  18311.00 EXTENDED        .55 FEET

  18311.000       9.32    602.51       .00       .00    602.66       .15       .28       .02    603.06
     1070.0       53.9     942.3      73.8     123.8     288.9     144.6      39.7      17.2    603.06
        .41        .44      3.26       .51      .060      .040      .060      .000    593.19       .00
    .000799       350.      300.      250.         3         0         0       .00    541.78    600.00


 *SECNO 18911.000
 3280 CROSS SECTION  18911.00 EXTENDED        .70 FEET

  18911.000       9.24    603.03       .00       .00    603.10       .07       .42       .02    602.33
```

1070.0	.0	1070.0	.0	.0	500.9	.0	47.0	21.9	602.50
.49	.00	2.14	.00	.000	.040	.000	.000	593.79	.00
.000624	600.	600.	600.	2	0	0	.00	139.00	139.00

*SECNO 19011.000
3280 CROSS SECTION 19011.00 EXTENDED .73 FEET

19011.000	9.83	603.10	.00	.00	603.16	.06	.05	.00	602.36
1070.0	.0	1070.0	.0	.0	540.9	.0	48.2	22.2	602.49
.50	.00	1.98	.00	.000	.040	.000	.000	593.27	.00
.000484	100.	100.	100.	2	0	0	.00	139.00	139.00

*SECNO 19426.000
3280 CROSS SECTION 19426.00 EXTENDED .46 FEET

19426.000	9.12	603.31	.00	.00	603.38	.07	.22	.00	602.84
1070.0	.0	1070.0	.0	.0	516.6	.0	53.2	23.5	603.00
.56	.00	2.07	.00	.000	.040	.000	.000	594.19	.00
.000560	415.	415.	415.	2	0	0	.00	139.00	139.00

THIS RUN EXECUTED 18JAN98
21:07:24

****
HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

Gloede Ditch, Post Proje

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	14886.000	.00	.00	.00	591 76	765 00	598 70	00	598 81	6.99	2.84	316 88	289.35
	14886.000	.00	.00	.00	591.76	475.00	597.58	.00	597 66	6.80	2.40	226.70	182.22
	14886.000	.00	.00	00	591.76	700 00	598.47	.00	598.57	6.96	2.75	297.94	265 33
	14886.000	.00	.00	00	591.76	1085.00	599.84	.00	599.97	6.57	3.13	413 82	423.29
*	14981 000	95 00	.00	.00	591 86	765.00	598.70	.00	599.03	24 33	4.59	166.66	155.08
*	14981.000	95 00	.00	.00	591 86	475.00	597.62	.00	597.83	19.99	3 66	129.83	106.24
*	14981.000	95.00	.00	.00	591.86	700 00	598.48	.00	598.78	23 41	4 40	159.14	144.68
*	14981.000	95 00	.00	.00	591.86	1085 00	599.80	.00	600.24	26 92	5.32	203.80	209.13
*	14982 000	1.00	604.36	600.76	591.86	765.00	598 71	.00	599.03	6.08	4.59	166.66	310.15
*	14982.000	1.00	604.36	600.76	591.86	475.00	597.62	00	597.83	5.00	3.66	129 83	212.48
*	14982.000	1.00	604 36	600.76	591.86	700.00	598.48	.00	598.78	5.85	4.40	159 13	289 35
*	14982.000	1.00	604.36	600.76	591.86	1085.00	599.80	.00	600.24	6.73	5.32	203 79	418.24
	15054.000	72.00	604.36	600 76	591.86	765.00	598.76	.00	599 08	5.89	4.54	168.48	315.24
	15054.000	72.00	604.36	600 76	591.86	475.00	597.66	.00	597 87	4 83	3.62	131.26	216.07
	15054.000	72.00	604.36	600.76	591 86	700 00	598.53	.00	598 83	5 66	4.35	160.87	294.10
	15054.000	72.00	604.36	600.76	591 86	1085 00	599.86	.00	600.29	6 53	5.27	205 84	424.45
*	15055.000	1.00	.00	.00	591.86	765 00	598 76	.00	599.08	14 54	4 54	168 47	200.60
*	15055.000	1.00	.00	.00	591.86	475 00	597 66	.00	597.87	11.93	3 62	131.26	137 50
*	15055.000	1.00	.00	.00	591.86	700.00	598.53	00	598.83	13.99	4 35	160.86	187.15
*	15055.000	1.00	.00	.00	591.86	1085.00	599.86	00	600.29	16.14	5 27	205.84	270.10
*	15097.000	42.00	.00	.00	591.86	755.00	599.13	00	599.18	2.95	1.80	420.13	439.38
*	15097.000	42.00	.00	.00	591.86	465.00	597.90	00	597.94	3.12	1.58	295.08	263.17
*	15097.000	42.00	.00	.00	591.86	690.00	598.88	.00	598.93	2.99	1.76	393.10	399.24
*	15097.000	42.00	.00	.00	591.86	1070.00	600.37	.00	600.42	2.61	1.91	559.74	662.08
	15228.000	131.00	.00	.00	591.96	755.00	599.17	.00	599.22	3 07	1.82	414.90	431.00
	15228.000	131 00	.00	.00	591.96	465 00	597.94	.00	597.98	3 28	1.60	290.43	256.76
	15228.000	131.00	00	.00	591.96	690 00	598.92	.00	598.97	3.11	1.78	387 99	391.29
	15228.000	131.00	.00	.00	591.96	1070.00	600.40	.00	600.46	2.71	1.93	553.45	650.50

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
15303 000	75.00	.00	.00	592.06	755.00	599.19	00	599.25	3.23	1 85	408.44	420.03
15303.000	75.00	.00	.00	592.06	465.00	597.97	.00	598.01	3.51	1 64	284.35	248.31
15303.000	75.00	.00	.00	592.06	690.00	598.94	.00	598.99	3.28	1 81	381.58	380.83
15303 000	75.00	.00	.00	592.06	1070.00	600.42	00	600.48	2.82	1.96	546.75	636.96
15332.000	29.00	.00	.00	592.09	755.00	599.20	00	599 26	3 28	1 86	406 77	417.17
15332.000	29.00	.00	.00	592.09	465.00	597.98	.00	598.02	3.57	1 64	282.79	246.14
15332.000	29.00	.00	.00	592.09	690.00	598.95	.00	599.00	3.33	1.82	379.95	378 13
15332.000	29.00	.00	.00	592 09	1070.00	600.43	.00	600.49	2 85	1 96	545.02	633.38
15778.000	446.00	.00	.00	592.26	755.00	599.35	.00	599.40	3 31	1 86	404.98	414.81
15778.000	446.00	.00	.00	592.26	465.00	598.14	.00	598.18	3.57	1.64	282.93	246.27

	15778.000	446.00	.00	.00	592.26	690.00	599.10	.00	599.15	3.36	1.82	378.46	376.19
	15778.000	446.00	.00	.00	592.26	1070.00	600.56	.00	600.62	2 91	1.98	540.63	626 97
	15946.000	168.00	.00	.00	592 36	755.00	599.41	.00	599.46	3.20	1.81	416.76	421.88
	15946 000	168.00	00	.00	592.36	465.00	598.20	.00	598.24	3.48	1.61	289 07	249.16
	15946 000	168.00	00	.00	592.36	690.00	599.16	00	599.21	3.26	1.77	389 02	382.34
	15946.000	168 00	.00	.00	592.36	1070.00	600.62	.00	600.67	2.26	1.76	761.37	712.31
	16513.000	567.00	.00	.00	592.66	755.00	599.60	.00	599.66	3.71	1.92	392.56	391.81
	16513.000	567.00	.00	.00	592.66	465.00	598.41	.00	598.45	4.08	1.71	271.58	230 07
	16513.000	567.00	.00	.00	592.66	690.00	599.35	.00	599.41	3.78	1.88	366.26	354.72
	16513.000	567.00	.00	.00	592.66	1070.00	600.76	.00	600.83	3 26	2.04	526.23	592.83
	16752.000	212.00	.00	.00	592.76	755.00	599.68	.00	599.74	3.71	1.92	392 80	391.85
	16752.000	212.00	.00	.00	592.76	465.00	598.49	.00	598.54	4.03	1.70	273 04	231.71
	16752.000	212.00	.00	.00	592.76	690 00	599 43	.00	599.49	3.75	1.88	367.67	356.41
	16752.000	212.00	.00	.00	592.76	1070.00	600.83	.00	600.90	3.27	2.04	525 97	591.36
	17368.000	616.00	.00	00	593.04	755.00	599 91	.00	599.97	3.83	1 96	385.51	386.02
	17368 000	616 00	.00	00	593.04	465.00	598.75	.00	598 79	4.15	1.73	269.36	228 38
	17368.000	616.00	.00	.00	593.04	690.00	599.67	.00	599 73	3.89	1.92	360.28	349.87
	17368.000	616.00	.00	.00	593.04	1070.00	601.04	.00	601.11	3.44	2.10	509.75	577.11
*	17594.000	226.00	.00	.00	593 10	755.00	599.90	.00	600.25	10.31	4.76	158 45	235.18
	17594.000	226.00	.00	.00	593 10	465.00	598.79	.00	598.99	7 17	3.52	132 09	173.66
*	17594.000	226.00	.00	.00	593.10	690.00	599.67	.00	599.99	9 68	4.51	152.99	221.83
*	17594.000	226.00	.00	.00	593.10	1070.00	600 94	.00	601.47	12.69	5.83	183 52	300.41
*	17595.000	1.00	.00	.00	593 10	755.00	600 25	.00	600.33	1 39	2 83	441.98	639.40
*	17595.000	1.00	.00	.00	593.10	465.00	598 96	.00	599.02	1.25	2.35	310 10	415.57
*	17595.000	1.00	.00	.00	593.10	690.00	599.98	.00	600 06	1.38	2.74	413.05	587.79
*	17595 000	1.00	.00	.00	593.10	1070.00	601.50	.00	601.60	1.37	3.13	588 15	913.87
	17647.000	52.00	.00	.00	593.12	755 00	600.25	.00	600.34	1.40	2.84	441.15	637 91
	17647.000	52.00	.00	.00	593.12	465.00	598.97	.00	599 03	1.26	2.35	309.41	414 50
	17647.000	52.00	.00	.00	593 12	690.00	599.98	.00	600 06	1.38	2.75	412.27	586.43
	17647.000	52.00	.00	.00	593.12	1070.00	601.51	.00	601.61	1.38	3.13	586.92	911.81

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
*	17648.000	1.00	.00	.00	593.12	755 00	600.14	.00	600.45	8.29	4.48	168.48	262.26
*	17648.000	1.00	.00	.00	593.12	465.00	598.91	.00	599.09	5.96	3 34	139.03	190.41
*	17648.000	1.00	.00	.00	593.12	690.00	599.88	.00	600.16	7.84	4.25	162.32	246.48
*	17648.000	1.00	.00	.00	593.12	1070.00	601.33	.00	601.79	9.88	5.43	197.02	340.44
*	17764.000	116.00	.00	.00	593.24	755.00	600.53	.00	600.58	2.80	1.76	430.04	451.22
	17764.000	116.00	.00	.00	593.24	465.00	599.14	.00	599.18	3.45	1.62	286.60	250.27
*	17764.000	116.00	.00	.00	593.24	690.00	600.24	.00	600.29	2.92	1.73	398.19	403.90
*	17764.000	116.00	.00	.00	593.24	1070.00	601.91	.00	601.96	2.23	1.81	609.39	716.54
*	17826.000	62.00	.00	.00	593.60	755.00	600.52	.00	600.65	8.10	2.89	261.66	265.31
*	17826.000	62.00	.00	.00	593.60	465.00	599.14	00	599.24	7.95	2.52	184.18	164.94
*	17826.000	62.00	.00	.00	593.60	690 00	600.23	.00	600.35	8.15	2.83	244.23	241.72

*	17826 000	62.00	.00	.00	593.60	1070.00	601.88	.00	602.03	7 42	3 06	350.11	392.87
	17911.000	100.00	.00	00	593.40	755.00	600.57	.00	600 82	15.77	3.99	189.44	190.13
	17911 000	100 00	.00	00	593.40	465 00	599.21	.00	599 38	13.79	3.33	139.59	125.23
	17911.000	100 00	00	.00	593.40	690.00	600.28	.00	600.52	15.51	3.87	178.39	175 18
*	17911 000	100 00	.00	00	593.40	1070.00	601 91	00	602.21	15.76	4.37	259.89	269.52
	18011.000	100.00	.00	.00	593.22	755.00	600.78	.00	600.97	11.70	3.48	216 81	220.73
	18011.000	100.00	.00	.00	593.22	465.00	599 37	.00	599.51	10.39	2.93	158.46	144.25
	18011.000	100.00	.00	.00	593.22	690 00	600 49	00	600.67	11.54	3.38	203.90	203.13
	18011.000	100.00	.00	.00	593.22	1070.00	602.16	.00	602.36	10.77	3.66	403.01	326.12
	18311.000	300.00	.00	.00	593.19	755 00	601.13	.00	601 30	10.01	3.35	225.65	238 62
	18311.000	300.00	.00	.00	593.19	465.00	599.68	.00	599.79	8.57	2.78	167.35	158.88
	18311.000	300.00	.00	.00	593.19	690.00	600.83	.00	600.99	9.79	3.24	212.95	220.58
	18311.000	300.00	.00	00	593.19	1070.00	602.51	00	602.66	7 99	3.26	557 28	378.57
	18911.000	600.00	.00	.00	593.79	755.00	601.71	.00	601.79	5.93	2 16	350 26	310.12
	18911.000	600 00	.00	00	593.79	465.00	600.26	00	600.32	8.54	2.08	223.54	159.14
	18911.000	600.00	.00	00	593.79	690.00	601.41	.00	601.48	6 30	2.14	322.73	274 96
	18911.000	600.00	.00	.00	593 79	1070.00	603.03	.00	603.10	6.24	2 14	500.89	428.46
	19011.000	100.00	00	00	593.27	755 00	601.78	00	601.84	4.27	1.95	387.52	365 19
	19011.000	100.00	.00	.00	593 27	465 00	600.35	.00	600 39	5.16	1.78	261.52	204.65
	19011.000	100.00	.00	.00	593.27	690.00	601.48	.00	601.54	4 42	1.92	360.10	328.10
	19011.000	100 00	.00	.00	593.27	1070 00	603 10	.00	603.16	4.84	1.98	540.95	486.26
	19426.000	415.00	.00	.00	594.19	755.00	601.96	.00	602.03	4 71	2.02	373 42	347.95
	19426.000	415 00	.00	.00	594 19	465.00	600.57	00	600.62	5.77	1.84	252.12	193.62
	19426.000	415 00	.00	.00	594.19	690 00	601.67	00	601.73	4 88	1 99	347.04	312.21
	19426 000	415.00	.00	.00	594.19	1070 00	603.31	00	603.38	5 60	2.07	516.61	452 10

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PAGE 35

Gloede Ditch, Post Proje

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	14886.000	765.00	598.70	.00	.00	.00	82.76	.00
	14886.000	475.00	597.58	-1.12	.00	.00	78.28	.00
	14886.000	700.00	598.47	.89	.00	.00	81.84	.00
	14886.000	1085.00	599.84	1.37	.00	.00	87.32	.00
*	14981.000	765.00	598.70	.00	.00	.00	33.99	95.00
*	14981.000	475.00	597.62	-1.08	.04	.00	33.99	95.00
*	14981.000	700.00	598.48	.86	.01	.00	33.99	95.00

*	14981.000	1085.00	599.80	1.31	-.04	.00	34.00	95.00
*	14982.000	765.00	598.71	.00	.00	.00	33.99	1.00
*	14982.000	475.00	597.62	-1.08	.00	.00	33.99	1.00
*	14982.000	700.00	598.48	.86	.00	.00	33.99	1.00
*	14982.000	1085.00	599.80	1.31	.00	.00	34.00	1.00
	15054.000	765.00	598.76	.00	.05	.00	33.99	72.00
	15054.000	475.00	597.66	-1.09	.04	.00	33.99	72.00
	15054.000	700.00	598.53	.87	.05	.00	33.99	72.00
	15054.000	1085.00	599.86	1.32	.06	.00	34.00	72.00
*	15055.000	765.00	598.76	.00	.00	.00	33.99	1.00
*	15055.000	475.00	597.66	-1.10	.00	.00	33.99	1.00
*	15055.000	700.00	598.53	.87	.00	.00	33.99	1.00
*	15055.000	1085.00	599.86	1.32	.00	.00	34.00	1.00
*	15097.000	755.00	599.13	.00	.37	.00	107.20	42.00
*	15097.000	465.00	597.90	-1.23	.24	.00	95.71	42.00
*	15097.000	690.00	598.88	.98	.34	.00	104.82	42.00
*	15097.000	1070.00	600.37	1.49	.51	.00	129.60	42.00
	15228.000	755.00	599.17	.00	.04	.00	106.95	131.00
	15228.000	465.00	597.94	-1.23	.04	.00	95.46	131.00
	15228.000	690.00	598.92	.98	.04	.00	104.57	131.00
	15228.000	1070.00	600.40	1.48	.03	.00	118.44	131.00
	15303.000	755.00	599.19	.00	.02	.00	106.92	75.00
	15303.000	465.00	597.97	-1.23	.02	.00	95.22	75.00
	15303.000	690.00	598.94	.97	.02	.00	104.50	75.00
	15303.000	1070.00	600.42	1.48	.02	.00	118.60	75.00
	15332.000	755.00	599.20	.00	.01	.00	106.93	29.00
	15332.000	465.00	597.98	-1.23	.01	.00	95.17	29.00
	15332.000	690.00	598.95	.97	.01	.00	104.50	29.00
	15332.000	1070.00	600.43	1.48	.01	.00	118.68	29.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
15778.000	755.00	599.35	.00	.15	.00	106.66	446.00

	15778.000	465.00	598.14	-1.21	.16	.00	95.22	446.00
	15778.000	690.00	599.10	.96	.15	.00	104.28	446.00
	15778.000	1070.00	600.56	1.46	.13	.00	118.08	446.00
	15946.000	755.00	599.41	.00	.06	.00	111.90	168.00
	15946.000	465.00	598.20	-1.21	.06	.00	98.85	168.00
	15946.000	690.00	599.16	.96	.06	.00	109.19	168.00
	15946.000	1070.00	600.62	1.46	.06	.00	515.32	168.00
	16513.000	755.00	599.60	.00	.19	.00	107.57	567.00
	16513.000	465.00	598.41	-1.19	.21	.00	95.23	567.00
	16513.000	690.00	599.35	.95	.20	.00	105.01	567.00
	16513.000	1070.00	600.76	1.41	.14	.00	170.31	567.00
	16752.000	755.00	599.68	.00	.08	.00	107.73	212.00
	16752.000	465.00	598.49	-1.19	.09	.00	95.52	212.00
	16752.000	690.00	599.43	.94	.08	.00	105.28	212.00
	16752.000	1070.00	600.83	1.40	.07	.00	177.44	212.00
	17368.000	755.00	599.91	.00	.23	.00	105.06	616.00
	17368.000	465.00	598.75	-1.17	.25	.00	94.33	616.00
	17368.000	690.00	599.67	.92	.23	.00	102.83	616.00
	17368.000	1070.00	601.04	1.37	.20	.00	115.44	616.00
*	17594.000	755.00	599.90	.00	-.01	.00	24.00	226.00
	17594.000	465.00	598.79	-1.10	.05	.00	24.00	226.00
*	17594.000	690.00	599.67	.88	.00	.00	24.00	226.00
*	17594.000	1070.00	600.94	1.27	-.10	.00	24.00	226.00
*	17595.000	755.00	600.25	.00	.35	.00	108.18	1.00
*	17595.000	465.00	598.96	-1.28	.17	.00	97.05	1.00
*	17595.000	690.00	599.98	1.01	.30	.00	105.84	1.00
*	17595.000	1070.00	601.50	1.53	.56	.00	152.01	1.00
	17647.000	755.00	600.25	.00	.01	.00	108.12	52.00
	17647.000	465.00	598.97	-1.28	.01	.00	96.99	52.00
	17647.000	690.00	599.98	1.01	.01	.00	105.78	52.00
	17647.000	1070.00	601.51	1.53	.01	.00	150.62	52.00
*	17648.000	755.00	600.14	.00	-.11	.00	24.00	1.00
*	17648.000	465.00	598.91	-1.23	-.05	.00	24.00	1.00
*	17648.000	690.00	599.88	.97	-.10	.00	24.00	1.00
*	17648.000	1070.00	601.33	1.45	-.18	.00	24.00	1.00
*	17764.000	755.00	600.53	.00	.40	.00	109.24	116.00

	17764.000	465.00	599.14	-1.40	.22	.00	96.00	116.00
*	17764.000	690.00	600.24	1.10	.36	.00	106.44	116.00
*	17764.000	1070.00	601.91	1.67	.58	.00	292.86	116.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	17826.000	755.00	600.52	.00	-.01	.00	60.60	62.00
*	17826.000	465.00	599.14	-1.38	.00	.00	51.49	62.00
*	17826.000	690.00	600.23	1.09	-.01	.00	58.67	62.00
*	17826.000	1070.00	601.88	1.65	-.02	.00	69.55	62.00
	17911.000	755.00	600.57	.00	.05	.00	38.82	100.00
	17911.000	465.00	599.21	-1.37	.07	.00	34.09	100.00
	17911.000	690.00	600.28	1.08	.06	.00	37.82	100.00
*	17911.000	1070.00	601.91	1.63	.03	.00	248.82	100.00
	18011.000	755.00	600.78	.00	.21	.00	44.31	100.00
	18011.000	465.00	599.37	-1.41	.17	.00	38.48	100.00
	18011.000	690.00	600.49	1.11	.20	.00	43.09	100.00
	18011.000	1070.00	602.16	1.67	.25	.00	600.00	100.00
	18311.000	755.00	601.13	.00	.34	.00	42.92	300.00
	18311.000	465.00	599.68	-1.45	.30	.00	37.64	300.00
	18311.000	690.00	600.83	1.15	.34	.00	41.83	300.00
	18311.000	1070.00	602.51	1.68	.35	.00	541.78	300.00
	18911.000	755.00	601.71	.00	.59	.00	92.31	600.00
	18911.000	465.00	600.26	-1.46	.58	.00	81.89	600.00
	18911.000	690.00	601.41	1.15	.58	.00	90.15	600.00
	18911.000	1070.00	603.03	1.62	.52	.00	139.00	600.00
	19011.000	755.00	601.78	.00	.07	.00	92.77	100.00
	19011.000	465.00	600.35	-1.43	.09	.00	82.91	100.00
	19011.000	690.00	601.48	1.14	.07	.00	90.71	100.00
	19011.000	1070.00	603.10	1.62	.07	.00	139.00	100.00
	19426.000	755.00	601.96	.00	.18	.00	91.25	415.00
	19426.000	465.00	600.57	-1.39	.22	.00	82.58	415.00
	19426.000	690.00	601.67	1.10	.19	.00	89.44	415.00
	19426.000	1070.00	603.31	1.64	.21	.00	139.00	415.00

SUMMARY OF ERRORS AND SPECIAL NOTES

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WARNING SECNO=  14981.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  14981.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  14981.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  14981.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  14982.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  14982.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  14982.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  14982.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  15055.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  15055.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  15055.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  15055.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  15097.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  15097.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  15097.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  15097.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  17594.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  17594.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  17594.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  17595.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  17595.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  17595.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  17595.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  17648.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  17648.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  17648.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  17648.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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WARNING SECNO=  17764.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  17764.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  17764.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  17826.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  17826.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  17826.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  17826.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  17911.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Macomb Twp

3) WATERCOURSE: Gloede Ditch

4) DOCUMENT TYPE: Clomr - Sect 30 - Appendix D

00BREAK00

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1*****************************************                  **************************************
 *  HEC-2 WATER SURFACE PROFILES          *                  *  U.S  ARMY CORPS OF ENGINEERS      *
 *                                        *                  *  HYDROLOGIC ENGINEERING CENTER     *
 *  Version   4.6.2;  May 1991            *                  *  609 SECOND STREET, SUITE D        *
 *                                        *                  *  DAVIS, CALIFORNIA 95616-4687      *
 *  RUN DATE   18JAN98    TIME   21:26:32  *                  *        (916) 756-1104              *
 *****************************************                  **************************************
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X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X            X     X
X     X  X        X                        X
XXXXXXX  XXXX     X          XXXXX    XXXXX
X     X  X        X                  X
X     X  X        X     X            X
X     X  XXXXXXX   XXXXX             XXXXXXX
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18JAN98 21:26:32
PAGE 1

THIS RUN EXECUTED 18JAN98

21:26:32

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 ***********************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
 ***********************************
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T1 Macomb Township, Improv. of Gloede Ditch, CLOMR Application
T2 100-year Flood Profile, Starting W.Surface elevation from FIS
T3 Gloede Ditch, Post Project Conditions Floodway, File:Post-fld.dat
T4 Starting point of Study from section # 14886

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		2					0.5		598.70	

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	1		-1							

```
J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    110        200

J5  LPRNT    NUMSEC                 ********REQUESTED SECTION NUMBERS********

    -10       -10

QT       5     765     765     475     700    1085
NC     .05     .05    .042
  Valley X-section 23+41 (AE&W)    Section Y
X1   14886       8    44.0    86.0      85      85      85                -.24
X3                            41.0
GR   600.5     0.0   597.0    14.0   596.0    44.0   592.0    60.0   592.0    70.0
GR   596.0    86.0   597.0   116.0   600.5   130.0

NC                              .3      .5
X1   14981       8    83.0  117.01    95.0    95.0    95.0                -.24
X3      10                      83  604.36  117.01  604.36
GR   604.6     0.0   604.6    83.0   597.6   83.01   592.1    95.0   592.1   105.0
GR   597.6   117.0   604.6  117.01   604.6   200.0

NC     .04     .04    .021
X1   14982                               1       1       1
BT      -4     0.0  604.36     0.0   83.00  604.36  600.76  117.01  604.36  600.76
BT           200.0  604.36     0.0
  Bridge X-section 24+56, 21 Mile Road (AE&W) Section Z
1
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PAGE    2


X1   15054                              72      72      72
X2                                                       1
   d/s limits of project property

NC    .035    .035    .033
X1   15055                               1       1       1
X3      10                      83  604.36  117.01  604.36

NC     .04     .04    .035
QT       5     755     755     465     690    1070
  Improved Drain x-section
```

```
X1    15097         12        173        293      42.00         42        42
GR   601.66          0     600.66        100     600.66        173    591.86         217       591.86       232
GR   595.86        248     596.86        278     600.33        293    600.36         300       600.56       400
GR   600.96        500     601.16        600
  Improved Drain x-section

X1    15228         10        249        369        131        131       131
GR   600.66          0     600.66        249     591.96        293    591.96         308       595.96       324
GR   596.96        354     600.46        369     600.56        400    600.66         500       600.86       600

X1    15303         10        249        369         75         75        75
GR   600.66          0     600.66        249     592.06        293    592.06         308       596.06       324
GR   597.06        354     600.46        369     600.56        400    600.66         500       600.86       600
  Improved Drain X-sections

X1    15332         10        249        369         29         29        29
GR   600.66          0     600.66        249     592.09        293    592.09         308       596.09       324
GR   597.09        354     600.46        369     600.56        400    600.66         500       600.86       600

X1    15778         12        248        368        446        446       446
GR   600.76          0     600.76        100     600.76        200    600.76         248       592.26       292
GR   592.26        307     596.26        323     597.26        353    600.76         368       600.76       400
GR   600.76        500     600.86        600

X1    15946         12        252        372        168        168       168
GR   600.06          0     599.86        100     599.86        200    599.99         252       592.36       296
GR   592.36        311     596.36        327     597.36        357    600.36         372       600.36       400
GR   600.56        500     600.96        600

NC      .04        .04       .035
  Location where proposed reallignment of Gloede Drain begins
  Improved Drain x-section
X1   16513           9        100        220        567        567       567
GR    601.5          0      600.9        100     592.66        144    592.66         159        596.7       175
GR    597.7        205      600.7        220      600.8        300     601.3         400
  Improved Drain x-section
1
   18JAN98       21:26:32
PAGE     3


X1    16752          9        100        220        257        144       212
GR    601.6          0     600.96        100     592.76        144    592.76         159       596.76       175
GR   597.76        205     600.76        220     600.86        300     601.4         400
```

```
NC                                      0.3         .5
   Improved Drain x-section
X1    17368          9       100       220        616        616        616
GR   601.84          0    601.24       100     593.04        144     593.04        159     597.04        175
GR   598.04        205    601.94       220     601.94        300      602.1        400
  One foot d/s of new proposed 24'span x 9' rise Con-span concrete bridge

X1    17594         11     139.5     163.5        226        226        226
X3       10                                                                      602.5      602.5
GR    601.9          0     601.3       100      594.0      139.5      593.1        144      593.1        159
GR   594.29      163.5     597.1       175      598.1        205        602        220        602        300
GR   602.16        400
  d/s inside face of new proposed bridge 24'x9' con-span concrete bridge

NC                          .023
X1    17595         20     139.5     163.5          1          1          1
GR    601.9          0     601.3       100      593.1      139.5      593.1     139.51      593.1     139.98
GR    593.1     141.27     593.1     144.0      593.1     146.27      593.1      151.5      593.1     156.73
GR    593.1        159     593.1    161.73      593.1     163.02      593.1     163.49      593.1      163.5
GR    597.1        175     598.1       205      602.0        220      602.0        300     602.16        400
BT      -18          0     603.0     601.9        100      603.0      601.3      139.5      603.0      593.1
BT               139.51    603.0    597.17     139.98      603.0      598.8     141.27      603.0     599.91
BT               146.27    603.0    601.55      151.5      603.0      602.1     156.73      603.0     601.55
BT               161.73    603.0    599.91     163.02      603.0      598.8     163.49      603.0     597.17
BT                163.5    603.0     593.1        175      603.0      597.1        205      603.0      598.1
BT                  220    603.0     602.0        300      603.0      602.0        400      603.0     602.16

X1    17647                                        52         52         52                   .02
X2                                                                        1
  u/s of proposed bridge

NC                          .035
X1    17648                                         1          1          1
X3       10                                                                      603.0      603.0
  improved x-section of drain

X1    17764          8       100       220        116        116        116
GR    601.9          0    601.54       100     593.24        144     593.24        159     597.24        175
GR   598.24        205    601.84       220     601.94        330
   Upstream property limits, and end of Drain reallignment

NC    0.058       0.06     0.038
X1    17826          7         0        78         62         62         62
GR    601.9          0     593.6        30      593.6         45      604.7         78        602        130
```

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 GR    602.1        230      602.2        330
1
   18JAN98      21:26:32
PAGE    4


 NC      .06        .06        .04        0.3        0.5
   Valley x-section obtained from AEW LOMR
 X1    17911         10        283        333        100        100        100                  -.24
 GR    602.2          0      602.4        100        602        217      603.4        283     593.64        300
 GR   593.64        314      604.7        333      602.0        400      602.1        500      602.2        600
   Valley x-section obtained from AEW LOMR

 X1    18011         10        283        333        100        100        100                  -.24
 GR    602.2          0      602.4        100        602        217      602.4        283     593.46        300
 GR   593.46        313      602.4        333      602.0        400      602.1        500      602.2        600
   Valley x-section obtained from AEW LOMR

 X1    18311         10        283        333        350        250        300                  -.24
 GR    602.2          0      602.4        100        602        217      603.3        283     593.43        300
 GR   593.43        314      603.3        333        602        400      602.1        500      602.2        600
   Valley x-section from AEW LOMR

 X1    18911          8          0        139        600        600        600
 GR   602.33          0     602.33       17.0     599.14         34     598.28         74     593.79         90
 GR   593.79         98      602.5        114      602.5        139
   Valley x-section obtained from AEW LOMR

 X1    19011          8          0        139        100        100        100
 GR   602.36          0     602.36         17     599.05         34     597.67         74     593.27         90
 GR   593.27         98     602.49        114     602.49        139
   Valley  x-section from  AEW LOMR

 X1    19426          8          0        139        415        415        415
 GR   602.84          0     602.84         17     598.97         34     597.86         74     594.19         90
 GR   594.19         98      603.0        114      603.0        139
1
   18JAN98      21:26:32
PAGE    5


 T1      Improvement of Gloede Ditch, CLOMR Application
 T2      100 year flood profile, starting elevation from original FIS
 T3      Gloede Ditch, Post Project Condition Floodway, File:Post-fld.dat
```

T4 Starting Point of study from section # 14886

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		3					0.5		598.70	

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	15		-1							

1
18JAN98 21:26:32
PAGE 6

THIS RUN EXECUTED 18JAN98 21:26:32

****
HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

Gloede Ditch, Post Proje

SUMMARY PRINTOUT TABLE 110

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
	14886.000	598.70	00	598.81	82.76	8 86	646.25	109.89	-41.00	41.00	44.00	86.00	130.00
	14886 000	598.70	.00	598.81	82.76	8.86	646.25	109.89	-41.00	41.00	44.00	86.00	130 00
*	14981.000	598.70	.00	599.03	33.99	.00	765.00	.00	34.01	83.00	83 00	117.01	117.01
*	14981.000	598.70	.00	599.03	33.99	.00	765 00	.00	34.01	83.00	83.00	117.01	117.01
*	14982.000	598.71	.00	599.03	33 99	00	765 00	.00	.00	00	83.00	117.01	.00
*	14982.000	598 71	.00	599.03	33.99	00	765.00	.00	.00	.00	83.00	117.01	.00
	15054 000	598 76	.00	599.08	33 99	.00	765.00	.00	.00	.00	83.00	117.01	.00
	15054.000	598 76	.00	599.08	33.99	.00	765.00	.00	.00	.00	83.00	117 01	.00
*	15055.000	598.76	.00	599.08	33.99	00	765.00	.00	34.01	83.00	83.00	117.01	117.01

*	15055.000	598.76	.00	599.08	33.99	00	765.00	00	34.01	83.00	83.00	117.01	117.01
*	15097.000	599.13	.00	599 18	107.20	00	755 00	.00	.00	.00	173.00	293.00	.00
*	15097.000	599.13	.00	599.18	107 20	00	755 00	.00	.00	.00	173.00	293.00	.00
	15228.000	599.17	.00	599 22	106 95	00	755.00	00	.00	.00	249.00	369.00	.00
	15228 000	599.17	.00	599 22	106.95	.00	755.00	.00	.00	.00	249.00	369.00	.00
	15303.000	599.19	.00	599 25	106.92	.00	755.00	.00	.00	.00	249.00	369.00	.00
	15303.000	599.19	.00	599 25	106.92	.00	755.00	.00	.00	.00	249.00	369.00	.00
	15332.000	599.20	.00	599.26	106.93	.00	755 00	.00	.00	.00	249.00	369.00	.00
	15332 000	599.20	.00	599 26	106.93	.00	755.00	.00	.00	.00	249.00	369.00	.00
	15778.000	599.35	.00	599.40	106 66	00	755.00	.00	.00	.00	248.00	368.00	.00
	15778 000	599.35	.00	599.40	106.66	.00	755.00	.00	.00	00	248.00	368.00	.00
	15946 000	599.41	.00	599 46	111.90	.00	755.00	.00	00	00	252 00	372.00	.00
	15946.000	599.41	.00	599.46	111.90	.00	755.00	.00	.00	.00	252.00	372.00	.00

1

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
	16513.000	599.60	.00	599 66	107.57	.00	755.00	00	.00	.00	100.00	220.00	.00
	16513.000	599.60	00	599.66	107.57	00	755.00	00	.00	00	100 00	220.00	.00
	16752.000	599.68	.00	599.74	107.73	.00	755.00	.00	.00	.00	100 00	220.00	.00
	16752.000	599.68	.00	599.74	107.73	.00	755.00	.00	.00	00	100.00	220.00	.00
	17368.000	599 91	00	599.97	105.06	.00	755.00	00	.00	.00	100.00	220.00	00
	17368.000	599 91	.00	599.97	105.06	.00	755.00	00	.00	.00	100.00	220.00	00
*	17594.000	599 90	.00	600.25	24.00	.00	755 00	.00	.00	00	139 50	163.50	.00
*	17594.000	599.90	00	600.25	24.00	.00	755.00	00	.00	00	139 50	163.50	00
*	17595 000	600.25	.00	600.33	108 18	124.37	485 52	145 11	.00	.00	139.50	163.50	.00
*	17595.000	600.25	.00	600.33	108 18	124.37	485.52	145.11	.00	00	139.50	163.50	.00
	17647 000	600.25	.00	600.34	108.12	124.30	485.79	144.91	.00	.00	139.50	163.50	.00
	17647.000	600.25	.00	600.34	108 12	124.30	485 79	144.91	.00	.00	139.50	163.50	.00
*	17648.000	600.14	.00	600.45	24.00	.00	755.00	.00	.00	.00	139.50	163.50	.00
*	17648.000	600.14	.00	600.45	24.00	.00	755.00	.00	.00	.00	139.50	163.50	.00
*	17764 000	600 53	.00	600.58	109.24	.00	755.00	.00	.00	.00	100 00	220.00	.00
*	17764.000	600.53	.00	600.58	109.24	00	755.00	.00	.00	.00	100.00	220.00	.00
*	17826.000	600.52	.00	600.65	60.60	.00	755.00	.00	.00	.00	.00	78 00	.00
*	17826.000	600.52	.00	600.65	60.60	.00	755.00	.00	.00	.00	.00	78.00	.00
	17911.000	600.57	00	600.82	38.82	.00	755.00	.00	.00	.00	283.00	333 00	.00
	17911.000	600.57	.00	600.82	38.82	.00	755.00	.00	.00	.00	283.00	333.00	00
	18011.000	600.78	.00	600.97	44.31	.00	755.00	.00	.00	.00	283.00	333.00	.00

18011.000	600.78	00	600.97	44.31	.00	755.00	.00	.00	00	283.00	333.00	.00
18311.000	601.13	.00	601.30	42 92	00	755 00	.00	.00	.00	283.00	333.00	.00
18311.000	601 13	00	601.30	42.92	.00	755 00	.00	.00	00	283 00	333.00	.00
18911.000	601.71	.00	601.79	92 31	00	755 00	.00	.00	00	.00	139.00	.00
18911.000	601.71	00	601.79	92.31	00	755.00	.00	.00	.00	00	139 00	.00
19011.000	601.78	.00	601.84	92.77	00	755.00	.00	00	00	.00	139.00	.00
19011.000	601 78	.00	601.84	92.77	.00	755.00	.00	.00	00	.00	139.00	.00
19426 000	601.96	.00	602.03	91 25	00	755.00	.00	.00	.00	.00	139.00	.00
19426.000	601.96	.00	602.03	91 25	.00	755.00	.00	.00	.00	.00	139.00	.00

SUMMARY OF ERRORS AND SPECIAL NOTES

WARNING SECNO= 14981.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 14981.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 14982.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 14982.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 15055.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 15055.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 15097.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 15097.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 17594.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 17594.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 17595.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 17595.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 17648.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 17648.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 17764.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 17764.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 17826.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 17826.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

FLOODWAY DATA, Gloede Ditch, Post Proje
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WATER SURFACE ELEVATION WITHOUT FLOODWAY	WATER SURFACE ELEVATION DIFFERENCE
14886.000	83.	317.	2.4	598.7	598.7	.0
14981.000	34.	167.	4.6	598.7	598.7	.0
14982.000	34.	167.	4.6	598.7	598.7	.0
15054.000	34.	168.	4.5	598.8	598.8	.0
15055.000	34.	168.	4.5	598.8	598.8	.0
15097.000	107.	420.	1.8	599.1	599.1	.0
15228.000	107.	415.	1.8	599.2	599.2	.0
15303.000	107.	408.	1.8	599.2	599.2	.0
15332.000	107.	407.	1.9	599.2	599.2	.0
15778.000	107.	405.	1.9	599.4	599.4	.0
15946.000	112.	417.	1.8	599.4	599.4	.0
16513.000	108.	393.	1.9	599.6	599.6	.0
16752.000	108.	393.	1.9	599.7	599.7	.0
17368.000	105.	386.	2.0	599.9	599.9	.0
17594.000	24.	158.	4.8	599.9	599.9	.0
17595.000	108.	442.	1.7	600.2	600.2	.0
17647.000	108.	441.	1.7	600.3	600.3	.0
17648.000	24.	168.	4.5	600.1	600.1	.0
17764.000	109.	430.	1.8	600.5	600.5	.0
17826.000	61.	262.	2.9	600.5	600.5	.0
17911.000	39.	189.	4.0	600.6	600.6	.0
18011.000	44.	217.	3.5	600.8	600.8	.0
18311.000	43.	226.	3.3	601.1	601.1	.0
18911.000	92.	350.	2.2	601.7	601.7	.0
19011.000	93.	388.	1.9	601.8	601.8	.0
19426.000	91.	373.	2.0	602.0	602.0	.0

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Macomb Twp

3) WATERCOURSE: Gloede Ditch

4) DOCUMENT TYPE: Clomr- Sect 30- Forms

00BREAK00

FEDERAL EMERGENCY MANAGEMENT AGENCY
REVISION REQUESTOR AND COMMUNITY OFFICIAL FORM

O M B Burden No 3067-0148
Expires July 31 1997

FEMA USE ONLY

PUBLIC BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 2 13 hours per response The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing and reviewing the form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden, to Information Collections Management, Federal Emergency Management Agency, 500 C Street, S W., Washington, DC 20472, and to the Office of Management and Budget, Paperwork Reduction Project (3067-0148), Washington, DC 20503

1 OVERVIEW

1 The basis for this revision request is (are) *(check all that apply)*

- [x] Physical change
  - [ ] Existing
  - [x] Proposed
- [ ] Improved methodology
- [ ] Improved data
- [ ] Floodway revision
- [ ] Other ______

Explain Gloede Ditch

2 Flooding Source: Gloede Drain Improvements

3 Project Name/Identifier: A-2

4 FEMA zone designations affected: ______
(example. A, AH, AO, A1-A30, A99, AE, V, V1-30, VE, B, C, D, X)

5 The NFIP map panel(s) affected for all impacted communities is (are):

Community No.	Community Name	County	State	Map No.	Panel No.	Effective Date
EX: 480301	Katy,City	Harris, Fort Bend	TX	480301	0005D	02/08/83
480287	Harris County	Harris	TX	48201C	0220G	09/28/90
260445	Macomb Twp	Macomb	MI		0020B	2/4/81

6. The area of revision encompasses the following types of flooding, structures, and associated disciplines: *(check all that apply)*

Types of Flooding

- [x] Riverine
- [ ] Coastal
- [ ] Alluvial Fan
- [ ] Shallow Flooding *(e g. Zones AO and AH)*
- [ ] Lakes

Affected by wind/wave action
- [ ] Yes
- [ ] No

Structures

- [x] Channelization
- [ ] Levee/Floodwall
- [x] Bridge/Culvert
- [ ] Dam
- [ ] Coastal
- [ ] Fill
- [ ] Pump Station
- [ ] None
- [x] Channel Relocation
- [x] Excavation
- [ ] Other *(describe)*

Disciplines*

- [x] Water Resources
  - [ ] Hydrology
  - [x] Hydraulics
  - [ ] Sediment Transport
  - [ ] Interior Drainage
- [ ] Structural
- [ ] Geotechnical
- [x] Land Surveying
- [ ] Other *(describe)*

- [ ] Other(describe) ______

* Attach completed "Certification by Registered Professional Engineer and/or Land Surveyor" Form for each discipline checked. (Form 2)

2 FLOODWAY INFORMATION

7 Does the affected flooding source have a floodway designated on the effective FIRM or FBFM? [x] Yes [ ] No

8. Does the revised floodway delineation differ from that shown on the effective FIRM or FBFM [x] Yes [ ] No

If yes, give reason Due to proposed channelization/drain improvements

D. The community is willing to assume responsibility for ☐ performing ☐ overseeing compliance with the maintenance and operation plans of the N/A
(Name)

flood control structure. If not performed promptly by an owner other than the community, the community will provide the necessary services without cost to the Federal government.

Attach operation and maintenance plans

7. REQUESTED RESPONSE FROM FEMA

16. After examining the pertinent NFIP regulations and reviewing the document entitled "Appeals, Revisions, and Amendments to Flood Insurance Maps: A guide for Community Officials," dated January 1990, this request is for a:

X	a.	CLOMR	A letter from FEMA commenting on whether a proposed project, if built as proposed, would justify a map revision *(LOMR or PMR)*, or proposed hydrology changes *(see 44 CFR Ch. I, Parts 60, 65, and 72)*
____	b.	LOMR	A letter from FEMA officially revising the current NFIP map to show changes to floodplains, floodways, or flood elevations. LOMRs typically depict decreased flood hazards. *(See 44 CFR Ch. I Parts 60 and 65.)*
____	c.	PMR	A reprinted NFIP map incorporating changes to floodplains, floodways, or flood elevations. Because of the time and cost involved to change, reprint, and redistribute an NFIP map, a PMR is usually processed when a revision reflects increased flood hazards or large-scope changes. *(See 44 CFR Ch. I, Parts 60 and 65.)*
____	d.	Other	Describe ____________________

8. FORMS INCLUDED

17. Form 2 entitled, "Certification By Registered Professional Engineer and/or Land Surveyor" must be submitted.

The following forms should be included with this request if (check the included forms):

• Hydrologic analysis for flooding source differs from that used to develop FIRM	☐ Hydrologic Analysis Form (Form 3)
• Hydraulic analysis for riverine flooding differs from that used to develop FIRM	☒ Riverine Hydraulic Analysis Form (Form 4)
• The request is based on updated topographic information or a revised floodplain or floodway delineation is requested	☒ Riverine/Coastal Mapping Form (Form 5)
• The request involves any type of channel modification	☒ Channelization Form (Form 6)
• The request involves new bridge or culvert or revised analysis of an existing bridge or culvert	☒ Bridge/Culvert Form (Form 7)
• The request involves a new revised levee/floodwall system	☐ Levee/Floodwall System Analysis Form (Form 8)
• The request involves analysis of coastal flooding	☐ Coastal Analysis Form (Form 9)
• The request involves coastal structures credited as providing protection from the 100-year flood	☐ Coastal Structures (Form 10)
• The request involves an existing, proposed, or modified dam	☐ Dam Form (Form 11)
• The request involves structures credited as providing protection from the 100-year flood on an alluvial fan	☐ Alluvial Fan Flooding Form (Form 12)

FEDERAL EMERGENCY MANAGEMENT AGENCY CERTIFICATION BY REGISTERED PROFESSIONAL ENGINEER AND/OR LAND SURVEYOR FORM	O M B Burden No 3067-0148 Expires July 31, 1997	FEMA USE ONLY

PUBLIC BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 23 hour per response The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing and reviewing the form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden, to: Information Collections Management, Federal Emergency Management Agency, 500 C Street, S W , Washington, DC 20472; and to the Office of Management and Budget, Paperwork Reduction Project (3067- 0148), Washington, DC 20503.

1 This certification is in accordance with 44 CFR Ch. I, Section 65.2

2 I am licensed with an expertise in hydraulics, land surveying, civil engineering
(example water resources *(hydrology, hydraulics, sediment transport, interior drainage)** structural, geotechnical, land surveying)

3 I have 30 years experience in the expertise listed above

4 I have ☒ prepared ☐ reviewed the attached supporting data and analyses related to my expertise

5 I ☒ have ☐ have not visited and physically viewed the project

6 In my opinion, the following analyses and /or designs, is/are being certified

HE C-2 Hydraulic analysis for proposed Gloede Ditch improvements

7 Base upon the following review, the modifications in place have been constructed in general accordance with plans and specifications.

Basis for above statement (check all that apply)

a. ☐ Viewed all phases of actual construction.

b ☐ Compared plans and specifications with as-built survey information

c ☐ Examined plans and specifications and compared with completed projects

d. ☒ Other This is conditional letter of map revision & as built will be submitted when project is completed

8 All information submitted in support of this request is correct to the best of my knowledge I understand that any false statement may be punishable by fine or imprisonment under Title 18 of the United States Code, Section 1001.

Name Rajaram Khatri, P.E., & P.S.
(please print or type)

Title. Project Manager
(please print or type)

Registration No 18997 Expiration Date Oct. 31, 1998

State Michigan, Ohio, Colorado & Georgia

Type of License Professional Engineer

Rajaram Khatri
Signature

1/30/98
Date

STATE OF MICHIGAN
LICENSED PROFESSIONAL ENGINEER
RAJARAM KHATRI
ENGINEER
No
18997

Seal
(Optional)

*Specify Subdiscipline

Note Insert not applicable (N/A) when statement does not apply

FEDERAL EMERGENCY MANAGEMENT AGENCY
RIVERINE HYDRAULIC ANALYSIS FORM

O M B Burden No 3067 0148
Expires July 31, 1997

FEMA USE ONLY

PUBLIC BURDEN DISCLOSURE NOTICE

Community Name. Macomb Township, Macomb County

Flooding Source: Gloede ditch
(One form for each flooding source)

Project Name/Identifier: Gloede Drain Improvements

1. REACH TO BE REVISED

Downstream limit: 21 MIle Road (Section #15055)

Upstream limit: Approx. 2770 feet north of 21 Mile Road (Section #17826)

2. EFFECTIVE FIS

☐ Not studied

☐ Studied by approximate methods

Downstream limit of study ______

Upstream limit of study ______

☒ Studied by detailed methods

Downstream limit of study Section #14886 (169'd/s of d/s property limits)

Upstream limit of study Section #17911

☐ Floodway delineated

Downstream limit of Floodway Section #14886 (169' d/s of property limits)

Upstream limit of Floodway Section #17911

3. HYDRAULIC ANALYSIS

Why is the hydraulic analysis different from that used to develop the FIRM *(Check all that apply)*

☐ Not studied in FIS

☐ Improved hydrologic data/analysis Explain: ______

☐ Improved hydraulic analysis Explain ______

☐ Flood control structure. Explain: ______

☐ Other Explain. Improvements to the channel of Gloede Ditch will improve it hydraulic capacity.

1. Discharges:

	Upstream Limit	Downstream Limit
10-year	465	475
50-year	690	700
100-year	755	765
500-year	1070	1085

Attach diagram showing changes in 100-year discharge

2. Explain how the starting water surface elevations were determined Obtained from effective FIS Model at x-section # 14886

3. Give range of friction loss coefficients (*Manning's "N"*) Channel 0.033 to 0.42

Overbanks 0.04 to 0.06

If friction loss coefficients are different anywhere along the revised reach from those used to develop the FIRM, give location, value used in the effective FIS, and revised values and an explanation as to how the revised values were determined

Location	FIS	Revised
15055 - 17826	Left overbank 0.04-0.06	0.04
	Right overbank 0.04-0.06	0.04-0.06
	Channel 0.033-0.037	0.035

Explain: The revised "n" values are based on improved x-section and channel to be sodded & as provided by Macomb County Drain Office (MCDC). MCDC will be maintaining the drain.

4. Describe how the cross section geometry data were determined *(e.g., field survey, topographic map, taken from previous study)* and list cross sections that were added

Existing x-section geometry taken from FIS & LOMR issued. (copy attached)
Proposed x-section geometry based on proposed drain improvements as provided by Macomb County Drain Commicioner's office. (MCDC)

5 Were natural channel banks selected as the location of the left and right channel banks in the model?

☒ Yes ☐ No If no, explain why not

6 Is the discharge value used to determine the floodway anywhere different from that used to determine the natural 100-year flood elevations? . . . . ☐ Yes ☒ No

If Yes, explain:

____

____

____

7. Do 100-year water surface elevations increase at any location? . . . . ☒ Yes ☐ No

If yes, please attach a list of the locations where the increases occur, state whether or not the increases are located on the requestor's property, and provide an explanation of the reason for the increases *(For example. State if the increase is due to fill placed within the floodway fringe or placed within the currently adopted floodway limits)*

At x-section 15097 through 15303 which is within the property on both sides of ditch. Prop. E.G is same or lower. This is due to removal of low concrete weir structure.

Please attach a completed comparison table entitled Water Surface Elevation Check (See page 6)

6 REVISED FIRM/FBFM AND FLOOD PROFILES

A. The revised water surface elevations tie into those computed by the effective FIS Model *(10-, 50-, 100-, and 500-year)*, downstream of the project at cross-section 14886 within 0.0 feet *(vertical)* and upstream of the project at cross section 17911 within -0.64 feet *(vertical)*.

B. The revised floodway elevations tie into those computed by the effective FIS model, dowstream of the project at cross section 14886 within 0.0 feet *(vertical)* and upstream of the project at cross section 17811 within - 0.64 feet *(vertical)*.

C. Attach profiles, at the same vertical and horizontal scale as the profiles in the effective FIS report, showing stream bed and profiles of all floods studied (without encroachment). Also, label all cross sections, road crossings (including low chord and top-of-road data), culverts, tributaries, corporate limits, and study limits. If channel distance has changed, the stationing should be revised for all profile sheets.

D. Attach a Floodway Data Table showing data for each cross section listed in the published Floodway Data Table in the FIS report. (Please see attached post project floodwayrun appendix)

Proceed to Riverine /Coastal Mapping Form

FEDERAL EMERGENCY MANAGEMENT AGENCY RIVERINE/COASTAL MAPPING FORM	O M B Burden No 3067-0148 Expires July 31, 1997	FEMA USE ONLY

PUBLIC BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 1 5 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing and reviewing the form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden, to Information Collections Management, Federal Emergency Management Agency, 500 C Street, S W , Washington, DC 20472; and to the Office of Management and Budget, Paperwork Reduction Project (3067-0148), Washington, DC 20503

Community Name: Macomb Township, Macomb County, Michigan

Flooding Source: Gloede Ditch

Project Name/Identifier: Gloede Drain Improvements

1. MAPPING CHANGES

1. A topographic work map of suitable scale, contour interval, and planimetric definition must be submitted showing *(indicate N/A when not applicable)*.

		Included		
A	Revised approximate 100-year floodplain boundaries (Zone A)	☐ Yes	☐ No	☒ N/A
B	Revised detailed 100- and 500-year floodplain boundaries	☒ Yes	☐ No	☐ N/A
C	Revised 100-year floodway boundaries	☒ Yes	☐ No	☐ N/A
D	Location and alignment of all cross sections used in the revised hydraulic model with stationing control indicated	☒ Yes	☐ No	☐ N/A
E	Stream alignments, road and dam alignments	☒ Yes	☐ No	☐ N/A
F	Current community boundaries	☐ Yes	☐ No	☒ N/A
G	Effective 100- and 500-year floodplain and 100-year floodway boundaries from the FIRM/FBFM reduced or enlarged to the scale of the topographic work map	☒ Yes	☐ No	☐ N/A
H	Tie-ins between the effective and revised 100- and 500-year floodplains and 100-year floodway boundaries	☒ Yes	☐ No	☐ N/A
I.	The requestor's property boundaries and community easements	☒ Yes	☐ No	☐ N/A
J.	The signed certification of a registered professional engineer	☒ Yes	☐ No	☐ N/A
K.	Location and description of reference marks	☒ Yes	☐ No	☐ N/A
L	Vertical datum (example: NGVD, NAVD etc.)	☒ Yes	☐ No	☐ N/A
M	Coastal zone designations tie into adjacent areas not being revised	☐ Yes	☐ No	☒ N/A
N	Location and alignment of all coastal transects used to revise the coastal analyses	☐ Yes	☐ No	☒ N/A

If any of the items above are marked no or N/A, please explain. Community boundaries are beyond project area. Coastal designation does not appy/found in area.

2. What is the source and date of the updated topographic information *(example: orthophoto maps, July 1985, field survey, May 1979, beach profiles, June 1987, etc.)*? Field survey dated Jun/Jul 96

3. What is the scale and contour interval of the following workmaps?
   a Effective FIS 1' = 800' scale 1' Contour interval
   b Revision Request 1" = 100' scale ______ Contour interval

NOTE: Revised topographic information must be of equal or greater detail.

4. Attach an annotated FIRM and FBFM at the scale of the effective FIRM and FBFM showing the revised 100-year and 500-year floodplains and the 100-year floodway boundaries and how they tie into those shown on the effective FIRM and FBFM downstream and upstream of the revision or adjacent to the area of revision for coastal studies

Attach additional pages if needed

2. EARTH FILL PLACEMENT

1. The fill is. ☐ Existing ☐ Proposed (No fill proposed except for proposed bridge approaches)

2. Has fill been/will be placed in the regulatory floodway? .... ☐ Yes ☒ No
If yes, please attach completed Riverine Hydraulic Analysis Form.

3. Has fill been/will be placed in floodway fringe *(area between the floodway and 100-year floodplain boundaries)?* . . . . ☐ Yes ☐ No

If yes, then complete A, B, C, and D below

A. Are fill slopes for granular materials steeper than one vertical on one-and-one-half horizontal? .... N/A .. .. ☐ Yes ☐ No

If yes, justify steeper slopes ____________________

B. Is adequate erosion protection provided for fill slopes exposed to moving flood waters? *(Slopes exposed to flows with velocities of up to 5 feet per second (fps) during the 100-year flood must, at a minimum, be protected by a cover of grass, vines, weeds, or similar vegetation, slopes exposed to flows with velocities greater than 5 fps during the 100-year flood must, at a minimum, be protected by stone or rock riprap)* .... N/A ... . ☐ Yes ☐ No

If no, describe erosion protection provided ____________________

C. Has all fill placed in revised 100-year floodplain been compacted to 95 percent of the maximum density obtainable with the Standard Proctor Test Method or acceptable equivalent method? ☐ Yes ☐ No N/A

D. Can structures conceivably be constructed on the fill at any time in the future? ☐ Yes ☐ No N/A

If yes, provide certification of fill compaction (item C. above) by the community's NFIP permit official, a registered professional engineer, or an accredited soils engineer

4. Has fill been/will be placed in a V-zone? ☐ Yes ☐ No N/A

If yes, is the fill protected from erosion by a flood control structure such as a revetment or seawall? ☐ Yes ☐ No

If yes, attach the coastal structures form

FEDERAL EMERGENCY MANAGEMENT AGENCY CHANNELIZATION FORM	O M B Burden No 3067 0148 Expires July 31, 1997	FEMA USE ONLY

PUBLIC BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 1 75 hours per response The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing and reviewing the form Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden, to: Information Collections Management, Federal Emergency Management Agency, 500 C Street, S.W , Washington, DC 20472, and to the Office of Management and Budget, Paperwork Reduction Project (3067-0148), Washington, DC 20503.

Community Name: Macomb Township, Macomb Co., Michigan

Flooding Source: Gloede Ditch

Project Name/Identifier: Gloede Drain Improvements

1. EXTENT OF CHANNELIZATION

Downstream limit: Section # 15097

Upstream limit: Section # 17826

2 CHANNEL DESCRIPTION

1. Describe the inlet to the channel Transitional x-section to be provided for smooth flow transition to improved channel.

2. Briefly describe the shape of the channel *(both cross sectional and planimetric configuration)* and its lining *(channel bottom and sides)* (Section 15097 - 17764: 15' bottom width side slopes); (15097 - 15055: Transitions x-section); (17764 - 177826: transitional x-section); all within property limits. See attached detailed plans.

3 Describe the outlet from the channel The improved channel to be smoothly merged into existing channel geometry at d/s property.

4. The channelization includes:

- ☐ Levees *(Attach Levee Form)*
- ☐ Drop structures
- ☐ Superelevated sections
- ☒ Transitions in cross sectional geometry
- ☐ Debris basin/detention basin
- ☐ Energy dissipater
- ☐ Other

5. Attach the following

   a Certified engineering drawings showing channel alignment and locations of inlet, outlet, and items checked in item 4

   b Typical cross sections and profiles of channel banks and invert

1. A. Is there any indication from historical records that sediment transport (including scour and deposition) can affect the 100-year water surface elevations and/or the capacity of the channel? . . ☐ Yes ☒ No

   B. Based on the conditions of the watershed and stream bed, is there a potential for sediment transport (including scour and deposition) to affect the 100-year water surface elevations and /or the capacity of the channel? . . . . ☐ Yes ☒ No

2. If the answer to either 1A or 1B is yes.

   A. What is the estimated sediment (bed) load?
   ______________ cfs (attach gradation curve)

   Explain method used to estimate load ______________________________

   ____
   ____
   ____
   ____

   B Is the 100-year flood velocity anywhere within the channel less than the 100-year flood velocity of the inlet? ☐ Yes ☐ No

   C. Will sediment accumulate anywhere within the channel? ☐ Yes ☐ No

   D Will deposition or scour occur at or near the inlet? ☐ Yes ☐ No

   E. Will deposition or scour occur at or near the outlet? ☐ Yes ☐ No

Attach documentation showing affects on the Hydrologic and Hydraulic analyses

FEDERAL EMERGENCY MANAGEMENT AGENCY
BRIDGE/CULVERT FORM

O M B Burden No 3067-0148
Expires July 31 1997

FEMA USE ONLY

PUBLIC BURDEN DISCLOSURE NOTICE

Community Name: Macomb Township, Macomb County, Michigan

Flooding Source: Gloede Ditch

Project Name/Identifier: Gloede Drain Improvements

1. IDENTIFIER

1. Name of roadway, railroad, etc.: Haverhill Drive
2. Location of bridge/culvert along flooding source (in terms of stream distance or cross-section identifier): b/w x-sections 17594 - 17648
3. This revision reflects *(check one of the following)*:

   - [x] New bridge/culvert not modeled in the FIS
   - [ ] Modified bridge/culvert previously modeled in the FIS
   - [ ] New analysis of bridge/culvert previously modeled in the FIS

   (Explain why new analysis was performed)

2. BACKGROUND

Provide the following information about the structure:

1 Dimension, material, and shape (e g two 10 x 5 feet reinforced concrete box culvert; three 30-foot span bridge with 2 rows of two 3- foot diameter circular piers, 40-foot wide ogee shape spillway) 24' wide x 9' rise con-span arch. structure

2. Entrance geometry of culvert/type of bridge opening (e.g. 30° - 75° wing walls with square top edge, sloping embankments and vertical abutments) 45° wing walls with sloping embankments

   HEC-2 with normal bridge routine

3 Hydraulic model used to analyze the structure (*e g., HEC-2 with special bridge routine, WSPRO, HY8*)

If different than hydraulic analysis for the flooding source, justify why the hydraulic analysis used for the flooding source could not analyze the structure(s). *(Attach justification)*

Note: If any items do not apply to submitted hydraulic analysis, indicate by N/A
*** One form per new/revised bridge/culvert**

Sketch the plan view of the structure(s) Show, at a minimum, the skew angle, cross-section locations, distances between cross sections, and length of structure (s).

Please see the attached plan showing the details.

← flow

Attach plans of the structure (s) certified by a registered Professional Engineer.

Culvert length or bridge width (ft)	52 feet
Calculated culvert/bridge area (ft^2) by the hydraulic model, if applicable	167.7 sq. ft.
Total culvert/bridge area (ft^2)	s167.7 ft^2

Loss Coefficients

Entrance loss coefficient ______

Manning's "n" value assigned to the structure(s) 0.023

Friction loss coefficient through structure (s) Modelled as low flow standard step method

Other loss coefficients (e.g , bend manhole, etc.) None

Total loss coefficient ______

Weir coefficient None (all low flow)

Pier coefficient 0.0 (no pier)

Contraction loss coefficient 0.3

Expansion loss coefficient 0.5

4. SEDIMENT TRANSPORT CONSIDERATIONS

1. A. Is there any indication from historical records that sediment transport (*including scour and deposition*) can affect the 100-year water surface elevations? . . . . . ☐ Yes ☒ No

B Based on the conditions (*such as geomorphology, vegetative cover and development of the watershed and stream bed, and bank conditions*), is there a potential for debris and sediment transport (*including scour and deposition*) to affect the 100-year water surface elevations and/or conveyance capacity through the bridge/culvert? . . . . . ☐ Yes ☒ No

2. If the answer to either 1A or 1B is yes:

A. What is the estimated sediment (*bed material*) load?
______cfs (*attach gradation curve*)

Explain method used to estimate the sediment transport and the depth of scour and/or deposition______

B Will sediment accumulate anywhere through the bridge/culvert? ☐ Yes ☐ No

If yes, explain the impact on the conveyance capacity through the bridge/culvert?______

5. FLOODWAY ANALYSIS

Explain method of bridge encroachment
(floodway run) Floodway run based on 0.0' encroachment.
Proposed floodplain boundary is also floodway boundary

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Macomb Twp

3) WATERCOURSE: Gloede Ditch

4) DOCUMENT TYPE: Clomr - Sect 30 - Post natural

00BREAK00

```
*************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
*************************************



T1    Macomb Township, Improv. of  Gloede  Ditch
T2    100-year Flood Profile, Starting W.Surface elevation from FIS
T3      Gloede Ditch, Post Project Conditions Natural, File:Post-nat.dat
T4    Starting point of Study from section # 14886

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

               2                                                0.5                 598.7      .

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

                         -1



QT    4.000       765       475       700      1085
NC      .05       .05      .042

X1    16752         9       100       220       257       144       212
GR    601.6         0    600.96       100    592.76       144    592.76       159    596.76       175
GR   597.76       205    600.76       220    600.86       300     601.4       400

NC                                    0.3        .5
   Improved Drain x-section
X1    17368         9       100       220       616       616       616
GR   601.84         0    601.24       100    593.04       144    593.04       159    597.04       175
GR   598.04       205    601.94       220    601.94       300     602.1       400
  One foot d/s of new proposed 24'span x 9' rise Con-span concrete bridge
```



```
X1    17594        11     139.5     163.5       226       226       226
X3       10                                                                   602.5     602.5
GR    601.9         0     601.3       100     594.0     139.5     593.1       144     593.1       159
GR   594.29     163.5     597.1       175     598.1       205       602       220       602       300
GR   602.16       400
  d/s inside face of new proposed bridge 24'x9' con-span concrete bridge

NC                         .023
X1    17595        20     139.5     163.5         1         1         1
X3                                  139.5                 163.5
BT      -18         0     603.0     601.9       100     603.0     601.3     139.5     603.0     593.1
BT             139.51     603.0    597.17    139.98     603.0     598.8    141.27     603.0    599.91
BT             146.27     603.0    601.55     151.5     603.0     602.1    156.73     603.0    601.55
BT             161.73     603.0    599.91    163.02     603.0     598.8    163.49     603.0    597.17
BT              163.5     603.0     593.1       175     603.0     597.1       205     603.0     598.1
BT                220     603.0     602.0       300     603.0     602.0       400     603.0    602.16
GR    601.9         0     601.3       100     593.1     139.5     593.1    139.51     593.1    139.98
GR    593.1    141.27     593.1     144.0     593.1    146.27     593.1     151.5     593.1    156.73
GR    593.1       159     593.1    161.73     593.1    163.02     593.1    163.49     593.1     163.5
GR    597.1       175     598.1       205     602.0       220     602.0       300    602.16       400
```

```
X1         17647                                              52          52          52                     .02
X2                                                                                     1
X3                                     139.5                               163.5

NC                         .035
X1         17648                                               1           1           1
X3            10                                                                                 603.0       603.0
 improved x-section of drain

X1         17764           8         100         220         116         116         116
GR         601.9           0      601.54         100      593.24         144      593.24         159      597.24         175
GR        598.24         205      601.84         220      601.94         330
  Upstream property limits, and end of Drain realiignment

NC         0.058        0.06       0.038
X1         17826           7           0          78          62          62          62
GR         601.9           0       593.6          30       593.6          45       604.7          78         602         130
GR         602.1         230       602.2         330

NC           .06         .06         .04         0.3         0.5
  Valley x-section obtained from AEW LOMR
X1         17911          10         283         333         100         100         100                     -.24
GR         602.2           0       602.4         100         602         217       603.4         283      593.64         300
GR        593.64         314       604.7         333       602.0         400       602.1         500       602.2         600
  Valley x-section obtained from AEW LOMR
- 1
  17MAR98      09:08:20                                                                                    PAGE     4



X1         18011          10         283         333         100         100         100                     -.24
GR         602.2           0       602.4         100         602         217       602.4         283      593.46         300
GR        593.46         313       602.4         333       602.0         400       602.1         500       602.2         600
  Valley x-section obtained from AEW LOMR

X1         18311          10         283         333         350         250         300                     -.24
GR         602.2           0       602.4         100         602         217       603.3         283      593.43         300
GR        593.43         314       603.3         333         602         400       602.1         500       602.2         600
  Valley x-section from AEW LOMR

X1         18911           8           0         139         600         600         600
GR        602.33           0      602.33        17.0      599.14          34      598.28          74      593.79          90
GR        593.79          98       602.5         114       602.5         139
  Valley x-section obtained from AEW LOMR

X1         19011           8           0         139         100         100         100
GR        602.36           0      602.36          17      599.05          34      597.67          74      593.27          90
GR        593.27          98      602.49         114      602.49         139
  Valley  x-section from  AEW LOMR

X1         19426           8           0         139         415         415         415
GR        602.84           0      602.84          17      598.97          34      597.86          74      594.19          90
GR        594.19          98       603.0         114       603.0         139



*SECNO 16752.000
```

```
 16752.000      6.92    599.68       .00       .00    599.74       .06       .08       .00    600.96
     755.0        .0     755.0        .0        .0     392.8        .0      16.3       4.3    600.76
       .26       .00      1.92       .00      .000      .035      .000      .000    592.76    106.87
   .000371      257.      212.      144.         2         0         0       .00    107.73    214.60
```



```
    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


CCHV=      .300 CEHV=      .500
*SECNO 17368.000
 17368.000      6.87    599.91       .00       .00    599.97       .06       .23       .00    601.24
     755.0        .0     755.0        .0        .0     385.5        .0      21.8       5.8    601.94
       .34       .00      1.96       .00      .000      .035      .000      .000    593.04    107.13
   .000383      616.      616.      616.         2         0         0       .00    105.06    212.20


*SECNO 17594.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .61


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       602.50 ELREA=       602.50

 17594.000      6.80    599.90       .00       .00    600.25       .35       .13       .15    594.00
     755.0        .0     755.0        .0        .0     158.5        .0      23.2       6.1    594.29
       .36       .00      4.76       .00      .000      .035      .000      .000    593.10    139.50
   .001031      226.      226.      226.         2         0         0       .00     24.00    163.50


*SECNO 17595.000

3370 NORMAL BRIDGE, NRD=  18 MIN ELTRD=   603.00 MAX ELLC=   602.10


3470 ENCROACHMENT STATIONS=       139.5      163.5  TYPE=       1  TARGET=       24.000
 17595.000      6.81    599.91       .00       .00    600.25       .35       .00       .00    593.10
     755.0        .0     755.0        .0        .0     159.9        .0      23.2       6.1 100000.00
       .36       .00      4.72       .00      .000      .023      .000      .000    593.10    139.50
   .000700        1.        1.        1.         0         0         0     -3.20     23.99    163.49


*SECNO 17647.000

3370 NORMAL BRIDGE, NRD=  18 MIN ELTRD=   603.00 MAX ELLC=   602.12


3470 ENCROACHMENT STATIONS=       139.5      163.5  TYPE=       1  TARGET=       24.000
 17647.000      6.83    599.95       .00       .00    600.29       .34       .04       .00    593.12
     755.0        .0     755.0        .0        .0     160.2        .0      23.4       6.2 100000.00
       .36       .00      4.71       .00      .000      .023      .000      .000    593.12    139.50
   .000697       52.       52.       52.         1         0         0     -3.26     23.99    163.49
```

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 17648.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 603.00 ELREA= 603.00

17648.000	6.85	599.97	.00	.00	600.30	.33	.00	.01	593.12
755.0	.0	755.0	.0	.0	164.4	.0	23.4	6.2	593.12
.36	.00	4.59	.00	.000	.035	.000	.000	593.12	139.50
.000900	1.	1.	1.	2	0	0	.00	24.00	163.50

*SECNO 17764.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.70

17764.000	7.14	600.38	.00	.00	600.44	.05	.06	.08	601.54
755.0	.0	755.0	.0	.0	413.7	.0	24.1	6.3	601.84
.38	.00	1.82	.00	.000	.035	.000	.000	593.24	106.12
.000313	116.	116.	116.	2	0	0	.00	107.81	213.94

*SECNO 17826.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .59

17826.000	6.77	600.37	.00	.00	600.51	.14	.03	.04	601.90
755.0	.0	755.0	.0	.0	252.6	.0	24.6	6.5	604.70
.38	.00	2.99	.00	.000	.038	.000	.000	593.60	5.52
.000890	62.	62.	62.	2	0	0	.00	59.61	65.13

CCHV= .300 CEHV= .500
*SECNO 17911.000

17911.000	7.03	600.43	.00	.00	600.69	.26	.12	.06	603.16
755.0	.0	755.0	.0	.0	183.9	.0	25.1	6.6	604.46
.39	.00	4.10	.00	.000	.040	.000	.000	593.40	287.75
.001709	100.	100.	100.	2	0	0	.00	38.32	326.08

*SECNO 18011.000

18011.000	7.44	600.66	.00	.00	600.86	.20	.15	.02	602.16
755.0	.0	755.0	.0	.0	211.3	.0	25.6	6.7	602.16
.40	.00	3.57	.00	.000	.040	.000	.000	593.22	285.85
.001255	100.	100.	100.	2	0	0	.00	43.79	329.65

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 18311.000

18311.000	7.84	601.03	.00	.00	601.21	.18	.34	.01	603.06
755.0	.0	755.0	.0	.0	221.3	.0	27.1	7.0	603.06
.42	.00	3.41	.00	.000	.040	.000	.000	593.19	286.52
.001055	350.	300.	250.	2	0	0	.00	42.55	329.07

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

Gloede Ditch, Post Proje

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	14886.000	.00	.00	.00	591.76	765.00	598.70	.00	598.81	6.99	2.84	316.88	289.35
*	14981.000	95.00	.00	.00	591.86	765.00	598.70	.00	599.03	24.33	4.59	166.66	155.08
*	14982.000	1.00	604.36	600.76	591.86	765.00	598.71	.00	599.03	6.08	4.59	166.66	310.15
	15054.000	72.00	604.36	600.76	591.86	765.00	598.76	.00	599.08	5.89	4.54	168.48	315.24
*	15055.000	1.00	.00	.00	591.86	765.00	598.76	.00	599.08	14.54	4.54	168.47	200.60
*	15097.000	42.00	.00	.00	591.86	755.00	599.13	.00	599.18	2.95	1.80	420.13	439.38
	15228.000	131.00	.00	.00	591.96	755.00	599.17	.00	599.22	3.07	1.82	414.90	431.00
	15303.000	75.00	.00	.00	592.06	755.00	599.19	.00	599.25	3.23	1.85	408.44	420.03
	15332.000	29.00	.00	.00	592.09	755.00	599.20	.00	599.26	3.28	1.86	406.77	417.17
	15778.000	446.00	.00	.00	592.26	755.00	599.35	.00	599.40	3.31	1.86	404.98	414.81
	15946.000	168.00	.00	.00	592.36	755.00	599.41	.00	599.46	3.20	1.81	416.76	421.88
	16513.000	567.00	.00	.00	592.66	755.00	599.60	.00	599.66	3.71	1.92	392.56	391.81
	16752.000	212.00	.00	.00	592.76	755.00	599.68	.00	599.74	3.71	1.92	392.80	391.85
	17368.000	616.00	.00	.00	593.04	755.00	599.91	.00	599.97	3.83	1.96	385.51	386.02
*	17594.000	226.00	.00	.00	593.10	755.00	599.90	.00	600.25	10.31	4.76	158.45	235.18
	17595.000	1.00	603.00	602.10	593.10	755.00	599.91	.00	600.25	7.00	4.72	159.88	285.39
	17647.000	52.00	603.00	602.12	593.12	755.00	599.95	.00	600.29	6.97	4.71	160.25	286.07

1

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	17648.000	1.00	.00	.00	593.12	755.00	599.97	.00	600.30	9.00	4.59	164.36	251.66
*	17764.000	116.00	.00	.00	593.24	755.00	600.38	.00	600.44	3.13	1.82	413.72	426.80
*	17826.000	62.00	.00	.00	593.60	755.00	600.37	.00	600.51	8.90	2.99	252.65	253.05
	17911.000	100.00	.00	.00	593.40	755.00	600.43	.00	600.69	17.09	4.10	183.93	182.64
	18011.000	100.00	.00	.00	593.22	755.00	600.66	.00	600.86	12.55	3.57	211.29	213.16
	18311.000	300.00	.00	.00	593.19	755.00	601.03	.00	601.21	10.55	3.41	221.32	232.43
	18911.000	600.00	.00	.00	593.79	755.00	601.64	.00	601.72	6.33	2.20	342.55	300.16
	19011.000	100.00	.00	.00	593.27	755.00	601.72	.00	601.78	4.47	1.98	381.63	357.13
	19426.000	415.00	.00	.00	594.19	755.00	601.91	.00	601.97	4.90	2.05	368.34	340.98

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Macomb Twp

3) WATERCOURSE: Lewis Drain

4) DOCUMENT TYPE: 10, 50, 100, 500 year flood encroached & revised Tilch Road Culvert AREA

00BREAK00

```
$       $     $$      $$$$$$    $$$$$$$$   $$$$$ $   $$$$$$$$  $$    $$
$$     $$    $$$$    $$     $$     $$     $$     $         $$  $$  $$
$$$   $$$   $$  $$   $$            $$     $$   $$$        $$      $$$$
$$$$$$$$$  $$    $$  $$            $$     $$  $ $$       $$         $$
$$ $$ $$   $$    $$  $$            $$     $$ $$ $$      $$          $$
$$     $$  $$$$$$$$  $$            $$     $$ $  $$     $$           $$
$$     $$  $$    $$  $$            $$     $$$   $$    $$            $$
$$     $$  $$    $$  $$     $$  $$ $$      $    $$   $$             $$
$$     $$  $$    $$   $$$$$$    $$$       $ $$$$$   $$$$$$$$        $$
```

LEWIS DRAIN
J&A FILE NO. 5850-03
MACOMB TWP. FIS
"ENCROACHED FLOODWAY"
10-50-100-500 YR. FLOWS

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 **********************************************
   HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
   ERROR CORR -  01,02
   MODIFICATION -  50,51,52,53
 **********************************************


 C
 T1              MACOMB TWP. FIS J&A FILE NO. 5850-03-1
 T2              10 YEAR FLOOD
 T3              LEWIS DRAIN

 J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

        0.       2.        0.        0.   0.000000     0.00       0.0       0.    596.000    0.000

 J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

        1.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

 NC      .040      .040      .032      .300      .500     0.000     0.000     0.000     0.000     0.000
 QT     4.000   605.000   895.000   980.000  1385.000     0.000     0.000     0.000     0.000     0.000

 X1    54.000    24.000   384.500   415.500     0.000     0.000     0.000     0.000      .100     0.000
 GR   598.800     0.000   598.500   200.000   598.500   384.500   591.200   384.500   589.500   385.100
 GR   588.300   387.500   588.000   390.700   588.000   391.500   588.000   392.300   588.300   395.500
 GR   589.500   397.900   591.200   398.500   591.200   401.500   589.500   402.100   588.300   404.500
 GR   588.000   407.700   588.000   408.500   588.000   409.300   588.300   412.500   589.500   414.900
 GR   591.200   415.500   598.500   415.500   598.000   600.000   598.200   800.000     0.000     0.000

 X1    55.000     0.000     0.000     0.000     1.000     1.000     1.000     0.000     0.000     0.000
 BT    22.000     0.000   598.900     0.000   200.000   598.600     0.000   384.500   598.600   591.300
 BT   385.100   598.600   593.400   387.500   598.600   596.400   390.700   598.600   597.500   391.500
 BT   598.600   597.600   392.300   598.600   597.500   395.500   598.600   596.400   397.900   598.600
 BT   593.400   398.500   598.600   591.300   401.500   598.600   591.300   402.100   598.600   593.400
 BT   404.500   598.600   596.400   407.700   598.600   597.500   408.500   598.600   597.600   409.300
 BT   598.600   597.500   412.500   598.600   596.400   414.900   598.600   593.400   415.500   598.600
 BT   591.300   600.000   598.100     0.000   800.000   598.300     0.000     0.000     0.000     0.000

                 LAKESIDE VILLA ENTRANCE ROAD     (MCS)          SECT.A

                 2-14' X 9'8" CMP ARCH PIPES

 X1   120.000     0.000     0.000     0.000    65.000    65.000    65.000     0.000     0.000     0.000
 X2     0.000     0.000     0.000     0.000     0.000     0.000     1.000     0.000     0.000     0.000
 NC      .042      .042      .036     0.000     0.000     0.000     0.000     0.000     0.000     0.000

 X1   121.000     0.000     0.000     0.000     1.000     1.000     1.000     0.000     0.000     0.000

                 VALLEY SECTION B (MCS)                          SECT.B

 X1   640.000     9.000   400.000   444.000   520.000   520.000   520.000     0.000      .100     0.000
 GR   600.700     0.000   600.700   200.000   596.700   400.000   590.900   414.000   588.400   421.000
 GR   589.900   428.000   595.300   444.000   600.400   644.000   600.600   844.000     0.000     0.000
```

X1	1384.000	17.000	409.700	420.400	744.000	744.000	744.000	0.000	.100	0.000
X3	0.000	0.000	0.000	0.000	0.000	580.000	0.000	0.000	0.000	0.000
GR	601.000	0.000	599.900	200.000	595.700	400.000	595.700	409.700	590.600	409.700
GR	589.400	410.300	588.800	412.100	588.500	413.900	588.400	415.000	588.500	416.100
GR	588.800	417.900	589.400	419.700	590.600	420.400	595.300	420.400	595.300	430.000
GR	598.700	630.000	600.900	830.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.042	.042	.032	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	1385.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	580.000	0.000	0.000	0.000	0.000
BT	14.000	0.000	601.100	0.000	200.000	600.000	0.000	400.000	595.800	0.000
BT	409.700	595.800	590.700	410.300	595.300	592.500	412.100	595.700	594.500	413.900
BT	595.600	595.200	415.000	595.600	595.400	416.100	595.600	595.200	417.900	595.500
BT	594.500	419.700	595.400	592.500	420.400	595.400	590.700	430.000	595.400	0.000
BT	580.000	598.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

PRIVATE CULVERT BRIDGE SECTION C (MCS) SECT.C

83" X 128" CMP

X1	1400.000	0.000	0.000	0.000	15.000	15.000	15.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	580.000	0.000	0.000	0.000	0.000
NC	.042	.042	.036	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	1401.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	580.000	0.000	0.000	0.000	0.000
QT	4.000	100.000	150.000	170.000	240.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION FROM MCS LEWIS DRAIN DESIGN

X1	1971.000	7.000	215.000	230.000	570.000	570.000	570.000	0.000	.100	0.000
X3	0.000	0.000	0.000	100.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	597.400	0.000	596.400	100.000	596.400	200.000	589.200	215.000	596.200	230.000
GR	597.500	320.000	599.000	450.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION D (MCS) SECT.D

X1	2855.000	10.000	450.000	500.000	884.000	884.000	884.000	0.000	.100	0.000
X3	0.000	0.000	0.000	200.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	598.500	0.000	598.500	50.000	596.800	250.000	597.000	450.000	591.200	467.000
GR	590.100	476.000	591.800	485.000	598.300	500.000	598.800	700.000	600.300	900.000

VALLEY SECTION E (MCS) SECT.E

X1	3965.000	9.000	400.000	441.000	1300.000	800.000	1110.000	0.000	.100	0.000
GR	600.000	0.000	600.100	200.000	598.500	400.000	591.800	418.000	591.600	424.000
GR	591.800	431.000	598.000	441.000	599.600	641.000	600.300	841.000	0.000	0.000

X1	4095.000	0.000	0.000	0.000	130.000	130.000	130.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	230.000	0.000	540.000	0.000	0.000	0.000	0.000

VALLEY SECTION F (MCS) SECT.F

X1	4770.000	8.000	400.000	438.000	625.000	700.000	675.000	0.000	.100	0.000
X3	0.000	0.000	0.000	400.000	0.000	438.000	0.000	0.000	0.000	0.000
GR	600.600	0.000	600.300	200.000	600.700	400.000	593.000	417.000	592.200	423.000
GR	593.100	430.000	598.800	438.000	600.000	638.000	0.000	0.000	0.000	0.000

X1	4819.000	10.000	100.000	120.800	49.000	49.000	149.000	0.000	.100	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	600.500	600.500	0.000
GR	600.500	0.000	600.500	75.000	590.700	100.000	590.700	110.000	597.200	110.000
GR	597.200	110.800	590.700	110.800	590.700	120.800	600.500	145.000	600.500	200.000
NC	.040	.040	.021	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	4820.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	600.500	600.500	0.000
SB	0.000	1.810	3.000	0.000	20.000	0.000	130.000	0.000	590.800	590.800

21 MILE ROAD BRIDGE SECTION 7.1 (MCS) SECT.G

CONCRETE BOX CULVERT

X1	4880.000	0.000	0.000	0.000	60.000	30.000	60.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	597.300	600.610	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	600.600	600.600	0.000
BT	5.000	0.000	600.600	0.000	100.000	600.600	590.800	100.000	600.600	597.300
BT	120.800	600.600	597.300	120.800	600.600	590.800	200.000	600.600	0.000	0.000
NC	.038	.038	.034	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	4881.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	600.500	600.500	0.000

VALLEY SECTION 8.1 (MCS) SECT.H

X1	4950.000	7.000	40.000	100.000	59.000	59.100	69.000	0.000	.100	0.000
X3	0.000	0.000	0.000	40.000	0.000	100.000	0.000	0.000	0.000	0.000
GR	601.800	0.000	599.800	20.000	597.800	40.000	592.800	60.000	592.800	80.000
GR	599.500	100.000	600.500	120.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	5115.000	0.000	0.000	0.000	165.000	165.000	165.000	0.000	.100	0.000
X3	0.000	0.000	0.000	40.000	0.000	100.000	0.000	0.000	0.000	0.000

X1	5280.000	0.000	0.000	0.000	165.000	165.000	165.000	0.000	.200	0.000
X3	0.000	0.000	0.000	40.000	0.000	100.000	0.000	0.000	0.000	0.000

VALLEY SECTION 11.1 (MCS) SECT.I

X1	5281.000	8.000	40.000	100.000	1.000	1.000	1.000	0.000	.100	0.000
X3	0.000	0.000	0.000	40.000	0.000	100.000	0.000	0.000	0.000	0.000
GR	602.100	0.000	600.100	20.000	598.100	40.000	593.100	60.000	593.100	80.000
GR	598.100	100.000	600.100	120.000	602.100	140.000	0.000	0.000	0.000	0.000

X1	5493.000	0.000	0.000	0.000	212.000	212.000	212.000	0.000	.200	0.000
X3	0.000	0.000	0.000	60.000	0.000	100.000	0.000	0.000	0.000	0.000

X1	5705.000	0.000	0.000	0.000	212.000	212.000	212.000	0.000	.200	0.000
X3	0.000	0.000	0.000	40.000	0.000	100.000	0.000	0.000	0.000	0.000

X1	5908.000	6.000	59.000	141.000	203.000	203.000	203.000	0.000	.100	0.000
X3	0.000	0.000	0.000	93.000	0.000	107.000	0.000	0.000	0.000	0.000
GR	602.600	0.000	602.600	59.000	593.800	93.000	593.800	107.000	602.300	141.000
GR	602.300	200.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

LEWIS DRAIN
J&A FILE NO. 5850-03
MACOMB TWP. FIS
"ENCROACHED FLOODWAY"
10-50-100-500 YR FLOODS

-REVISED TILCH ROAD
CULVERT AREA
8-10-79

T1										
T2										
T3										
J1		2							597.83	
J2	1		-1							
NC	.038	.038	.034	.3	.5					
QT	4	100	150	170	240					
X1	5281	8	40	100					.1	
X3				40		100				
GR	602.1	0	600.1	20	598.1	40	593.1	60	593.1	80
GR	598.1	100	600.1	120	602.1	140				
X1	5493				212	212	212		.2	
X3				40		100				
X1	5705				212	212	212		.2	
X3				40		100				
X1	5908	6	59	141	203	203	203		.1	
X3				93		107				
GR	602.6	0	602.6	59	593.8	93	593.8	107	602.3	141
GR	602.3	200								
NC	.04	.04	.032							
X1	5909				1	1	1			
X3				93		107				
SB		4.35	3.0		10.2		41.5		593.9	593.9
X1	6021	20	93	107	112	112	112		.1	
X2			1	598.0	602.4					
X3	10	593.8						602.4	602.4	
BT	14	0	602.7	0.0	93	602.6	594.9	94	602.6	597.4
BT	95	602.6	597.9	97	602.6	597.9	98	602.6	597.4	99
BT	602.6	594.9	101	602.5	594.9	102	602.5	597.4	103	602.5
BT	597.9	105	602.5	597.9	106	602.5	597.4	107	602.5	594.9
BT	200	602.4	0.0							
GR	602.6	0	602.5	68	594.8	93	593.8	93	592.3	94
GR	591.8	95	591.8	97	592.3	98	593.8	99	594.8	99
GR	594.8	101	593.8	101	592.3	102	591.8	103	591.8	105
GR	592.3	106	593.8	107	594.8	107	602.4	132	602.3	200
NC	.038	.038	.034							
X1	6022				1	1	1			
X3	10							602.3	602.3	
X1	6071	8	50	90	49	49	49		.1	
X3				50		90				
GR	603.8	0	600.8	30	598.8	50	593.8	70	593.8	90
GR	598.8	110	600.8	130	603.8	160				
X1	6319				248	248	248		.2	
X3				50		90				
X1	6567				248	248	248		.2	
X3				50		90				
QT	4	70	100	110	155					
X1	6815				248	248	248		.2	
X3				50		90				
X1	7063				248	248	248		.2	
X3				50		90				
X1	7311				248	248	248		.2	
X3				50		90				
X1	7558	8	32	62	247	247	247		.1	
X3				32		62				
GR	604.4	0	602.4	20	597.0	32	595.0	40	595.0	54
GR	597.0	62	602.4	74	604.4	94				
X1	7559	6	20	74	1	1	1		.1	
GR	604.4	0	602.4	20	597.4	40	597.4	54	602.4	74
GR	604.4	94								
X1	7608	8	47	93	49	49	49		.1	
GR	606.2	0	604.2	20	601.5	47	597.5	63	597.5	77
GR	601.5	93	604.2	120	606.2	140				
X1	7777				169	169	169		.1	
X1	7946				169	169	169		.2	
X1	8112	18	93	107	166	166	166		.1	

GR 605.2	0	605.2	93	599.7	93	598.6	93	598.1	94
GR 598.1	96	598.1	98	598.6	99	599.7	99	599.7	101
GR 598.6	101	598.1	102	598.1	104	598.1	106	598.6	107
GR 599.7	107	605.2	107	605.2	200				
NC .04	.04	.033							
X1 8113				1	1	1			
BT 12	0	605.3	0.0	93	605.3	599.8	94	605.3	601.3
BT 96	605.3	601.8	98	605.3	601.3	99	605.3	599.8	101
BT 605.3	599.8	102	605.3	601.3	104	605.3	601.8	106	605.3
BT 601.3	107	605.3	599.8	200	605.3	0.0			
X1 8184				71	71	71			
X2						1			
NC .038	.038	.034							
X1 8185				1	1	1			
X1 8234	8	47	93	49	49	49		.1	
GR 606.8	0	604.8	20	602.1	47	598.1	63	598.1	77
GR 602.1	93	604.8	120	606.8	140				
X1 8373				139	139	139		.1	
X1 8512				139	139	139		.2	
X1 8651				139	139	139		.1	
X1 8790				139	139	139		.2	
X3			59		81				
X1 8800				10	10	10		.4	
X3			62		79				
X1 8810				10	10	10		.5	
X3			64		76				
X1 8819	11	96.4	103.6	9	9	9		.1	
GR 606.8	0	606.8	96.4	602.8	96.4	600.6	96.4	600.0	98
GR 600.0	100	600.0	102	600.6	103.6	602.8	103.6	606.8	103.6
GR 606.8	200								
NC .04	.04	.033							
X1 8820				1	1	1			
BT 7	0	606.9	0.0	96.4	606.9	602.9	98	606.9	604.9
BT 100	606.9	605.3	102	606.9	604.9	103.6	606.9	602.9	200
BT 606.9	0.0								
X1 8858				38	38	38			
X2						1			
X1 8859				1	1	1			
EJ									
T1									
T2									
T3									
J1	3							598.61	
J2 2		-1							
T1									
T2									
T3									
J1	4							598.83	
J2 3		-1							
T1									
T2									
T3									
J1	5							599.85	
J2 15		-1							
ER									

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**************************************************
 HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
 ERROR CORR -  01,02
 MODIFICATION -  50,51,52,53
**************************************************


T1                MACOMB TWP. FIS JRA FILE NO. 5850-03-1
T2                100 YEAR FLOOD
T3                LEWIS DRAIN

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC     HVINS      Q        WSEL      FQ

      0.        4.        0.        0.  0.000000     0.00       0.0       0.   593.910    0.000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH      FN        ALLDC      IBW      CHNIM     ITRACE

     3.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
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*PROF 3

CCHV=      .300 CEHV=      .500
*SECNO 54.000
   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA    LEFT/RIGHT
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


    54.00       8.81     596.91       0.00     596.91     597.15        .24       0.00       0.00     598.60
     980.         0.       980.         0.         0.       247.         0.         0.         0.      598.60
     0.00       0.00       3.96       0.00       .040       .032       .040      0.000     588.10     384.50
  .000823         0.         0.         0.          0          0          0       0.00      31.00     415.50

*SECNO 55.000

3370 NORMAL BRIDGE,NRD= 22 MIN ELTRD=  598.10 MAX ELLC=  597.60

    55.00       8.74     596.84       0.00       0.00     597.23        .39        .00        .07     598.60
     980.         0.       980.         0.         0.       196.         0.         0.         0.      598.60
      .00       0.00       4.99       0.00       .040       .032       .040       .016     588.10     384.50
  .002663         1.         1.         1.          2          0          0     -48.83      31.00     415.50

*SECNO 120.000

3370 NORMAL BRIDGE,NRD= 22 MIN ELTRD=  598.10 MAX ELLC=  597.60

                  LAKESIDE VILLA ENTRANCE ROAD      (MCS)            SECT.A

                  2-14' X 9'8" CMP ARCH PIPES

   120.00       8.92     597.02       0.00       0.00     597.40        .38        .17        .00     598.60
     980.         0.       980.         0.         0.       198.         0.         0.         0.      598.60
      .00       0.00       4.95       0.00       .040       .032       .040       .031     588.10     384.50
  .002605        65.        65.        65.          2          0          0     -52.68      31.00     415.50

*SECNO 121.000
   121.00       9.12     597.22       0.00       0.00     597.45        .23        .00        .05     598.60
     980.         0.       980.         0.         0.       257.         0.         0.         0.      598.60
      .00       0.00       3.81       0.00       .042       .036       .042       .031     588.10     384.50
  .000933         1.         1.         1.          2          0          0       0.00      31.00     415.50

*SECNO 640.000
   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA    LEFT/RIGHT
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


                  VALLEY SECTION B (MCS)                                   SECT.B

   640.00       9.24     597.74       0.00       0.00     597.90        .16        .43        .02     596.80
     980.        13.       854.       114.        22.       250.       107.         4.         1.      595.40
      .05        .58       3.42       1.06       .042       .036       .042       .035     588.50     353.15
  .000733       520.       520.       520.          2          0          0       0.00     182.49     535.64
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*SECNO 1384.000

3470 ENCROACHMENT STATIONS=        .0      580.0  TYPE=      1  TARGET=      579.999
  1384.00      9.91    598.41     0.00      0.00   598.48      .07      .56      .03     595.80
    980.       238.     315.      428.      188.     100.      289.      12.       5.     595.40
    .16       1.27      3.13     1.48      .042     .036     .042     .036    588.50    275.64
  .000769      744.     744.      744.         2        0        0     0.00    304.36    580.00


*SECNO 1385.000

3370 NORMAL BRIDGE,NRD= 14 MIN ELTRD=  595.40 MAX ELLC=  595.40

3470 ENCROACHMENT STATIONS=        .0      580.0  TYPE=      1  TARGET=      579.999
  1385.00      9.94    598.44     0.00      0.00   598.49      .05      .00      .01     595.80
    980.       283.     197.      499.      191.      85.      290.      12.       5.     595.40
    .16       1.48      2.33     1.72      .042     .032     .042     .036    588.50    274.39
  .001042       1.       1.        1.         2        0        0   -19.85    305.61    580.00


*SECNO 1400.000

3370 NORMAL BRIDGE,NRD= 14 MIN ELTRD=  595.40 MAX ELLC=  595.40

3470 ENCROACHMENT STATIONS=        .0      580.0  TYPE=      1  TARGET=      579.999

                 PRIVATE CULVERT  BRIDGE SECTION C (MCS)          SECT.C

                 83" X 128" CMP

  1400.00      9.95    598.45     0.00      0.00   598.50      .05      .02      .00     595.80
    980.       284.     196.      500.      193.      85.      292.      12.       6.     595.40
    .16       1.47      2.31     1.71      .042     .032     .042     .036    588.50    273.74
  .001021       15.      15.       15.         0        0        0   -19.85    305.25    580.00


*SECNO 1401.000

3470 ENCROACHMENT STATIONS=        .0      580.0  TYPE=      1  TARGET=      579.999
  1401.00      9.95    598.45     0.00      0.00   598.51      .07      .00      .01     595.80
    980.       240.     308.      432.      194.     101.      296.      12.       6.     595.40
    .16       1.24      3.05     1.46      .042     .036     .042     .036    588.50    273.56
  .000725       1.       1.        1.         0        0        0     0.00    306.44    580.00


*SECNO 1971.000
   SECNO     DEPTH     CWSEL     CRIWS     WSELK      EG        HV        HL      OLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL      TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN      ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR    TOPWID     ENDST


3470 ENCROACHMENT STATIONS=      100.0      450.0  TYPE=      1  TARGET=     -100.000

                 VALLEY SECTION FROM MCS LEWIS DRAIN DESIGN

  1971.00      9.35    598.65     0.00      0.00   598.66      .00      .12      .02     589.30
    170.        89.      45.       36.      302.      88.      201.      20.      10.     596.30
    .64        .29       .51      .18      .042     .036     .042     .036    589.30    100.00
  .000017      570.     570.      570.         2        0        0     0.00    311.29    411.29
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*SECNO 2855.000

3470 ENCROACHMENT STATIONS=      200.0      900.0  TYPE=      1  TARGET=     -200.000

                              VALLEY SECTION D (MCS)                                SECT.D

    2855.00      8.47    598.67      0.00      0.00    598.67       .00       .01       .00    597.10
       170.       65.      105.        0.      411.      268.       14.       33.       17.    598.40
       1.46       .16       .39       .03      .042      .036      .042      .036    590.20    200.00
    .000010      884.      884.      884.         2         0         0      0.00    406.39    606.39


*SECNO 3965.000

                              VALLEY SECTION E (MCS)                                SECT.E

    3965.00      6.98    598.68      0.00      0.00    598.70       .01       .02       .01    598.60
       170.        0.      167.        3.        0.      188.       21.       46.       24.    598.10
       1.82       .03       .89       .13      .042      .036      .042      .036    591.70    389.95
    .000067     1300.     1110.      800.         0         0         0      0.00    123.60    513.55


*SECNO 4095.000

3470 ENCROACHMENT STATIONS=      230.0      540.0  TYPE=      1  TARGET=      310.000
    4095.00      6.99    598.69      0.00      0.00    598.71       .01       .01       .00    598.60
       170.        0.      167.        3.        1.      188.       22.       46.       24.    598.10
       1.86       .04       .89       .13      .042      .036      .042      .036    591.70    388.76
    .000066      130.      130.      130.         0         0         0      0.00    125.98    514.74


*SECNO 4770.000

3470 ENCROACHMENT STATIONS=      400.0      438.0  TYPE=      1  TARGET=       38.000

                              VALLEY SECTION F (MCS)                                SECT.F

    4770.00      6.45    598.75      0.00      0.00    598.78       .02       .07       .01    600.80
       170.        0.      170.        0.        0.      135.        0.       49.       25. 100000.10
       2.01      0.00      1.26      0.00      .042      .036      .042      .036    592.30    404.53
    .000162      625.      675.      700.         1         0         0      0.00     33.25    437.78


*SECNO 4819.000
     SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS  BANK ELEV
         Q      QLOB       QCH      QROB      ALOB       ACH      AROB       VOL       TWA LEFT/RIGHT
      TIME      VLOB       VCH      VROB       XNL      XNCH       XNR       WTN     ELMIN      SSTA
     SLOPE     XLOBL      XLCH     XLOBR    ITRIAL       IDC     ICONT     CORAR    TOPWID     ENDST


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       600.50 ELREA=       600.50

    4819.00      7.97    598.77      0.00      0.00    598.79       .02       .01       .00    590.80
       170.        0.      170.        0.        0.      160.        0.       49.       25.    590.80
       2.02      0.00      1.06      0.00      .042      .036      .042      .036    590.80    100.00
    .000092       49.       49.       49.         0         0         0      0.00     20.80    120.80


*SECNO 4820.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       600.50 ELREA=       600.50

    4820.00      7.97    598.77      0.00      0.00    598.79       .02       .00       .00    590.80
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     170.        0.      170.       0.        0.      161.        0.       49.       25.      590.80
     2.02      0.00      1.06      0.00      .040      .021      .040      .036    590.80    100.00
  .000031        1.        1.        1.         0         0         0      0.00     20.80    120.80


  SPECIAL BRIDGE
  SB   XK          XKOR       COFO       RDLEN      BWC       BWP       BAREA       SS       ELCHU     ELCHD
       0.00        1.81       3.00       0.00      20.00      0.00     130.00      0.00     590.80    590.80

 *SECNO 4880.000
  PRESSURE FLOW

    EGPRS      EGLWC        H3      QWEIR       QPR       BAREA    TRAPEZOID     ELLC      ELTRD
                                                                     AREA
    598.82    598.79      0.00        0.       170.       130.       130.      597.30    600.60


  3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      600.50 ELREA=       600.60

                 21 MILE ROAD  BRIDGE SECTION 7.1 (MCS)              SECT.G

                 CONCRETE BOX CULVERT

   4880.00      8.00    598.80      0.00      0.00    598.82       .02       .03      0.00    590.80
     170.         0.      170.        0.        0.      161.        0.       49.       25.    590.80
     2.04       0.00      1.05      0.00      .040      .021      .040      .035    590.80    100.00
  .000031        60.       60.       60.         1         0         0      0.00     20.80    120.80


 *SECNO 4881.000

  3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      600.50 ELREA=       600.50

   4881.00      8.00    598.80      0.00      0.00    598.82       .02       .00       .00    590.80
     170.         0.      170.        0.        0.      161.        0.       49.       25.    590.80
     2.04       0.00      1.05      0.00      .038      .034      .038      .035    590.80    100.00
  .000081         1.        1.        1.         0         0         0      0.00     20.80    120.80


 *SECNO 4950.000

  3470 ENCROACHMENT STATIONS=      40.0      100.0   TYPE=      1  TARGET=      60.000

                 VALLEY SECTION 8.1 (MCS)                            SECT.H

   4950.00      5.92    598.82      0.00      0.00    598.82       .01       .00       .00    597.90
     170.         0.      170.        0.        0.      239.        0.       50.       25. 100000.10
     2.06       0.00       .71      0.00      .038      .034      .038      .035    592.90     40.00
  .000042        69.       69.       69.         1         0         0      0.00     57.64     97.64


 *SECNO 5115.000
    SECNO     DEPTH     CWSEL     CRIWS     WSELK       EG        HV        HL      OLOSS   BANK ELEV
      Q       QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN      ELMIN      SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR    TOPWID     ENDST


  3470 ENCROACHMENT STATIONS=      40.0      100.0   TYPE=      1  TARGET=      60.000
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   5115.00     5.82   598.82     0.00     0.00   598.83      .01      .01      .00   598.00
    170.         0.     170.       0.       0.     234.       0.      50.      26. 100000.00
     2.13      0.00      .73     0.00     .038     .034     .038     .035   593.00    40.00
  .000045      165.     165.     165.        0        0        0     0.00    57.39    97.39

 *SECNO 5280.000

 3470 ENCROACHMENT STATIONS=     40.0     100.0  TYPE=     1  TARGET=        60.000
   5280.00     5.63   598.83     0.00     0.00   598.84      .01      .01      .00   598.20
    170.         0.     170.       0.       0.     223.       0.      51.      26. 100000.00
     2.19      0.00      .76     0.00     .038     .034     .038     .035   593.20    40.00
  .000052      165.     165.     165.        0        0        0     0.00    56.81    96.81

 *SECNO 5281.000

 3470 ENCROACHMENT STATIONS=     40.0     100.0  TYPE=     1  TARGET=        60.000

                  VALLEY SECTION 11.1 (MCS)                    SECT.I

   5281.00     5.63   598.83     0.00     0.00   598.84      .01      .00      .00   598.20
    170.         0.     170.       0.       0.     238.       0.      51.      26. 100000.10
     2.19      0.00      .71     0.00     .038     .034     .038     .035   593.20    40.00
  .000045        1.       1.       1.        0        0        0     0.00    60.00   100.00

 *SECNO 5493.000

 3470 ENCROACHMENT STATIONS=     40.0     100.0  TYPE=     1  TARGET=        60.000
   5493.00     5.44   598.84     0.00     0.00   598.85      .01      .01      .00   598.40
    170.         0.     170.       0.       0.     227.       0.      52.      26. 100000.00
     2.27      0.00      .75     0.00     .038     .034     .038     .035   593.40    40.00
  .000053      212.     212.     212.        0        0        0     0.00    60.00   100.00

 *SECNO 5705.000

 3470 ENCROACHMENT STATIONS=     40.0     100.0  TYPE=     1  TARGET=        60.000
   5705.00     5.25   598.85     0.00     0.00   598.86      .01      .01      .00   598.60
    170.         0.     170.       0.       0.     215.       0.      54.      26. 100000.00
     2.34      0.00      .79     0.00     .038     .034     .038     .035   593.60    40.00
  .000062      212.     212.     212.        0        0        0     0.00    60.00   100.00

 *SECNO 5908.000
    SECNO     DEPTH    CWSEL    CRIWS    WSELK       EG       HV       HL    OLOSS   BANK ELEV
    Q         QLOB     QCH      QROB     ALOB      ACH      AROB     VOL      TWA   LEFT/RIGHT
    TIME      VLOB     VCH      VROB     XNL       XNCH     XNR      WTN     ELMIN      SSTA
    SLOPE     XLOBL    XLCH     XLOBR    ITRIAL    IDC      ICONT    CORAR   TOPWID     ENDST

 3470 ENCROACHMENT STATIONS=     93.0     107.0  TYPE=     1  TARGET=        14.000
   5908.00     4.94   598.84     0.00     0.00   598.94      .09      .03      .04100000.10
    170.         0.     170.       0.       0.      69.       0.      54.      27. 100000.10
     2.36      0.00     2.46     0.00     .038     .034     .038     .035   593.90    93.00
  .000770      203.     203.     203.        2        0        0     0.00    14.00   107.00

 *SECNO 5909.000

 3470 ENCROACHMENT STATIONS=     93.0     107.0  TYPE=     1  TARGET=        14.000
   5909.00     4.94   598.84     0.00     0.00   598.94      .09      .00      .00100000.00
    170.         0.     170.       0.       0.      69.       0.      54.      27. 100000.00
     2.36      0.00     2.46     0.00     .040     .032     .040     .035   593.90    93.00
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*************************************************
 HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
 ERROR CORR -  01,02
 MODIFICATION -  50,51,52,53
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100 yr

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T1
T2
T3
J1  ICHECK     INQ      NINV      IDIR      STRT      METRIC    HVINS      Q         WSEL       FQ
        0.        4.        0.        0.  0.000000      0.00      0.0        0.     598.830    0.000
J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC      IBW       CHNIM      ITRACE
      3.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
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*PROF 3

CCHV=    .300 CEHV=    .500
*SECNO 5281.000
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


3470 ENCROACHMENT STATIONS=       40.0      100.0  TYPE=      1  TARGET=       60.000
   5281.00      5.63    598.83      0.00    598.83    598.84       .01      0.00      0.00    593.20
      170.        0.      170.        0.        0.      238.        0.        0.        0. 100000.10
      0.00      0.00       .71      0.00      .038      .034      .038     0.000    593.20     40.00
   .000045        0.        0.        0.         0         0         0      0.00     60.00    100.00


*SECNO 5493.000

3470 ENCROACHMENT STATIONS=       40.0      100.0  TYPE=      1  TARGET=       60.000
   5493.00      5.44    598.84      0.00      0.00    598.85       .01       .01       .00    593.40
      170.        0.      170.        0.        0.      226.        0.        1.        0. 100000.00
       .08      0.00       .75      0.00      .038      .034      .038      .034    593.40     40.00
   .000053      212.      212.      212.         0         0         0      0.00     60.00    100.00


*SECNO 5705.000

3470 ENCROACHMENT STATIONS=       40.0      100.0  TYPE=      1  TARGET=       60.000
   5705.00      5.25    598.85      0.00      0.00    598.85       .01       .01       .00    598.60
      170.        0.      170.        0.        0.      215.        0.        2.        1. 100000.00
       .15      0.00       .79      0.00      .038      .034      .038      .034    593.60     40.00
   .000062      212.      212.      212.         0         0         0      0.00     60.00    100.00


*SECNO 5908.000

3470 ENCROACHMENT STATIONS=       93.0      107.0  TYPE=      1  TARGET=       14.000
   5908.00      4.94    598.84      0.00      0.00    598.93       .09       .03       .04100000.10
      170.        0.      170.        0.        0.       69.        0.        3.        1. 100000.10
       .18      0.00      2.46      0.00      .038      .034      .038      .034    593.90     93.00
   .000771      203.      203.      203.         2         0         0      0.00     14.00    107.00


*SECNO 5909.000
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


3470 ENCROACHMENT STATIONS=       93.0      107.0  TYPE=      1  TARGET=       14.000
   5909.00      4.94    598.84      0.00      0.00    598.93       .09       .00       .00100000.00
      170.        0.      170.        0.        0.       69.        0.        3.        1. 100000.00
       .18      0.00      2.46      0.00      .040      .032      .040      .034    593.90     93.00
   .000682        1.        1.        1.         0         0         0      0.00     14.00    107.00



SPECIAL BRIDGE

SB  XK          XKOR          COFQ          RDLEN         BWC         BWP          BAREA          SS          ELCHU          ELCHD
     0.00         4.35          3.00          0.00        10.20        0.00         41.50          0.00        593.90         593.90
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*SECNO 6021.000
PRESSURE FLOW

     EGPRS     EGLWC        H3      QWEIR       QPR      BAREA  TRAPEZOID      ELLC      ELTRD
                                                                   AREA
    599.97    598.94      0.00         0.       170.       42.       42.     598.00     602.40


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       602.40 ELREA=       602.40

   6021.00      6.01    599.91      0.00      0.00    599.97       .07      1.04      0.00    594.90
      170.        0.      170.        0.        0.       82.        0.        3.        1.    594.90
       .19      0.00      2.07      0.00      .040      .032      .040      .033    593.90     93.00
   .000364      112.      112.      112.         2         0         0      0.00     14.00    107.00


*SECNO 6022.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       602.30 ELREA=       602.30

   6022.00      6.01    599.91      0.00      0.00    599.97       .07       .00       .00    594.90
      170.        0.      170.        0.        0.       82.        0.        3.        1.    594.90
       .19      0.00      2.07      0.00      .038      .034      .038      .033    593.90     93.00
   .000411        1.        1.        1.         0         0         0      0.00     14.00    107.00


*SECNO 6071.000

3470 ENCROACHMENT STATIONS=       50.0       90.0  TYPE=       1  TARGET=       40.000
   6071.00      6.09    599.99      0.00      0.00    600.00       .01       .01       .02    598.90
      170.        0.      170.        0.        0.      193.        0.        3.        1. 100000.10
       .21      0.00       .88      0.00      .038      .034      .038      .033    593.90     50.00
   .000063       49.       49.       49.         2         0         0      0.00     40.00     90.00


*SECNO 6319.000

3470 ENCROACHMENT STATIONS=       50.0       90.0  TYPE=       1  TARGET=       40.000
   6319.00      5.90    600.00      0.00      0.00    600.01       .01       .02       .00    599.10
      170.        0.      170.        0.        0.      186.        0.        4.        1. 100000.00
       .28      0.00       .91      0.00      .038      .034      .038      .036    594.10     50.00
   .000071      248.      248.      248.         2         0         0      0.00     40.00     90.00


*SECNO 6567.000
     SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS  BANK ELEV
         Q      QLOB       QCH      QROB      ALOB       ACH      AROB       VOL       TWA  LEFT/RIGHT
      TIME      VLOB       VCH      VROB       XNL      XNCH       XNR       WTN     ELMIN      SSTA
     SLOPE     XLOBL      XLCH     XLOBR    ITRIAL       IDC     ICONT     CORAR    TOPWID     ENDST


3470 ENCROACHMENT STATIONS=       50.0       90.0  TYPE=       1  TARGET=       40.000
   6567.00      5.72    600.02      0.00      0.00    600.03       .01       .02       .00    599.30
      170.        0.      170.        0.        0.      179.        0.        5.        1. 100000.00
       .35      0.00       .95      0.00      .038      .034      .038      .034    594.30     50.00
   .000080      248.      248.      248.         0         0         0      0.00     40.00     90.00


*SECNO 6815.000

3470 ENCROACHMENT STATIONS=       50.0       90.0  TYPE=       1  TARGET=       40.000
   6815.00      5.54    600.04      0.00      0.00    600.05       .01       .01       .00    599.50
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     110.        0.       110.        0.         0.       172.         0.         6.         2.  100000.00
      .46      0.00        .64      0.00       .038       .034       .038       .034     594.50      50.00
  .000038      248.       248.      248.          0          0          0       0.00      40.00      90.00

*SECNO 7063.000

3470 ENCROACHMENT STATIONS=        50.0        90.0  TYPE=      1  TARGET=       40.000
  7063.00      5.35     600.05      0.00       0.00     600.06        .01        .01        .00     599.70
     110.        0.       110.        0.         0.       164.         0.         7.         2.  100000.00
      .56      0.00        .67      0.00       .038       .034       .038       .034     594.70      50.00
  .000043      248.       248.      248.          0          0          0       0.00      40.00      90.00

*SECNO 7311.000

3470 ENCROACHMENT STATIONS=        50.0        90.0  TYPE=      1  TARGET=       40.000
  7311.00      5.16     600.06      0.00       0.00     600.07        .01        .01        .00     599.90
     110.        0.       110.        0.         0.       157.         0.         8.         2.  100000.00
      .65      0.00        .70      0.00       .038       .034       .038       .034     594.90      50.00
  .000051      248.       248.      248.          0          0          0       0.00      40.00      90.00

*SECNO 7558.000

3470 ENCROACHMENT STATIONS=        32.0        62.0  TYPE=      1  TARGET=       30.000
  7558.00      4.98     600.08      0.00       0.00     600.09        .01        .01        .00     597.10
     110.        0.       110.        0.         0.       133.         0.         9.         2.  100000.10
      .75      0.00        .83      0.00       .038       .034       .038       .036     595.10      32.00
  .000063      247.       247.      247.          0          0          0       0.00      30.00      62.00

*SECNO 7559.000
   SECNO     DEPTH      CWSEL     CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
   Q         QLOB       QCH       QROB       ALOB       ACH        AROB       VOL        TWA     LEFT/RIGHT
   TIME      VLOB       VCH       VROB       XNL        XNCH       XNR        WTN        EEMIN       SSTA
   SLOPE     XLOBL      XLCH      XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID      ENDST

  7559.00      2.56     600.06      0.00       0.00     600.11        .05        .00        .02     602.50
     110.        0.       110.        0.         0.        62.         0.         9.         2.     602.50
      .75      0.00       1.76      0.00       .038       .034       .038       .034     597.50      29.73
  .000760        1.         1.        1.          1          0          0       0.00      34.55      64.27

*SECNO 7608.000
  7608.00      2.50     600.10      0.00       0.00     600.15        .05        .04        .00     601.60
     110.        0.       110.        0.         0.        60.         0.         9.         2.     601.60
      .75      0.00       1.85      0.00       .038       .034       .038       .034     597.60      53.05
  .000862       49.        49.       49.          1          0          0       0.00      33.90      86.95

*SECNO 7777.000
  7777.00      2.54     600.24      0.00       0.00     600.29        .05        .16        .00     601.70
     110.        0.       110.        0.         0.        61.         0.         9.         2.     601.70
      .78      0.00       1.80      0.00       .038       .034       .038       .034     597.70      52.87
  .000802      169.       169.      169.          0          0          0       0.00      34.26      87.13

*SECNO 7946.000
  7946.00      2.48     600.38      0.00       0.00     600.43        .05        .14        .00     601.90
     110.        0.       110.        0.         0.        59.         0.        10.         2.     601.90
      .80      0.00       1.85      0.00       .038       .034       .038       .034     597.90      53.08
  .000871      169.       169.      169.          0          0          0       0.00      33.84      86.92
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*SECNO 8112.000

8112.00	2.38	600.58	0.00	0.00	600.80	.22	.28	.08	605.30
110.	0.	110.	0.	0.	29.	0.	10.	3.	605.30
.82	0.00	3.78	0.00	.038	.034	.038	.034	598.20	93.00
.004673	166.	166.	166.	2	0	0	0.00	14.00	107.00

*SECNO 8113.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3370 NORMAL BRIDGE,NRD= 12 MIN ELTRD= 605.30 MAX ELLC= 601.80

8113.00	2.35	600.55	0.00	0.00	600.84	.28	.01	.03	605.30
110.	0.	110.	0.	0.	26.	0.	10.	3.	605.30
.82	0.00	4.28	0.00	.040	.033	.040	.034	598.20	93.00
.007487	1.	1.	1.	2	0	0	-3.01	14.00	107.00

*SECNO 8184.000

3370 NORMAL BRIDGE,NRD= 12 MIN ELTRD= 605.30 MAX ELLC= 601.80

8184.00	2.86	601.06	0.00	0.00	601.26	.20	.40	.03	605.30
110.	0.	110.	0.	0.	31.	0.	10.	3.	605.30
.82	0.00	3.57	0.00	.040	.033	.040	.034	598.20	93.00
.004349	71.	71.	71.	2	0	0	-5.05	14.00	107.00

*SECNO 8185.000

8185.00	2.94	601.14	0.00	0.00	601.28	.14	.00	.02	605.30
110.	0.	110.	0.	0.	37.	0.	10.	3.	605.30
.82	0.00	2.97	0.00	.038	.034	.038	.034	598.20	93.00
.002248	1.	1.	1.	2	0	0	0.00	14.00	107.00

*SECNO 8234.000

8234.00	3.12	601.32	0.00	0.00	601.35	.03	.04	.03	602.20
110.	0.	110.	0.	0.	82.	0.	10.	3.	602.20
.83	0.00	1.34	0.00	.038	.034	.038	.034	598.20	50.54
.000352	49.	49.	49.	1	0	0	0.00	38.91	89.46

*SECNO 8373.000

8373.00	3.07	601.37	0.00	0.00	601.40	.03	.05	.00	602.30
110.	0.	110.	0.	0.	81.	0.	10.	3.	602.30
.86	0.00	1.36	0.00	.038	.034	.038	.034	598.30	50.72
.000373	139.	139.	139.	2	0	0	0.00	38.57	89.28

*SECNO 8512.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

8512.00	2.93	601.43	0.00	0.00	601.46	.03	.06	.00	602.50
110.	0.	110.	0.	0.	75.	0.	10.	3.	602.50
.89	0.00	1.47	0.00	.038	.034	.038	.036	598.50	51.31
.000455	139.	139.	139.	0	0	0	0.00	37.38	88.69

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*SECNO 8651.000
  8651.00      2.89    601.49      0.00      0.00    601.53       .03       .06       .00    602.60
     110.        0.      110.        0.        0.       74.        0.       11.        3.    602.60
      .91      0.00      1.49      0.00      .038      .034      .038      .034    598.60     51.46
  .000480      139.      139.      139.         0         0         0      0.00     32.07     83.54

*SECNO 8790.000

3470 ENCROACHMENT STATIONS=       59.0       81.0  TYPE=       1  TARGET=        22.000
  8790.00      2.76    601.56      0.00      0.00    601.62       .06       .08       .01100000.00
     110.        0.      110.        0.        0.       57.        0.       11.        3. 100000.00
      .93      0.00      1.94      0.00      .038      .034      .038      .034    598.80     59.00
  .000691      139.      139.      139.         0         0         0      0.00     22.00     81.00

*SECNO 8800.000

3470 ENCROACHMENT STATIONS=       62.0       79.0  TYPE=       1  TARGET=        17.000
  8800.00      2.34    601.54      0.00      0.00    601.66       .12       .01       .03100000.00
     110.        0.      110.        0.        0.       39.        0.       11.        3. 100000.00
      .93      0.00      2.81      0.00      .038      .034      .038      .034    599.20     62.00
  .001811       10.       10.       10.         2         0         0      0.00     17.00     79.00

*SECNO 8810.000

3470 ENCROACHMENT STATIONS=       64.0       76.0  TYPE=       1  TARGET=        12.000
  8810.00      1.71    601.41      0.00      0.00    601.86       .44       .04       .16100000.00
     110.        0.      110.        0.        0.       21.        0.       11.        3. 100000.00
      .93      0.00      5.35      0.00      .038      .034      .038      .034    599.70     64.00
  .010210       10.       10.       10.         2         0         0      0.00     12.00     76.00

*SECNO 8819.000

3301 HV CHANGED MORE THAN HVINS

    SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS  BANK ELEV
        Q      QLOB       QCH      QROB      ALOB       ACH      AROB       VOL       TWA  LEFT/RIGHT
     TIME      VLOB       VCH      VROB       XNL      XNCH       XNR       WTN     ELMIN      SSTA
    SLOPE     XLOBL      XLCH     XLOBR    ITRIAL       IDC     ICONT     CORAR    TOPWID     ENDST

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
  8819.00      2.06    602.16    602.16      0.00    603.14       .98       .13       .27    606.90
     110.        0.      110.        0.        0.       14.        0.       11.        3.    606.90
      .94      0.00      7.93      0.00      .038      .034      .038      .034    600.10     96.40
  .022220        9.        9.        9.        20        11         0      0.00      7.20    103.60

*SECNO 8820.000

3370 NORMAL BRIDGE,NRD=  7 MIN ELTRD=   606.90 MAX ELLC=   605.30

  8820.00      2.52    602.62      0.00      0.00    603.25       .63       .02       .10    606.90
     110.        0.      110.        0.        0.       17.        0.       11.        3.    606.90
      .94      0.00      6.39      0.00      .040      .033      .040      .034    600.10     96.40
  .011426        1.        1.        1.         7         0         0      0.00      7.20    103.60

*SECNO 8858.000
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3370 NORMAL BRIDGE,NRD= 7 MIN ELTRO= 606.90 MAX ELLC= 605.30

8858.00	3.16	603.26	0.00	0.00	603.67	.42	.35	.06	606.90
110.	0.	110.	0.	0.	21.	0.	11.	3.	606.90
.94	0.00	5.18	0.00	.040	.033	.040	.034	600.10	96.40
.007716	38.	38.	38.	0	0	0	-.58	7.20	103.60

*SECNO 8859.000

8859.00	3.21	603.31	0.00	0.00	603.69	.38	.01	.01	606.90
110.	0.	110.	0.	0.	22.	0.	11.	3.	606.90
.94	0.00	4.97	0.00	.040	.033	.040	.036	600.10	96.40
.005776	1.	1.	1.	2	0	0	0.00	7.20	103.60

****
HEC2 RELEASE DATED NOV 76 UPDATED AUG1977
ERROR CORR - 01,02
MODIFICATION - 50,51,52,53
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
5281.000	0.00	0.00	0.00	593.20	100.00	597.83	0.00	597.83	.37	.56	178.35	164.49
5281.000	0.00	0.00	0.00	593.20	150.00	598.61	0.00	598.62	.42	.67	224.60	231.17
5281.000	0.00	0.00	0.00	593.20	170.00	598.83	0.00	598.84	.45	.71	237.80	253.07
5281.000	0.00	0.00	0.00	593.20	240.00	599.85	0.00	599.86	.44	.80	299.00	362.84
5493.000	212.00	0.00	0.00	593.40	100.00	597.84	0.00	597.84	.44	.60	167.53	150.96
5493.000	212.00	0.00	0.00	593.40	150.00	598.62	0.00	598.63	.50	.70	213.13	212.72
5493.000	212.00	0.00	0.00	593.40	170.00	598.84	0.00	598.85	.53	.75	226.37	234.08
5493.000	212.00	0.00	0.00	593.40	240.00	599.86	0.00	599.87	.49	.83	287.55	341.34
5705.000	212.00	0.00	0.00	593.60	100.00	597.85	0.00	597.85	.52	.64	157.07	136.16
5705.000	212.00	0.00	0.00	593.60	150.00	598.63	0.00	598.64	.59	.74	201.74	194.60
5705.000	212.00	0.00	0.00	593.60	170.00	598.85	0.00	598.86	.62	.79	215.01	215.71
5705.000	212.00	0.00	0.00	593.60	240.00	599.87	0.00	599.88	.56	.87	276.16	320.35
5908.000	203.00	0.00	0.00	593.90	100.00	597.85	0.00	597.90	4.98	1.80	55.40	44.80
5908.000	203.00	0.00	0.00	593.90	150.00	598.62	0.00	598.70	6.76	2.26	66.25	57.68
5908.000	203.00	0.00	0.00	593.90	170.00	598.84	0.00	598.93	7.71	2.46	69.16	61.24
5908.000	203.00	0.00	0.00	593.90	240.00	599.84	0.00	599.97	9.24	2.89	83.16	78.95
5909.000	1.00	0.00	0.00	593.90	100.00	597.85	0.00	597.90	4.44	1.81	55.30	47.48
5909.000	1.00	0.00	0.00	593.90	150.00	598.62	0.00	598.70	6.02	2.27	66.13	61.13
5909.000	1.00	0.00	0.00	593.90	170.00	598.84	0.00	598.93	6.82	2.46	69.16	65.08
5909.000	1.00	0.00	0.00	593.90	240.00	599.84	0.00	599.97	8.18	2.89	83.17	83.89
6021.000	112.00	602.40	598.00	593.90	100.00	597.92	0.00	598.02	22.44	2.50	40.00	21.11
6021.000	112.00	602.40	598.00	593.90	150.00	599.45	0.00	599.51	3.63	1.98	75.64	78.72
6021.000	112.00	602.40	598.00	593.90	170.00	599.91	0.00	599.97	3.64	2.07	82.11	89.05
6021.000	112.00	602.40	598.00	593.90	240.00	602.03	0.00	602.10	2.92	2.15	111.81	140.46
6022.000	1.00	0.00	0.00	593.90	100.00	597.98	0.00	598.03	6.77	1.81	55.17	45.78
6022.000	1.00	0.00	0.00	593.90	150.00	599.45	0.00	599.51	4.10	1.98	75.64	74.10
6022.000	1.00	0.00	0.00	593.90	170.00	599.91	0.00	599.97	4.11	2.07	82.12	83.82
6022.000	1.00	0.00	0.00	593.90	240.00	602.03	0.00	602.10	3.30	2.15	111.82	132.21
6071.000	49.00	0.00	0.00	593.90	100.00	598.04	0.00	598.06	.94	.85	117.44	103.09
6071.000	49.00	0.00	0.00	593.90	150.00	599.52	0.00	599.53	.67	.86	174.67	183.31
6071.000	49.00	0.00	0.00	593.90	170.00	599.99	0.00	600.00	.63	.88	193.41	214.40
6071.000	49.00	0.00	0.00	593.90	240.00	602.11	0.00	602.12	.42	.86	278.47	371.89

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
6319.000	248.00	0.00	0.00	594.10	100.00	598.07	0.00	598.08	1.11	.90	110.86	95.08
6319.000	248.00	0.00	0.00	594.10	150.00	599.53	0.00	599.55	.76	.90	167.36	171.59
6319.000	248.00	0.00	0.00	594.10	170.00	600.00	0.00	600.01	.71	.91	186.05	202.02
6319.000	248.00	0.00	0.00	594.10	240.00	602.12	0.00	602.13	.45	.89	270.85	356.90
6567.000	248.00	0.00	0.00	594.30	100.00	598.10	0.00	598.11	1.30	.96	104.66	87.68
6567.000	248.00	0.00	0.00	594.30	150.00	599.55	0.00	599.57	.88	.94	160.07	160.16
6567.000	248.00	0.00	0.00	594.30	170.00	600.02	0.00	600.03	.80	.95	178.72	189.89
6567.000	248.00	0.00	0.00	594.30	240.00	602.13	0.00	602.15	.49	.91	263.32	342.10
6815.000	248.00	0.00	0.00	594.50	70.00	598.13	0.00	598.14	.75	.71	98.85	80.90
6815.000	248.00	0.00	0.00	594.50	100.00	599.58	0.00	599.59	.45	.65	152.96	149.19
6815.000	248.00	0.00	0.00	594.50	110.00	600.04	0.00	600.05	.38	.64	171.53	178.24
6815.000	248.00	0.00	0.00	594.50	155.00	602.15	0.00	602.16	.22	.61	255.81	327.60
7063.000	248.00	0.00	0.00	594.70	70.00	598.15	0.00	598.16	.89	.75	93.01	74.22
7063.000	248.00	0.00	0.00	594.70	100.00	599.59	0.00	599.60	.51	.69	145.84	139.44
7063.000	248.00	0.00	0.00	594.70	110.00	600.05	0.00	600.06	.43	.67	164.34	166.82
7063.000	248.00	0.00	0.00	594.70	155.00	602.16	0.00	602.16	.24	.62	248.41	313.48
7311.000	248.00	0.00	0.00	594.90	70.00	598.17	0.00	598.18	1.08	.81	86.81	67.29
7311.000	248.00	0.00	0.00	594.90	100.00	599.60	0.00	599.61	.60	.72	138.28	129.49
7311.000	248.00	0.00	0.00	594.90	110.00	600.06	0.00	600.07	.51	.70	156.55	154.71
7311.000	248.00	0.00	0.00	594.90	155.00	602.16	0.00	602.17	.27	.64	240.52	298.60
7558.000	247.00	0.00	0.00	595.10	70.00	598.20	0.00	598.22	1.39	.91	76.95	59.40
7558.000	247.00	0.00	0.00	595.10	100.00	599.62	0.00	599.63	.73	.86	119.53	117.08
7558.000	247.00	0.00	0.00	595.10	110.00	600.08	0.00	600.09	.63	.83	133.29	138.05
7558.000	247.00	0.00	0.00	595.10	155.00	602.17	0.00	602.18	.40	.79	196.09	244.36
* 7559.000	1.00	0.00	0.00	597.50	70.00	598.34	598.34	598.70	194.02	4.79	14.61	5.03
7559.000	1.00	0.00	0.00	597.50	100.00	599.59	0.00	599.66	14.03	2.14	46.70	26.69
7559.000	1.00	0.00	0.00	597.50	110.00	600.06	0.00	600.11	7.60	1.76	62.34	39.90
7559.000	1.00	0.00	0.00	597.50	155.00	602.17	0.00	602.18	1.30	1.02	152.61	135.84
7608.000	49.00	0.00	0.00	597.60	70.00	598.99	0.00	599.09	32.64	2.60	26.94	12.25
7608.000	49.00	0.00	0.00	597.60	100.00	599.66	0.00	599.73	14.36	2.19	45.76	25.94
7608.000	49.00	0.00	0.00	597.60	110.00	600.10	0.00	600.15	8.62	1.85	59.57	37.47
7608.000	49.00	0.00	0.00	597.60	155.00	602.17	0.00	602.19	1.28	1.06	149.52	136.86
7777.000	169.00	0.00	0.00	597.70	70.00	599.41	0.00	599.47	14.84	1.97	35.53	18.17
7777.000	169.00	0.00	0.00	597.70	100.00	599.89	0.00	599.96	11.65	1.99	50.23	29.56
7777.000	169.00	0.00	0.00	597.70	110.00	600.24	0.00	600.29	8.02	1.80	61.13	38.83
7777.000	169.00	0.00	0.00	597.70	155.00	602.19	0.00	602.21	1.39	1.08	145.18	131.24
7946.000	169.00	0.00	0.00	597.90	70.00	599.65	0.00	599.71	13.50	1.91	36.74	19.05
7946.000	169.00	0.00	0.00	597.90	100.00	600.09	0.00	600.15	11.73	2.01	49.80	29.20
7946.000	169.00	0.00	0.00	597.90	110.00	600.38	0.00	600.43	8.71	1.85	59.34	37.27
7946.000	169.00	0.00	0.00	597.90	155.00	602.22	0.00	602.24	1.70	1.15	135.60	118.77
8112.000	166.00	0.00	0.00	598.20	70.00	599.99	0.00	600.16	53.30	3.36	20.82	9.59
8112.000	166.00	0.00	0.00	598.20	100.00	600.37	0.00	600.60	53.50	3.82	26.16	13.67
8112.000	166.00	0.00	0.00	598.20	110.00	600.58	0.00	600.80	46.73	3.78	29.09	16.09
8112.000	166.00	0.00	0.00	598.20	155.00	602.23	0.00	602.36	16.04	2.96	52.30	38.70

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10KS	VCH	AREA	.01K
	8113.000	1.00	605.30	601.80	598.20	70.00	599.99	0.00	600.17	64.38	3.48	20.10	8.72
	8113.000	1.00	605.30	601.80	598.20	100.00	600.35	0.00	600.63	79.35	4.22	23.70	11.23
	8113.000	1.00	605.30	601.80	598.20	110.00	600.55	0.00	600.84	74.87	4.28	25.73	12.71
	8113.000	1.00	605.30	601.80	598.20	155.00	602.15	0.00	602.45	96.95	4.40	35.20	15.74
	8184.000	71.00	605.30	601.80	598.20	70.00	600.40	0.00	600.53	36.30	2.89	24.24	11.62
	8184.000	71.00	605.30	601.80	598.20	100.00	600.88	0.00	601.06	43.32	3.45	28.96	15.19
	8184.000	71.00	605.30	601.80	598.20	110.00	601.06	0.00	601.26	43.49	3.57	30.82	16.68
	8184.000	71.00	605.30	601.80	598.20	155.00	602.85	0.00	603.15	102.12	4.40	35.20	15.34
	8185.000	1.00	0.00	0.00	598.20	70.00	600.44	0.00	600.54	23.51	2.58	27.10	14.44
	8185.000	1.00	0.00	0.00	598.20	100.00	600.95	0.00	601.08	23.45	2.92	34.27	20.65
	8185.000	1.00	0.00	0.00	598.20	110.00	601.14	0.00	601.28	22.48	2.97	37.02	23.20
	8185.000	1.00	0.00	0.00	598.20	155.00	603.13	0.00	603.22	8.63	2.39	64.85	52.75
	8234.000	49.00	0.00	0.00	598.20	70.00	600.58	0.00	600.60	4.13	1.25	56.06	34.43
	8234.000	49.00	0.00	0.00	598.20	100.00	601.12	0.00	601.15	3.79	1.34	74.84	51.35
	8234.000	49.00	0.00	0.00	598.20	110.00	601.32	0.00	601.35	3.52	1.34	82.38	58.59
	8234.000	49.00	0.00	0.00	598.20	155.00	603.24	0.00	603.25	.79	.91	178.61	174.09
	8373.000	139.00	0.00	0.00	598.30	70.00	600.64	0.00	600.66	4.45	1.28	54.57	33.17
	8373.000	139.00	0.00	0.00	598.30	100.00	601.17	0.00	601.20	4.02	1.36	73.28	49.88
	8373.000	139.00	0.00	0.00	598.30	110.00	601.37	0.00	601.40	3.73	1.36	80.71	56.97
	8373.000	139.00	0.00	0.00	598.30	155.00	603.25	0.00	603.26	.87	.93	172.75	166.61
	8512.000	139.00	0.00	0.00	598.50	70.00	600.71	0.00	600.74	5.65	1.40	50.09	29.44
	8512.000	139.00	0.00	0.00	598.50	100.00	601.23	0.00	601.27	4.94	1.47	68.00	45.00
	8512.000	139.00	0.00	0.00	598.50	110.00	601.43	0.00	601.46	4.55	1.47	75.06	51.56
	8512.000	139.00	0.00	0.00	598.50	155.00	603.26	0.00	603.28	1.05	.99	160.85	151.40
	8651.000	139.00	0.00	0.00	598.60	70.00	600.78	0.00	600.82	5.88	1.42	49.39	28.87
	8651.000	139.00	0.00	0.00	598.60	100.00	601.30	0.00	601.34	5.18	1.50	66.84	43.94
	8651.000	139.00	0.00	0.00	598.60	110.00	601.49	0.00	601.53	4.80	1.49	73.65	50.23
	8651.000	139.00	0.00	0.00	598.60	155.00	603.28	0.00	603.29	1.15	1.02	155.66	144.75
	8790.000	139.00	0.00	0.00	598.80	70.00	600.87	0.00	600.91	7.37	1.69	41.63	25.79
	8790.000	139.00	0.00	0.00	598.80	100.00	601.38	0.00	601.43	7.15	1.90	52.63	37.40
	8790.000	139.00	0.00	0.00	598.80	110.00	601.56	0.00	601.62	6.91	1.94	56.62	41.84
	8790.000	139.00	0.00	0.00	598.80	155.00	603.29	0.00	603.33	2.91	1.63	94.84	90.84
	8800.000	10.00	0.00	0.00	599.20	70.00	600.85	0.00	600.95	21.72	2.55	27.48	15.02
	8800.000	10.00	0.00	0.00	599.20	100.00	601.36	0.00	601.48	19.19	2.77	36.04	22.83
	8800.000	10.00	0.00	0.00	599.20	110.00	601.54	0.00	601.66	18.11	2.81	39.09	25.85
	8800.000	10.00	0.00	0.00	599.20	155.00	603.27	0.00	603.35	6.72	2.25	68.78	59.81
*	8810.000	10.00	0.00	0.00	599.70	70.00	600.71	600.71	601.23	208.91	5.75	12.18	4.84
	8810.000	10.00	0.00	0.00	599.70	100.00	601.22	0.00	601.69	119.86	5.46	18.33	9.13
	8810.000	10.00	0.00	0.00	599.70	110.00	601.41	0.00	601.86	102.10	5.35	20.56	10.85
	8810.000	10.00	0.00	0.00	599.70	155.00	603.22	0.00	603.63	24.35	3.67	42.25	31.41
*	8819.000	9.00	0.00	0.00	600.10	70.00	601.66	601.66	602.38	214.58	6.82	10.26	4.78
*	8819.000	9.00	0.00	0.00	600.10	100.00	602.04	602.04	602.96	220.07	7.68	13.02	6.74
*	8819.000	9.00	0.00	0.00	600.10	110.00	602.16	602.16	603.14	222.20	7.93	13.88	7.38
	8819.000	9.00	0.00	0.00	600.10	155.00	602.85	0.00	603.90	188.64	8.24	18.82	11.29

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
8820.000	1.00	606.90	605.30	600.10	70.00	602.00	0.00	602.47	110.09	5.53	12.66	6.67
8820.000	1.00	606.90	605.30	600.10	100.00	602.47	0.00	603.07	112.82	6.19	16.15	9.41
8820.000	1.00	606.90	605.30	600.10	110.00	602.62	0.00	603.25	114.26	6.39	17.22	10.29
8820.000	1.00	606.90	605.30	600.10	155.00	602.97	0.00	603.94	189.55	7.91	19.61	11.26
8858.000	38.00	606.90	605.30	600.10	70.00	602.53	0.00	602.81	51.92	4.24	16.52	9.72
8858.000	38.00	606.90	605.30	600.10	100.00	603.10	0.00	603.47	71.34	4.92	20.33	11.84
8858.000	38.00	606.90	605.30	600.10	110.00	603.26	0.00	603.67	77.14	5.18	21.22	12.52
8858.000	38.00	606.90	605.30	600.10	155.00	603.98	0.00	604.56	97.56	6.14	25.25	15.69
8859.000	1.00	0.00	0.00	600.10	70.00	602.54	0.00	602.81	51.43	4.22	16.58	9.76
8859.000	1.00	0.00	0.00	600.10	100.00	603.12	0.00	603.48	56.91	4.83	20.72	13.26
8859.000	1.00	0.00	0.00	600.10	110.00	603.31	0.00	603.69	57.76	4.97	22.12	14.47
8859.000	1.00	0.00	0.00	600.10	155.00	604.13	0.00	604.60	61.14	5.52	28.06	19.82

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
5281.000	100.00	597.83	0.00	0.00	0.00	57.06	0.00
5281.000	150.00	598.61	.78	0.00	0.00	60.00	0.00
5281.000	170.00	598.83	.22	0.00	0.00	60.00	0.00
5281.000	240.00	599.85	1.02	0.00	0.00	60.00	0.00
5493.000	100.00	597.84	0.00	.01	0.00	55.50	212.00
5493.000	150.00	598.62	.78	.01	0.00	60.00	212.00
5493.000	170.00	598.84	.22	.01	0.00	60.00	212.00
5493.000	240.00	599.86	1.02	.01	0.00	60.00	212.00
5705.000	100.00	597.85	0.00	.01	0.00	53.97	212.00
5705.000	150.00	598.63	.78	.01	0.00	60.00	212.00
5705.000	170.00	598.85	.22	.01	0.00	60.00	212.00
5705.000	240.00	599.87	1.02	.01	0.00	60.00	212.00
5908.000	100.00	597.85	0.00	.00	0.00	14.00	203.00
5908.000	150.00	598.62	.77	-.01	0.00	14.00	203.00
5908.000	170.00	598.84	.22	-.01	0.00	14.00	203.00
5908.000	240.00	599.86	1.00	-.03	0.00	14.00	203.00
5909.000	100.00	597.85	0.00	.00	0.00	14.00	1.00
5909.000	150.00	598.62	.77	.00	0.00	14.00	1.00
5909.000	170.00	598.84	.22	.00	0.00	14.00	1.00
5909.000	240.00	599.84	1.00	.00	0.00	14.00	1.00
6021.000	100.00	597.92	0.00	.07	0.00	14.00	112.00
6021.000	150.00	599.45	1.52	.82	0.00	14.00	112.00
6021.000	170.00	599.91	.46	1.07	0.00	14.00	112.00
6021.000	240.00	602.03	2.12	2.19	0.00	14.00	112.00
6022.000	100.00	597.98	0.00	.06	0.00	14.00	1.00
6022.000	150.00	599.45	1.46	.00	0.00	14.00	1.00
6022.000	170.00	599.91	.46	.00	0.00	14.00	1.00
6022.000	240.00	602.03	2.12	.00	0.00	14.00	1.00
6071.000	100.00	598.04	0.00	.06	0.00	36.60	49.00
6071.000	150.00	599.52	1.47	.07	0.00	40.00	49.00
6071.000	170.00	599.99	.47	.08	0.00	40.00	49.00
6071.000	240.00	602.11	2.13	.08	0.00	40.00	49.00
6319.000	100.00	598.07	0.00	.02	0.00	35.87	248.00
6319.000	150.00	599.53	1.47	.02	0.00	40.00	248.00
6319.000	170.00	600.00	.47	.02	0.00	40.00	248.00
6319.000	240.00	602.12	2.12	.01	0.00	40.00	248.00
6567.000	100.00	598.10	0.00	.03	0.00	35.17	248.00
6567.000	150.00	599.55	1.46	.02	0.00	40.00	248.00
6567.000	170.00	600.02	.47	.02	0.00	40.00	248.00
6567.000	240.00	602.13	2.11	.01	0.00	40.00	248.00
6815.000	70.00	598.13	0.00	.03	0.00	34.51	248.00
6815.000	100.00	599.58	1.45	.03	0.00	40.00	248.00
6815.000	110.00	600.04	.46	.02	0.00	40.00	248.00
6815.000	155.00	602.15	2.11	.02	0.00	40.00	248.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
7063.000	70.00	598.15	0.00	.02	0.00	33.82	248.00
7063.000	100.00	599.59	1.44	.01	0.00	39.58	248.00
7063.000	110.00	600.05	.46	.01	0.00	40.00	248.00
7063.000	155.00	602.16	2.10	.01	0.00	40.00	248.00
7311.000	70.00	598.17	0.00	.02	0.00	33.08	248.00
7311.000	100.00	599.60	1.43	.01	0.00	38.81	248.00
7311.000	110.00	600.06	.46	.01	0.00	40.00	248.00
7311.000	155.00	602.16	2.10	.01	0.00	40.00	248.00
7558.000	70.00	598.20	0.00	.03	0.00	30.00	247.00
7558.000	100.00	599.62	1.42	.01	0.00	30.00	247.00
7558.000	110.00	600.08	.46	.01	0.00	30.00	247.00
7558.000	155.00	602.17	2.09	.01	0.00	30.00	247.00
* 7559.000	70.00	598.34	0.00	.14	0.00	20.73	1.00
7559.000	100.00	599.59	1.25	-.03	0.00	30.71	1.00
7559.000	110.00	600.06	.47	-.02	0.00	34.55	1.00
7559.000	155.00	602.17	2.11	-.00	0.00	51.36	1.00
7608.000	70.00	598.99	0.00	.65	0.00	25.04	49.00
7608.000	100.00	599.66	.67	.07	0.00	30.47	49.00
7608.000	110.00	600.10	.44	.04	0.00	33.90	49.00
7608.000	155.00	602.17	2.03	.01	0.00	57.42	49.00
7777.000	70.00	599.41	0.00	.42	0.00	27.65	169.00
7777.000	100.00	599.89	.49	.24	0.00	31.62	169.00
7777.000	110.00	600.24	.35	.14	0.00	34.26	169.00
7777.000	155.00	602.19	1.95	.02	0.00	55.89	169.00
7946.000	70.00	599.65	0.00	.24	0.00	28.00	169.00
7946.000	100.00	600.09	.44	.20	0.00	31.51	169.00
7946.000	110.00	600.38	.29	.14	0.00	33.84	169.00
7946.000	155.00	602.22	1.84	.02	0.00	52.34	169.00
8112.000	70.00	599.99	0.00	.36	0.00	14.00	166.00
8112.000	100.00	600.37	.38	.28	0.00	14.00	166.00
8112.000	110.00	600.58	.21	.20	0.00	14.00	166.00
8112.000	155.00	602.23	1.65	.01	0.00	14.00	166.00
8113.000	70.00	599.99	0.00	-.00	0.00	14.00	1.00
8113.000	100.00	600.35	.36	-.02	0.00	14.00	1.00
8113.000	110.00	600.55	.20	-.03	0.00	14.00	1.00
8113.000	155.00	602.15	1.59	-.08	0.00	14.00	1.00
8184.000	70.00	600.40	0.00	.41	0.00	14.00	71.00
8184.000	100.00	600.88	.48	.53	0.00	14.00	71.00
8184.000	110.00	601.06	.19	.51	0.00	14.00	71.00
8184.000	155.00	602.85	1.79	.71	0.00	14.00	71.00
8185.000	70.00	600.44	0.00	.06	0.00	14.00	1.00
8185.000	100.00	600.95	.51	.07	0.00	14.00	1.00
8185.000	110.00	601.14	.20	.08	0.00	14.00	1.00
8185.000	155.00	603.13	1.99	.28	0.00	14.00	1.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	8234.000	70.00	600.58	0.00	.14	0.00	33.06	49.00
	8234.000	100.00	601.12	.54	.17	0.00	37.33	49.00
	8234.000	110.00	601.32	.20	.18	0.00	38.91	49.00
	8234.000	155.00	603.24	1.92	.11	0.00	66.78	49.00
	8373.000	70.00	600.64	0.00	.06	0.00	32.70	139.00
	8373.000	100.00	601.17	.54	.05	0.00	36.99	139.00
	8373.000	110.00	601.37	.20	.05	0.00	38.57	139.00
	8373.000	155.00	603.25	1.88	.01	0.00	65.01	139.00
	8512.000	70.00	600.71	0.00	.07	0.00	31.58	139.00
	8512.000	100.00	601.23	.53	.06	0.00	35.83	139.00
	8512.000	110.00	601.43	.19	.05	0.00	37.38	139.00
	8512.000	155.00	603.26	1.84	.01	0.00	61.24	139.00
	8651.000	70.00	600.78	0.00	.08	0.00	31.40	139.00
	8651.000	100.00	601.30	.52	.07	0.00	35.57	139.00
	8651.000	110.00	601.49	.19	.06	0.00	37.07	139.00
	8651.000	155.00	603.28	1.79	.01	0.00	59.52	139.00
	8790.000	70.00	600.87	0.00	.08	0.00	22.00	139.00
	8790.000	100.00	601.38	.51	.07	0.00	22.00	139.00
	8790.000	110.00	601.56	.18	.07	0.00	22.00	139.00
	8790.000	155.00	603.29	1.73	.01	0.00	22.00	139.00
	8800.000	70.00	600.85	0.00	-.02	0.00	17.00	10.00
	8800.000	100.00	601.36	.50	-.02	0.00	17.00	10.00
	8800.000	110.00	601.54	.18	-.02	0.00	17.00	10.00
	8800.000	155.00	603.27	1.74	-.01	0.00	17.00	10.00
*	8810.000	70.00	600.71	0.00	-.14	0.00	12.00	10.00
	8810.000	100.00	601.22	.51	-.13	0.00	12.00	10.00
	8810.000	110.00	601.41	.19	-.12	0.00	12.00	10.00
	8810.000	155.00	603.22	1.81	-.05	0.00	12.00	10.00
*	8819.000	70.00	601.66	0.00	.94	0.00	7.20	9.00
*	8819.000	100.00	602.06	.38	.82	0.00	7.20	9.00
*	8819.000	110.00	602.16	.12	.75	0.00	7.20	9.00
	8819.000	155.00	602.85	.69	-.37	0.00	7.20	9.00
	8820.000	70.00	602.00	0.00	.34	0.00	7.20	1.00
	8820.000	100.00	602.47	.48	.43	0.00	7.20	1.00
	8820.000	110.00	602.62	.15	.46	0.00	7.20	1.00
	8820.000	155.00	602.97	.35	.13	0.00	7.20	1.00
	8858.000	70.00	602.53	0.00	.53	0.00	7.20	38.00
	8858.000	100.00	603.10	.57	.62	0.00	7.20	38.00
	8858.000	110.00	603.26	.16	.63	0.00	7.20	38.00
	8858.000	155.00	603.98	.72	1.00	0.00	7.20	38.00
	8859.000	70.00	602.54	0.00	.01	0.00	7.20	1.00
	8859.000	100.00	603.12	.59	.02	0.00	7.20	1.00
	8859.000	110.00	603.31	.18	.05	0.00	7.20	1.00
	8859.000	155.00	604.13	.82	.15	0.00	7.20	1.00

SUMMARY OF ERRORS

CAUTION SECNO= 7559.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 7559.000 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 7559.000 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL

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CAUTION  SECNO= 8810.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO= 8810.000  PROFILE= 1  MINIMUM SPECIFIC ENERGY

CAUTION  SECNO= 8819.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO= 8819.000  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO= 8819.000  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO= 8819.000  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO= 8819.000  PROFILE= 2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO= 8819.000  PROFILE= 2  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO= 8819.000  PROFILE= 3  CRITICAL DEPTH ASSUMED
CAUTION  SECNO= 8819.000  PROFILE= 3  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO= 8819.000  PROFILE= 3  20 TRIALS ATTEMPTED TO BALANCE WSEL
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 HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
 ERROR CORR -  01,02
 MODIFICATION -  50,51,52,53
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

LEWIS DRAIN

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
54.000	0.00	0.00	0.00	588.10	605.00	596.00	0.00	596.12	4.46	2.76	219.10	286.38
54.000	0.00	0.00	0.00	588.10	895.00	596.70	0.00	596.91	7.42	3.72	240.80	328.62
54.000	0.00	0.00	0.00	588.10	980.00	596.91	0.00	597.15	8.23	3.96	247.31	341.57
54.000	0.00	0.00	0.00	588.10	1385.00	597.72	0.00	598.12	12.45	5.08	272.42	392.56
55.000	1.00	598.10	597.60	588.10	605.00	595.98	0.00	596.14	9.51	3.30	183.24	196.18
55.000	1.00	598.10	597.60	588.10	895.00	596.64	0.00	596.97	22.75	4.60	194.42	187.65
55.000	1.00	598.10	597.60	588.10	980.00	596.84	0.00	597.23	26.63	4.99	196.30	189.92
55.000	1.00	598.10	597.60	588.10	1385.00	597.56	0.00	598.29	57.19	6.83	202.74	183.15
120.000	65.00	598.10	597.60	588.10	605.00	596.04	0.00	596.21	9.34	3.28	184.38	197.93
120.000	65.00	598.10	597.60	588.10	895.00	596.80	0.00	597.12	22.32	4.57	195.89	189.42
120.000	65.00	598.10	597.60	588.10	980.00	597.02	0.00	597.40	26.05	4.95	198.03	192.01
120.000	65.00	598.10	597.60	588.10	1385.00	597.94	0.00	598.66	59.54	6.83	202.80	179.49
121.000	1.00	0.00	0.00	588.10	605.00	596.11	0.00	596.22	5.40	2.72	222.45	260.27
121.000	1.00	0.00	0.00	588.10	895.00	596.96	0.00	597.16	8.54	3.60	248.81	306.28
121.000	1.00	0.00	0.00	588.10	980.00	597.22	0.00	597.45	9.33	3.81	256.99	320.91
121.000	1.00	0.00	0.00	588.10	1385.00	598.48	0.00	598.79	11.77	4.55	376.66	403.63
640.000	520.00	0.00	0.00	588.50	605.00	596.43	0.00	596.58	8.14	3.07	213.49	212.10
640.000	520.00	0.00	0.00	588.50	895.00	597.43	0.00	597.60	7.91	3.43	327.12	318.14
640.000	520.00	0.00	0.00	588.50	980.00	597.74	0.00	597.90	7.33	3.42	378.65	362.03
640.000	520.00	0.00	0.00	588.50	1385.00	599.10	0.00	599.21	4.60	3.13	709.85	645.53
1384.000	744.00	0.00	0.00	588.50	605.00	597.24	0.00	597.40	15.43	4.06	268.74	154.04
1384.000	744.00	0.00	0.00	588.50	895.00	598.17	0.00	598.25	9.03	3.34	504.87	297.87
1384.000	744.00	0.00	0.00	588.50	980.00	598.41	0.00	598.48	7.69	3.13	577.57	353.32
1384.000	744.00	0.00	0.00	588.50	1385.00	599.52	0.00	599.56	4.15	2.48	943.04	679.51
1385.000	1.00	595.40	595.40	588.50	605.00	597.32	0.00	597.42	26.28	3.35	269.41	118.02
1385.000	1.00	595.40	595.40	588.50	895.00	598.20	0.00	598.26	12.67	2.52	495.26	251.39
1385.000	1.00	595.40	595.40	588.50	980.00	598.44	0.00	598.49	10.42	2.33	565.71	303.59
1385.000	1.00	595.40	595.40	588.50	1385.00	599.52	0.00	599.56	5.08	1.77	923.44	614.45
1400.000	15.00	595.40	595.40	588.50	605.00	597.37	0.00	597.46	24.55	3.25	277.47	122.09
1400.000	15.00	595.40	595.40	588.50	895.00	598.22	0.00	598.28	12.34	2.49	500.04	254.82
1400.000	15.00	595.40	595.40	588.50	980.00	598.45	0.00	598.50	10.21	2.31	569.86	306.77
1400.000	15.00	595.40	595.40	588.50	1385.00	599.53	0.00	599.57	5.00	1.76	928.53	619.32

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
1401.000	1.00	0.00	0.00	588.50	605.00	597.35	0.00	597.48	13.29	3.80	291.15	165.95
1401.000	1.00	0.00	0.00	588.50	895.00	598.21	0.00	598.29	8.39	3.23	519.88	309.00
1401.000	1.00	0.00	0.00	588.50	980.00	598.45	0.00	598.51	7.25	3.05	590.92	363.89
1401.000	1.00	0.00	0.00	588.50	1385.00	599.53	0.00	599.57	4.08	2.46	948.97	685.35
1971.000	570.00	0.00	0.00	589.30	100.00	597.71	0.00	597.72	.21	.51	336.59	219.15
1971.000	570.00	0.00	0.00	589.30	150.00	598.45	0.00	598.45	.17	.50	528.20	364.36
1971.000	570.00	0.00	0.00	589.30	170.00	598.65	0.00	598.66	.17	.51	590.84	415.45
1971.000	570.00	0.00	0.00	589.30	240.00	599.66	0.00	599.66	.11	.45	933.49	737.70
2855.000	884.00	0.00	0.00	590.20	100.00	597.73	0.00	597.73	.12	.37	398.22	294.31
2855.000	884.00	0.00	0.00	590.20	150.00	598.46	0.00	598.46	.10	.38	618.08	469.49
2855.000	884.00	0.00	0.00	590.20	170.00	598.67	0.00	598.67	.10	.39	693.46	531.95
2855.000	884.00	0.00	0.00	590.20	240.00	599.66	0.00	599.67	.06	.34	1220.85	960.86
3965.000	1110.00	0.00	0.00	591.70	100.00	597.75	0.00	597.75	.45	.66	150.72	148.55
3965.000	1110.00	0.00	0.00	591.70	150.00	598.48	0.00	598.49	.61	.83	188.30	191.40
3965.000	1110.00	0.00	0.00	591.70	170.00	598.68	0.00	598.70	.67	.89	209.46	207.69
3965.000	1110.00	0.00	0.00	591.70	240.00	599.68	0.00	599.69	.48	.86	455.55	346.93
4095.000	130.00	0.00	0.00	591.70	100.00	597.75	0.00	597.76	.45	.66	150.98	148.90
4095.000	130.00	0.00	0.00	591.70	150.00	598.49	0.00	598.50	.61	.83	189.11	192.05
4095.000	130.00	0.00	0.00	591.70	170.00	598.69	0.00	598.71	.66	.89	210.64	208.54
4095.000	130.00	0.00	0.00	591.70	240.00	599.68	0.00	599.69	.48	.86	418.86	347.06
4770.000	675.00	0.00	0.00	592.30	100.00	597.80	0.00	597.81	1.11	.95	104.88	94.76
4770.000	675.00	0.00	0.00	592.30	150.00	598.54	0.00	598.56	1.45	1.17	128.07	124.42
4770.000	675.00	0.00	0.00	592.30	170.00	598.75	0.00	598.78	1.62	1.26	135.02	133.68
4770.000	675.00	0.00	0.00	592.30	240.00	599.73	0.00	599.76	1.73	1.42	168.65	182.30
4819.000	49.00	0.00	0.00	590.80	100.00	597.81	0.00	597.82	.49	.71	140.39	143.56
4819.000	49.00	0.00	0.00	590.80	150.00	598.56	0.00	598.57	.78	.96	155.94	169.64
4819.000	49.00	0.00	0.00	590.80	170.00	598.77	0.00	598.79	.92	1.06	160.36	177.31
4819.000	49.00	0.00	0.00	590.80	240.00	599.74	0.00	599.77	1.26	1.33	180.58	213.68
4820.000	1.00	0.00	0.00	590.80	100.00	597.81	0.00	597.82	.16	.71	140.55	246.56
4820.000	1.00	0.00	0.00	590.80	150.00	598.56	0.00	598.57	.27	.96	156.13	291.37
4820.000	1.00	0.00	0.00	590.80	170.00	598.77	0.00	598.79	.31	1.06	160.56	304.56
4820.000	1.00	0.00	0.00	590.80	240.00	599.74	0.00	599.77	.43	1.33	180.73	366.79
4880.000	60.00	600.60	597.30	590.80	100.00	597.82	0.00	597.82	.16	.71	140.90	247.53
4880.000	60.00	600.60	597.30	590.80	150.00	598.58	0.00	598.59	.26	.96	156.76	293.23
4880.000	60.00	600.60	597.30	590.80	170.00	598.80	0.00	598.82	.31	1.05	161.38	307.02
4880.000	60.00	600.60	597.30	590.80	240.00	599.81	0.00	599.83	.42	1.32	182.16	371.33
4881.000	1.00	0.00	0.00	590.80	100.00	597.82	0.00	597.82	.43	.71	140.73	152.60
4881.000	1.00	0.00	0.00	590.80	150.00	598.58	0.00	598.59	.69	.96	156.61	180.84
4881.000	1.00	0.00	0.00	590.80	170.00	598.80	0.00	598.82	.81	1.05	161.20	189.30
4881.000	1.00	0.00	0.00	590.80	240.00	599.81	0.00	599.83	1.09	1.32	182.16	229.36
4950.000	69.00	0.00	0.00	592.90	100.00	597.82	0.00	597.83	.32	.55	182.84	176.38
4950.000	69.00	0.00	0.00	592.90	150.00	598.59	0.00	598.60	.39	.67	225.50	240.16
4950.000	69.00	0.00	0.00	592.90	170.00	598.82	0.00	598.82	.42	.71	238.54	260.98
4950.000	69.00	0.00	0.00	592.90	240.00	599.83	0.00	599.84	.43	.80	299.06	365.44

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
5115.000	165.00	0.00	0.00	593.00	100.00	597.83	0.00	597.83	.35	.56	178.02	170.02
5115.000	165.00	0.00	0.00	593.00	150.00	598.60	0.00	598.61	.41	.68	220.88	232.89
5115.000	165.00	0.00	0.00	593.00	170.00	598.82	0.00	598.83	.45	.73	233.72	253.24
5115.000	165.00	0.00	0.00	593.00	240.00	599.84	0.00	599.85	.46	.83	293.81	355.47
5280.000	165.00	0.00	0.00	593.20	100.00	597.83	0.00	597.84	.41	.60	167.66	156.55
5280.000	165.00	0.00	0.00	593.20	150.00	598.61	0.00	598.61	.48	.71	209.83	215.79
5280.000	165.00	0.00	0.00	593.20	170.00	598.83	0.00	598.84	.52	.76	222.54	235.50
5280.000	165.00	0.00	0.00	593.20	240.00	599.85	0.00	599.86	.52	.85	281.93	333.60
5281.000	1.00	0.00	0.00	593.20	100.00	597.83	0.00	597.84	.37	.56	178.58	164.79
5281.000	1.00	0.00	0.00	593.20	150.00	598.61	0.00	598.61	.42	.67	224.35	230.77
5281.000	1.00	0.00	0.00	593.20	170.00	598.83	0.00	598.84	.45	.71	237.85	253.16
5281.000	1.00	0.00	0.00	593.20	240.00	599.85	0.00	599.86	.46	.80	298.94	362.74
5493.000	212.00	0.00	0.00	593.40	100.00	597.84	0.00	597.85	.44	.60	167.83	151.33
5493.000	212.00	0.00	0.00	593.40	150.00	598.62	0.00	598.62	.50	.70	213.01	212.52
5493.000	212.00	0.00	0.00	593.40	170.00	598.84	0.00	598.85	.53	.75	226.56	234.39
5493.000	212.00	0.00	0.00	593.40	240.00	599.86	0.00	599.87	.49	.83	287.65	341.51
5705.000	212.00	0.00	0.00	593.60	100.00	597.85	0.00	597.86	.52	.64	157.34	138.48
5705.000	212.00	0.00	0.00	593.60	150.00	598.63	0.00	598.64	.60	.74	201.58	194.34
5705.000	212.00	0.00	0.00	593.60	170.00	598.85	0.00	598.86	.62	.79	215.16	215.94
5705.000	212.00	0.00	0.00	593.60	240.00	599.87	0.00	599.88	.56	.87	276.20	320.43
5908.000	203.00	0.00	0.00	593.90	100.00	597.85	0.00	597.91	4.96	1.80	55.47	44.88
5908.000	203.00	0.00	0.00	593.90	150.00	598.62	0.00	598.70	6.77	2.27	66.21	57.64
5908.000	203.00	0.00	0.00	593.90	170.00	598.84	0.00	598.94	7.70	2.46	69.19	61.28
5908.000	203.00	0.00	0.00	593.90	240.00	599.84	0.00	599.97	9.24	2.89	83.17	78.96
5909.000	1.00	0.00	0.00	593.90	100.00	597.86	0.00	597.91	4.42	1.81	55.37	47.56
5909.000	1.00	0.00	0.00	593.90	150.00	598.62	0.00	598.70	6.03	2.27	66.09	61.08
5909.000	1.00	0.00	0.00	593.90	170.00	598.84	0.00	598.94	6.81	2.46	69.20	65.12
5909.000	1.00	0.00	0.00	593.90	240.00	599.84	0.00	599.97	8.18	2.89	83.18	83.91
6021.000	112.00	602.40	598.00	593.90	100.00	597.93	0.00	598.02	22.44	2.50	40.00	21.11
6021.000	112.00	602.40	598.00	593.90	150.00	598.78	0.00	598.86	5.41	2.26	66.31	64.49
6021.000	112.00	602.40	598.00	593.90	170.00	599.06	0.00	599.15	5.84	2.42	70.20	70.33
6021.000	112.00	602.40	598.00	593.90	240.00	600.33	0.00	600.45	5.89	2.72	88.09	98.90
6022.000	1.00	0.00	0.00	593.90	100.00	597.99	0.00	598.04	4.75	1.81	55.23	45.87
6022.000	1.00	0.00	0.00	593.90	150.00	598.78	0.00	598.86	6.10	2.26	66.32	60.71
6022.000	1.00	0.00	0.00	593.90	170.00	599.06	0.00	599.15	6.59	2.42	70.21	66.20
6022.000	1.00	0.00	0.00	593.90	240.00	600.34	0.00	600.45	6.65	2.72	88.10	93.10
6071.000	49.00	0.00	0.00	593.90	100.00	598.05	0.00	598.06	.94	.85	117.61	103.30
6071.000	49.00	0.00	0.00	593.90	150.00	598.87	0.00	598.89	1.09	1.01	148.93	143.55
6071.000	49.00	0.00	0.00	593.90	170.00	599.16	0.00	599.18	1.12	1.06	160.57	160.94
6071.000	49.00	0.00	0.00	593.90	240.00	600.47	0.00	600.49	.94	1.13	212.77	248.02
6319.000	248.00	0.00	0.00	594.10	100.00	598.07	0.00	598.09	1.10	.90	111.02	95.27
6319.000	248.00	0.00	0.00	594.10	150.00	598.90	0.00	598.92	1.24	1.06	142.13	134.53
6319.000	248.00	0.00	0.00	594.10	170.00	599.19	0.00	599.21	1.28	1.11	153.73	150.39
6319.000	248.00	0.00	0.00	594.10	240.00	600.49	0.00	600.51	1.04	1.17	205.72	235.61

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Macomb Twp

3) WATERCOURSE: Lewis Drain

4) DOCUMENT TYPE: 10, 50, 100, 500 year flood encroached & revised Tilch Road Culvert AREA

00BREAK00

LEWIS DRAIN
J&A FILE NO. 5850-03
MACOMB TWP. FIS
"ENCROACHED FLOODWAY"
10-50-100-500 YR. FLOWS

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 ******************************************************
 HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
 ERROR CORR -  01,02
 MODIFICATION -  50,51,52,53
 ******************************************************

 C
 T1              MACOMB TWP. FIS J&A FILE NO. 5850-03-1
 T2              10 YEAR FLOOD
 T3              LEWIS DRAIN

 J1  ICHECK     INQ     NINV      IDIR      STRT      METRIC    HVINS     Q        WSEL      FQ

        0.        2.      0.        0.   0.000000      0.00      0.0      0.    596.000    0.000

 J2  NPROF     IPLOT    PREVS     XSECV     XSECH     FN        ALLDC     IBW      CHNIM     ITRACE

      1.000     0.000   -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

 NC       .040       .040       .032       .300       .500      0.000      0.000      0.000      0.000      0.000
 QT      4.000    605.000    895.000    980.000   1385.000      0.000      0.000      0.000      0.000      0.000

 X1     54.000     24.000    384.500    415.500      0.000      0.000      0.000      0.000       .100      0.000
 GR    598.800      0.000    598.500    200.000    593.500    384.500    591.200    384.500    589.500    385.100
 GR    583.300    387.500    588.000    390.700    583.000    391.500    588.000    392.300    588.300    395.500
 GR    589.500    397.900    591.200    398.500    591.200    401.500    589.500    402.100    588.300    404.500
 GR    588.000    407.700    588.000    408.500    588.000    409.300    588.300    412.500    589.500    414.900
 GR    591.200    415.500    598.500    415.500    598.000    600.000    598.200    800.000      0.000      0.000

 X1     55.000      0.000      0.000      0.000      1.000      1.000      1.000      0.000      0.000      0.000
 BT     22.000      0.000    598.900      0.000    200.000    598.600      0.000    384.500    598.600    591.300
 BT    385.100    598.600    593.400    387.500    598.600    596.400    390.700    598.600    597.500    391.500
 BT    598.600    597.600    392.300    598.600    597.500    395.500    598.600    596.400    397.900    598.600
 BT    593.400    398.500    598.600    591.300    401.500    598.600    591.300    402.100    598.600    593.400
 BT    404.500    598.600    596.400    407.700    598.600    597.500    408.500    598.600    597.600    409.300
 BT    598.600    597.500    412.500    598.600    596.400    414.900    598.600    593.400    415.500    598.600
 BT    591.300    600.000    598.100      0.000    800.000    598.300      0.000      0.000      0.000      0.000

                 LAKESIDE VILLA ENTRANCE ROAD     (MCS)          SECT.A

                 2-14' X 9'8" CMP ARCH PIPES

 X1    120.000      0.000      0.000      0.000     65.000     65.000     65.000      0.000      0.000      0.000
 X2      0.000      0.000      0.000      0.000      0.000      0.000      1.000      0.000      0.000      0.000
 NC       .042       .042       .036      0.000      0.000      0.000      0.000      0.000      0.000      0.000

 X1    121.000      0.000      0.000      0.000      1.000      1.000      1.000      0.000      0.000      0.000

                 VALLEY SECTION B (MCS)                          SECT.B

 X1    640.000      9.000    400.000    444.000    520.000    520.000    520.000      0.000       .100      0.000
 GR    600.700      0.000    600.700    200.000    596.700    400.000    590.900    414.000    588.400    421.000
 GR    589.900    428.000    595.300    444.000    600.400    644.000    600.600    844.000      0.000      0.000
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X1	1384.000	17.000	409.700	420.400	744.000	744.000	744.000	0.000	.100	0.000
X3	0.000	0.000	0.000	0.000	0.000	580.000	0.000	0.000	0.000	0.000
GR	601.000	0.000	599.900	200.000	595.700	400.000	595.700	409.700	590.600	409.700
GR	589.400	410.300	588.800	412.100	588.500	413.900	588.400	415.000	588.500	416.100
GR	588.800	417.900	589.400	419.700	590.600	420.400	595.300	420.400	595.300	430.000
GR	598.700	630.000	600.900	830.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.042	.042	.032	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	1385.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	580.000	0.000	0.000	0.000	0.000
BT	14.000	0.000	601.100	0.000	200.000	600.000	0.000	400.000	595.800	0.000
BT	409.700	595.800	590.700	410.300	595.300	592.500	412.100	595.700	594.500	413.900
BT	595.600	595.200	415.000	595.600	595.400	416.100	595.600	595.200	417.900	595.500
BT	594.500	419.700	595.400	592.500	420.400	595.400	590.700	430.000	595.400	0.000
BT	580.000	598.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

PRIVATE CULVERT BRIDGE SECTION C (MCS) SECT.C

83" X 128" CMP

X1	1400.000	0.000	0.000	0.000	15.000	15.000	15.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	580.000	0.000	0.000	0.000	0.000
NC	.042	.042	.036	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	1401.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	580.000	0.000	0.000	0.000	0.000
QT	4.000	100.000	150.000	170.000	240.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION FROM MCS LEWIS DRAIN DESIGN

X1	1971.000	7.000	215.000	230.000	570.000	570.000	570.000	0.000	.100	0.000
X3	0.000	0.000	0.000	100.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	597.400	0.000	596.400	100.000	596.400	200.000	589.200	215.000	596.200	230.000
GR	597.500	320.000	599.000	450.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION D (MCS) SECT.D

X1	2855.000	10.000	450.000	500.000	884.000	884.000	884.000	0.000	.100	0.000
X3	0.000	0.000	0.000	200.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	598.500	0.000	598.500	50.000	596.800	250.000	597.000	450.000	591.200	467.000
GR	590.100	476.000	591.800	485.000	598.300	500.000	598.800	700.000	600.300	900.000

VALLEY SECTION E (MCS) SECT.E

X1	3965.000	9.000	400.000	441.000	1300.000	800.000	1110.000	0.000	.100	0.000
GR	600.000	0.000	600.100	200.000	598.500	400.000	591.800	418.000	591.600	424.000
GR	591.800	431.000	598.000	441.000	599.600	641.000	600.300	841.000	0.000	0.000

X1	4095.000	0.000	0.000	0.000	130.000	130.000	130.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	230.000	0.000	540.000	0.000	0.000	0.000	0.000

VALLEY SECTION F (MCS) SECT.F

X1	4770.000	8.000	400.000	438.000	625.000	700.000	675.000	0.000	.100	0.000
X3	0.000	0.000	0.000	400.000	0.000	438.000	0.000	0.000	0.000	0.000
GR	600.600	0.000	600.300	200.000	600.700	400.000	593.000	417.000	592.200	423.000
GR	593.100	430.000	598.800	438.000	600.000	638.000	0.000	0.000	0.000	0.000

X1	4819.000	10.000	100.000	120.800	49.000	49.000	149.000	0.000	.100	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	600.500	600.500	0.000
GR	600.500	0.000	600.500	75.000	590.700	100.000	590.700	110.000	597.200	110.000
GR	597.200	110.800	590.700	110.800	590.700	120.800	600.500	146.000	600.500	200.000
NC	.040	.040	.021	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	4820.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	600.500	600.500	0.000
SB	0.000	1.810	3.000	0.000	20.000	0.000	130.000	0.000	590.800	590.800

21 MILE ROAD BRIDGE SECTION 7.1 (MCS) SECT.G

CONCRETE BOX CULVERT

X1	4880.000	0.000	0.000	0.000	60.000	30.000	60.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	597.300	600.610	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	600.600	600.600	0.000
BT	6.000	0.000	600.500	0.000	100.000	600.500	590.800	100.000	600.600	597.300
BT	120.800	600.600	597.300	120.800	600.600	590.800	200.000	600.600	0.000	0.000
NC	.038	.038	.034	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	4881.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	600.500	600.500	0.000

VALLEY SECTION 8.1 (MCS) SECT.H

X1	4950.000	7.000	40.000	100.000	69.000	69.000	69.000	0.000	.100	0.000
X3	0.000	0.000	0.000	40.000	0.000	100.000	0.000	0.000	0.000	0.000
GR	601.800	0.000	599.800	20.000	597.800	40.000	592.800	60.000	592.800	80.000
GR	599.500	100.000	600.500	120.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	5115.000	0.000	0.000	0.000	165.000	165.000	165.000	0.000	.100	0.000
X3	0.000	0.000	0.000	40.000	0.000	100.000	0.000	0.000	0.000	0.000

X1	5280.000	0.000	0.000	0.000	165.000	165.000	165.000	0.000	.200	0.000
X3	0.000	0.000	0.000	40.000	0.000	100.000	0.000	0.000	0.000	0.000

VALLEY SECTION 11.1 (MCS) SECT.I

X1	5281.000	8.000	40.000	100.000	1.000	1.000	1.000	0.000	.100	0.000
X3	0.000	0.000	0.000	40.000	0.000	100.000	0.000	0.000	0.000	0.000
GR	602.100	0.000	600.100	20.000	598.100	40.000	593.100	60.000	593.100	80.000
GR	598.100	100.000	600.100	120.000	602.100	140.000	0.000	0.000	0.000	0.000

X1	5493.000	0.000	0.000	0.000	212.000	212.000	212.000	0.000	.200	0.000
X3	0.000	0.000	0.000	60.000	0.000	100.000	0.000	0.000	0.000	0.000

X1	5705.000	0.000	0.000	0.000	212.000	212.000	212.000	0.000	.200	0.000
X3	0.000	0.000	0.000	40.000	0.000	100.000	0.000	0.000	0.000	0.000

X1	5908.000	6.000	59.000	141.000	203.000	203.000	203.000	0.000	.100	0.000
X3	0.000	0.000	0.000	93.000	0.000	107.000	0.000	0.000	0.000	0.000
GR	602.600	0.000	602.600	59.000	593.800	93.000	593.800	107.000	602.300	141.000
GR	602.300	200.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

LEWIS DRAIN
J&A FILE No. 5850-03
MACOMB TWP. FIS
"ENCROACHED FLOODWAY"
10-50-100-500 YR FLOODS

-REVISED TILCH ROAD
CULVERT AREA
8-10-79

T1										
T2										
T3										
J1		2							597.83	
J2	1		-1							
NC	.038	.038	.034	.3	.5					
QT	4	100	150	170	240					
X1	5281	8	40	100					.1	
X3				40		100				
GR	602.1	0	600.1	20	598.1	40	593.1	60	593.1	80
GR	598.1	100	600.1	120	602.1	140				
X1	5493				212	212	212		.2	
X3				40		100				
X1	5705				212	212	212		.2	
X3				40		100				
X1	5908	6	59	141	203	203	203		.1	
X3				93		107				
GR	602.6	0	602.6	59	593.8	93	593.8	107	602.3	141
GR	602.3	200								
NC	.04	.04	.032							
X1	5909				1	1	1			
X3				93		107				
SB		4.35	3.0		10.2		41.5		593.9	593.9
X1	6021	20	93	107	112	112	112		.1	
X2			1	598.0	602.4					
X3	10	593.8						602.4	602.4	
BT	14	0	602.7	0.0	93	602.6	594.9	94	602.6	597.4
BT	95	602.6	597.9	97	602.6	597.9	98	602.6	597.4	99
BT	602.6	594.9	101	602.5	594.9	102	602.5	597.4	103	602.5
BT	597.9	105	602.5	597.9	106	602.5	597.4	107	602.5	594.9
BT	200	602.4	0.0							
GR	602.6	0	602.5	68	594.8	93	593.8	93	592.3	94
GR	591.8	95	591.8	97	592.3	98	593.8	99	594.8	99
GR	594.8	101	593.8	101	592.3	102	591.8	103	591.8	105
GR	592.3	106	593.8	107	594.8	107	602.4	132	602.3	200
NC	.038	.038	.034							
X1	6022				1	1	1			
X3	10							602.3	602.3	
X1	6071	8	50	90	49	49	49		.1	
X3				50		90				
GR	603.8	0	600.8	30	598.8	50	593.8	70	593.8	90
GR	598.8	110	600.8	130	603.8	160				
X1	6319				248	248	248		.2	
X3				50		90				
X1	6567				248	248	248		.2	
X3				50		90				
QT	4	70	100	110	155					
X1	6815				248	248	248		.2	
X3				50		90				
X1	7063				248	248	248		.2	
X3				50		90				
X1	7311				248	248	248		.2	
X3				50		90				
X1	7558	8	32	62	247	247	247		.1	
X3				32		62				
GR	604.4	0	602.4	20	597.0	32	595.0	40	595.0	54
GR	597.0	62	602.4	74	604.4	94				
X1	7559	6	20	74	1	1	1		.1	
GR	604.4	0	602.4	20	597.4	40	597.4	54	602.4	74
GR	604.4	94								
X1	7608	8	47	93	49	49	49		.1	
GR	606.2	0	604.2	20	601.5	47	597.5	63	597.5	77
GR	601.5	93	604.2	120	606.2	140				
X1	7777				169	169	169		.1	
X1	7946				169	169	169		.2	
X1	[illegible]	18	93	107	[illegible]	[illegible]	[illegible]		.1	

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GR 605.2      0   605.2     93   599.7     93   598.6     93   598.1     94
GR 598.1     96   598.1     98   598.6     99   599.7     99   599.7    101
GR 598.6    101   598.1    102   598.1    104   598.1    106   598.6    107
GR 599.7    107   605.2    107   605.2    200
NC   .04    .04    .033
X1  8113                             1      1       1
BT    12      0   605.3    0.0      93   605.3   599.8     94   605.3  601.3
BT    96  605.3   601.8     98   605.3   601.3      99  605.3   599.8    101
BT 605.3  599.8     102  605.3   601.3     104   605.3  601.8     106  605.3
BT 601.3    107   605.3  599.8     200   605.3     0.0
X1  8184                            71      71      71
X2                                                   1
NC  .038   .038    .034
X1  8185                             1       1       1
X1  8234      8      47     93      49      49      49               .1
GR 606.8      0   604.8     20   602.1      47   598.1     63   598.1     77
GR 602.1     93   604.8    120   606.8     140
X1  8373                           139     139     139               .1
X1  8512                           139     139     139               .2
X1  8651                           139     139     139               .1
X1  8790                           139     139     139               .2
X3                          59              81
X1  8800                            10      10      10               .4
X3                          62              79
X1  8810                            10      10      10               .5
X3                          64              76
X1  8819     11    96.4  103.6       9       9       9               .1
GR 606.8      0   606.8   96.4   602.8    96.4   600.6   96.4   600.0     98
GR 600.0    100   600.0    102   600.6   103.6   602.8  103.6   606.8  103.6
GR 606.8    200
NC   .04    .04    .033
X1  8820                             1       1       1
BT     7      0   606.9    0.0    96.4   606.9   602.9     98   606.9  604.9
BT   100  606.9   605.3    102   606.9   604.9   103.6  606.9   602.9    200
BT 606.9    0.0
X1  8858                            38      38      38
X2                                                   1
X1  8859                             1       1       1
EJ
T1
T2
T3
J1             3                                               598.61
J2     2             -1
T1
T2
T3
J1             4                                               598.83
J2     3             -1
T1
T2
T3
J1             5                                               599.85
J2    15             -1

ER
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*******************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
*******************************************

T1                MACOMB TWP. FIS J*A FILE NO. 5850-03-1
T2                100 YEAR FLOOD
T3                LEWIS DRAIN

J1  ICHECK    INQ      NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
        0.       4.       0.        0.  0.000000      0.00      0.0       0.   593.910    0.000

J2  NPROF     IPLOT    PRFVS     XSECV     XSECH     FN        ALLOC     IBW       CHNIM     ITRACE
     3.000    0.000   -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
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*PROF 3

CCHV=     .300 CEHV=     .500
*SECNO 54.000
    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS     BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA     LEFT/RIGHT
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN       SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID      ENDST

      54.00      8.81     596.91       0.00     596.91     597.15        .24       0.00       0.00     598.60
      980.        0.       980.         0.         0.       247.         0.         0.         0.      598.60
      0.00       0.00       3.96       0.00       .040       .032       .040      0.000     588.10     384.50
    .000823        0.         0.         0.          0          0          0       0.00      31.00     415.50

*SECNO 55.000

3370 NORMAL BRIDGE,NRD= 22 MIN ELTRD=  598.10 MAX ELLC=  597.60

      55.00      8.74     596.84       0.00       0.00     597.23        .39        .00        .07     598.60
      980.        0.       980.         0.         0.       196.         0.         0.         0.      598.60
       .00       0.00       4.99       0.00       .040       .032       .040       .016     588.10     384.50
    .002663        1.         1.         1.          2          0          0     -48.83      31.00     415.50

*SECNO 120.000

3370 NORMAL BRIDGE,NRD= 22 MIN ELTRD=  598.10 MAX ELLC=  597.60

                   LAKESIDE VILLA ENTRANCE ROAD      (MCS)           SECT.A

                   2-14' X 9'8" CMP ARCH PIPES

     120.00      8.92     597.02       0.00       0.00     597.40        .38        .17        .00     598.60
      980.        0.       980.         0.         0.       198.         0.         0.         0.      598.60
       .00       0.00       4.95       0.00       .040       .032       .040       .031     588.10     384.50
    .002605       65.        65.        65.          2          0          0     -52.68      31.00     415.50

*SECNO 121.000
     121.00      9.12     597.22       0.00       0.00     597.45        .23        .00        .05     598.60
      980.        0.       980.         0.         0.       257.         0.         0.         0.      598.60
       .00       0.00       3.81       0.00       .042       .036       .042       .031     588.10     384.50
    .000933        1.         1.         1.          2          0          0       0.00      31.00     415.50

*SECNO 640.000
    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS     BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA     LEFT/RIGHT
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN       SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID      ENDST

                   VALLEY SECTION B (MCS)                            SECT.B

     640.00      9.24     597.74       0.00       0.00     597.90        .16        .43        .02     596.80
      980.       13.       854.       114.        22.       250.       107.         4.         1.      595.40
       .05        .58       3.42       1.06       .042       .036       .042       .035     588.50     353.15
    .000733      520.       520.       520.          2          0          0       0.00     182.49     535.64
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 *SECNO 1384.000

 3470 ENCROACHMENT STATIONS=          .0       580.0  TYPE=      1  TARGET=      579.999
   1384.00      9.91    598.41      0.00      0.00    598.48       .07       .56       .03    595.80
      980.      238.      315.      428.      188.      100.      289.       12.        5.    595.40
       .16      1.27      3.13      1.48      .042      .036      .042      .036    588.50    275.64
   .000769      744.      744.      744.         2         0         0      0.00    304.36    580.00

 *SECNO 1385.000

 3370 NORMAL BRIDGE,NRD= 14 MIN ELTRD=  595.40 MAX ELLC=  595.40

 3470 ENCROACHMENT STATIONS=          .0       580.0  TYPE=      1  TARGET=      579.999
   1385.00      9.94    598.44      0.00      0.00    598.49       .05       .00       .01    595.80
      980.      283.      197.      499.      191.       85.      290.       12.        5.    595.40
       .16      1.48      2.33      1.72      .042      .032      .042      .036    588.50    274.39
   .001042        1.        1.        1.         2         0         0    -19.85    305.61    580.00

 *SECNO 1400.000

 3370 NORMAL BRIDGE,NRD= 14 MIN ELTRD=  595.40 MAX ELLC=  595.40

 3470 ENCROACHMENT STATIONS=          .0       580.0  TYPE=      1  TARGET=      579.999

                   PRIVATE CULVERT  BRIDGE SECTION C (MCS)          SECT.C

                   83" X 128" CMP

   1400.00      9.95    598.45      0.00      0.00    598.50       .05       .02       .00    595.80
      980.      284.      196.      500.      193.       85.      292.       12.        6.    595.40
       .16      1.47      2.31      1.71      .042      .032      .042      .036    588.50    273.74
   .001021       15.       15.       15.         0         0         0    -19.85    305.25    580.00

 *SECNO 1401.000

 3470 ENCROACHMENT STATIONS=          .0       580.0  TYPE=      1  TARGET=      579.999
   1401.00      9.95    598.45      0.00      0.00    598.51       .07       .00       .01    595.80
      980.      240.      308.      432.      194.      101.      296.       12.        6.    595.40
       .16      1.24      3.05      1.46      .042      .036      .042      .036    588.50    273.56
   .000725        1.        1.        1.         0         0         0      0.00    306.44    580.00

 *SECNO 1971.000
     SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS  BANK ELEV
         Q      QLOB       QCH      QROB      ALOB       ACH      AROB       VOL       TWA  LEFT/RIGHT
      TIME      VLOB       VCH      VROB       XNL      XNCH       XNR       WTN     ELMIN      SSTA
     SLOPE     XLOBL      XLCH     XLOBR    ITRIAL       IDC     ICONT     CORAR    TOPWID     ENDST

 3470 ENCROACHMENT STATIONS=       100.0       450.0  TYPE=      1  TARGET=     -100.000

                   VALLEY SECTION FROM MCS LEWIS DRAIN DESIGN

   1971.00      9.35    598.65      0.00      0.00    598.66       .00       .12       .02    589.30
      170.       89.       45.       36.      302.       88.      201.       20.       10.    596.30
       .64       .29       .51       .18      .042      .036      .042      .036    589.30    100.00
   .000017      570.      570.      570.         2         0         0      0.00    311.29    411.29
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*SECNO 2855.000

3470 ENCROACHMENT STATIONS=      200.0      900.0  TYPE=      1  TARGET=     -200.000

                    VALLEY SECTION D (MCS)                               SECT.D

  2855.00      8.47    598.67      0.00      0.00    598.67       .00       .01       .00    597.10
    170.        65.      105.        0.      411.      268.       14.       33.       17.    598.40
    1.46        .16       .39       .03      .042      .036      .042      .036    590.20    200.00
 .000010       884.      884.      884.         2         0         0      0.00    406.39    606.39


*SECNO 3965.000

                    VALLEY SECTION E (MCS)                               SECT.E

  3965.00      6.98    598.68      0.00      0.00    598.70       .01       .02       .01    598.60
    170.         0.      167.        3.        0.      188.       21.       46.       24.    598.10
    1.82        .03       .89       .13      .042      .036      .042      .036    591.70    583.95
 .000067      1300.     1110.      800.         0         0         0      0.00    123.00    513.55


*SECNO 4095.000

3470 ENCROACHMENT STATIONS=      230.0      540.0  TYPE=      1  TARGET=      310.000
  4095.00      6.99    598.69      0.00      0.00    598.71       .01       .01       .00    593.60
    170.         0.      167.        3.        1.      188.       22.       46.       24.    598.10
    1.86        .04       .89       .13      .042      .036      .042      .036    591.70    383.76
 .000066       130.      130.      130.         0         0         0      0.00    125.98    514.74


*SECNO 4770.000

3470 ENCROACHMENT STATIONS=      400.0      438.0  TYPE=      1  TARGET=       38.000

                    VALLEY SECTION F (MCS)                               SECT.F

  4770.00      6.45    598.75      0.00      0.00    598.78       .02       .07       .01    600.80
    170.         0.      170.        0.        0.      135.        0.       49.       25. 100000.10
    2.01       0.00      1.26      0.00      .042      .036      .042      .036    592.30    404.53
 .000162       625.      675.      700.         1         0         0      0.00     33.25    437.78


*SECNO 4819.000
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       600.50 ELREA=       600.50

  4819.00      7.97    598.77      0.00      0.00    598.79       .02       .01       .00    590.60
    170.         0.      170.        0.        0.      160.        0.       49.       25.    590.80
    2.02       0.00      1.06      0.00      .042      .036      .042      .036    590.30    100.00
 .000092        49.       49.       49.         0         0         0      0.00     20.80    120.80


*SECNO 4820.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       600.50 ELREA=       600.50

  4820.00      7.97    598.77      0.00      0.00    598.79       .02       .00       .00    590.80
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        170.         0.       170.         0.         0.       161.         0.        49.        25.     590.80
       2.02       0.00       1.06       0.00       .040       .021       .040       .036     590.80     100.00
    .000031         1.         1.         1.          0          0          0       0.00      20.80     120.80


SPECIAL BRIDGE

SB   XK          XKOR       COFO       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
       0.00       1.81       3.00       0.00      20.00       0.00     130.00       0.00     590.80     590.80

*SECNO 4880.000
PRESSURE FLOW


  EGPRS      EGLWC       H3         QWEIR      QPR        BAREA     TRAPEZOID     ELLC       ELTRD
                                                                    AREA
     598.82     598.79       0.00         0.       170.       130.       130.     597.30     600.60


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       600.50 ELREA=       600.50

                 21 MILE ROAD  BRIDGE SECTION 7.1 (MCS)                SECT.G

                 CONCRETE BOX CULVERT

    4880.00       8.00     598.80       0.00       0.00     598.82        .02        .03       0.00     590.80
       170.         0.       170.         0.         0.       161.         0.        49.        25.     590.80
       2.04       0.00       1.05       0.00       .040       .021       .040       .035     590.80     100.00
    .000031        60.        60.        60.          1          0          1       0.00      20.80     120.80


*SECNO 4881.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       600.50 ELREA=       600.50

    4881.00       8.00     598.80       0.00       0.00     598.82        .02        .00        .00     590.80
       170.         0.       170.         0.         0.       161.         0.        49.        25.     590.80
       2.04       0.00       1.05       0.00       .038       .034       .038       .035     590.80     100.00
    .000081         1.         1.         1.          0          0          0       0.00      20.80     120.80


*SECNO 4950.000

3470 ENCROACHMENT STATIONS=       40.0      100.0  TYPE=       1  TARGET=       60.000

                 VALLEY SECTION 8.1 (MCS)                               SECT.H

    4950.00       5.92     598.82       0.00       0.00     598.82        .01        .00        .00     597.90
       170.         0.       170.         0.         0.       239.         0.        50.        25. 100000.10
       2.06       0.00        .71       0.00       .038       .034       .038       .035     592.90      40.00
    .000042        69.        69.        69.          1          0          0       0.00      57.64      97.64


*SECNO 5115.000
   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS     BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA      LEFT/RIGHT
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN        SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID       ENDST


3470 ENCROACHMENT STATIONS=       40.0      100.0  TYPE=       1  TARGET=       60.000
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   5115.[illegible]    .[illegible]8[illegible]   598.[illegible]2     [illegible]0     [illegible]0   5[illegible]   .01      .01      .00   59[illegible]0
     170.        0.      170.       0.       0.     234.       0.      50.      26. 100000.00
     2.13      0.00      .73      0.00     .038     .034     .038     .035   593.00     40.00
  .000045      165.     165.      165.        0        0        0     0.00    57.39     97.39

*SECNO 5280.000

3470 ENCROACHMENT STATIONS=      40.0     100.0  TYPE=      1  TARGET=      60.000
  5280.00      5.63   598.83     0.00     0.00   598.84      .01      .01      .00    598.20
     170.        0.     170.       0.       0.     223.       0.      51.      26. 100000.00
     2.19      0.00      .76     0.00     .038     .034     .038     .035   593.20     40.00
  .000052      165.     165.     165.        0        0        0     0.00    56.81     96.81

*SECNO 5281.000

3470 ENCROACHMENT STATIONS=      40.0     100.0  TYPE=      1  TARGET=      60.000

                VALLEY SECTION 11.1 (MCS)                         SECT.I

  5281.00      5.63   598.83     0.00     0.00   598.84      .01      .00      .00    598.20
     170.        0.     170.       0.       0.     238.       0.      51.      26. 100000.10
     2.19      0.00      .71     0.00     .038     .034     .038     .035   593.20     40.00
  .000045        1.       1.       1.        0        0        0     0.00    60.00    100.00

*SECNO 5493.000

3470 ENCROACHMENT STATIONS=      40.0     100.0  TYPE=      1  TARGET=      60.000
  5493.00      5.44   598.84     0.00     0.00   598.85      .01      .01      .00    598.40
     170.        0.     170.       0.       0.     227.       0.      52.      26. 100000.00
     2.27      0.00      .75     0.00     .038     .034     .038     .035   593.40     40.00
  .000053      212.     212.     212.        0        0        0     0.00    60.00    100.00

*SECNO 5705.000

3470 ENCROACHMENT STATIONS=      40.0     100.0  TYPE=      1  TARGET=      60.000
  5705.00      5.25   598.85     0.00     0.00   598.86      .01      .01      .00    598.60
     170.        0.     170.       0.       0.     215.       0.      54.      26. 100000.00
     2.34      0.00      .79     0.00     .038     .034     .038     .035   593.60     40.00
  .000062      212.     212.     212.        0        0        0     0.00    60.00    100.00

*SECNO 5908.000
   SECNO     DEPTH    CWSEL    CRIWS    WSELK     EG       HV       HL      OLOSS   BANK ELEV
   Q         QLOB     QCH      QROB     ALOB      ACH      AROB     VOL     TWA   LEFT/RIGHT
   TIME      VLOB     VCH      VROB     XNL       XNCH     XNR      WTN     ELMIN      SSTA
   SLOPE     XLOBL    XLCH     XLOBR    ITRIAL    IDC      ICONT    CORAR   TOPWID     ENDST

3470 ENCROACHMENT STATIONS=      93.0     107.0  TYPE=      1  TARGET=      14.000
  5908.00      4.94   598.84     0.00     0.00   598.94      .09      .03      .04100000.10
     170.        0.     170.       0.       0.      69.       0.      54.      27. 100000.10
     2.36      0.00     2.46     0.00     .038     .034     .038     .035   593.90     93.00
  .000770      203.     203.     203.        2        0        0     0.00    14.00    107.00

*SECNO 5909.000

3470 ENCROACHMENT STATIONS=      93.0     107.0  TYPE=      1  TARGET=      14.000
  5909.00      4.94   598.84     0.00     0.00   598.94      .09      .00      .00100000.00
     170.        0.     170.       0.       0.      69.       0.      54.      27. 100000.00
     2.36      0.00     2.46     0.00     .040     .032     .040     .035   593.90     93.00
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  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -   01,02
  MODIFICATION -  50,51,52,53
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100 yr

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T1
T2
T3

J1   ICHECK     INQ      NINV      IDIR      STRT     METRIC    HVINS      Q        WSEL       FQ
        0.        4.        0.        0.  0.000000    0.00      0.0       0.     598.830    0.000

J2   NPROF     IPLOT     PRFVS     XSECV     XSECH      FN      ALLDC      IBW      CHNIM     ITRACE
      3.000     0.000    -1.000     0.000     0.000    0.000     0.000    0.000     0.000     0.000
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*PROF 3

CCHV=      .300 CEHV=      .500
*SECNO 5281.000
   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA    LEFT/RIGHT
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN        SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID       ENDST


3470 ENCROACHMENT STATIONS=        40.0       100.0  TYPE=       1  TARGET=         60.000
    5281.00       5.63     598.83       0.00     598.83     598.84        .01       0.00       0.00     593.20
       170.         0.       170.         0.         0.       238.         0.         0.         0. 100000.10
       0.00       0.00        .71       0.00       .038       .034       .038      0.000     593.20      40.00
    .000045         0.         0.         0.          0          0          0       0.00      60.00     100.00


*SECNO 5493.000

3470 ENCROACHMENT STATIONS=        40.0       100.0  TYPE=       1  TARGET=         60.000
    5493.00       5.44     598.84       0.00       0.00     598.85        .01        .01        .00     598.40
       170.         0.       170.         0.         0.       226.         0.         1.         0. 100000.00
        .08       0.00        .75       0.00       .038       .034       .038       .034     593.40      40.00
    .000053       212.       212.       212.          0          0          0       0.00      60.00     100.00


*SECNO 5705.000

3470 ENCROACHMENT STATIONS=        40.0       100.0  TYPE=       1  TARGET=         60.000
    5705.00       5.25     598.85       0.00       0.00     598.86        .01        .01        .00     598.60
       170.         0.       170.         0.         0.       215.         0.         2.         1. 100000.00
        .15       0.00        .79       0.00       .038       .034       .038       .034     593.60      40.00
    .000062       212.       212.       212.          0          0          0       0.00      60.00     100.00


*SECNO 5908.000

3470 ENCROACHMENT STATIONS=        93.0       107.0  TYPE=       1  TARGET=         14.000
    5908.00       4.94     598.84       0.00       0.00     598.93        .09        .03        .04100000.10
       170.         0.       170.         0.         0.        69.         0.         3.         1. 100000.10
        .18       0.00       2.46       0.00       .038       .034       .038       .034     593.90      93.00
    .000771       203.       203.       203.          2          0          0       0.00      14.00     107.00


*SECNO 5909.000
   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA    LEFT/RIGHT
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN        SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID       ENDST


3470 ENCROACHMENT STATIONS=        93.0       107.0  TYPE=       1  TARGET=         14.000
    5909.00       4.94     598.84       0.00       0.00     598.93        .09        .00        .00100000.00
       170.         0.       170.         0.         0.        69.         0.         3.         1. 100000.00
        .18       0.00       2.46       0.00       .040       .032       .040       .034     593.90      93.00
    .000682         1.         1.         1.          0          0          0       0.00      14.00     107.00


SPECIAL BRIDGE

SB  XK           XKOR         COFQ         RDLEN       BWC          BWP          BAREA       SS          ELCHU        ELCHD
      0.00         4.35         3.00         .00        1.20          .00         41.50         0         593.90       593.90
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*SECNO 6021.000
PRESSURE FLOW

   EGPRS       EGLWC        H3        QWEIR       QPR       BAREA   TRAPEZOID      ELLC       ELTRD
                                                                       AREA
   599.97      598.94      0.00         0.       170.        42.        42.       598.00     602.40


 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       602.40 ELREA=       602.40

   6021.00      6.01      599.91      0.00      0.00     599.97       .07       1.04       0.00     594.90
    170.         0.        170.        0.        0.        82.        0.         3.         1.      594.90
     .19        0.00       2.07       0.00      .040      .032      .040       .033     593.90      93.00
   .000364      112.       112.       112.        2         0         0        0.00      14.00     107.00


 *SECNO 6022.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       602.30 ELREA=       602.30

   6022.00      6.01      599.91      0.00      0.00     599.97       .07        .00        .00     594.90
    170.         0.        170.        0.        0.        82.        0.         3.         1.      594.90
     .19        0.00       2.07       0.00      .038      .034      .038       .033     593.90      93.00
   .000411       1.         1.         1.         0         0         0        0.00      14.00     107.00


 *SECNO 6071.000

 3470 ENCROACHMENT STATIONS=        50.0        90.0  TYPE=      1  TARGET=        40.000
   6071.00      6.09      599.99      0.00      0.00     600.00       .01        .01        .02     598.90
    170.         0.        170.        0.        0.       193.        0.         3.         1.  100000.10
     .21        0.00        .88       0.00      .038      .034      .038       .033     593.90      50.00
   .000063       49.        49.        49.        2         0         0        0.00      40.00      90.00


 *SECNO 6319.000

 3470 ENCROACHMENT STATIONS=        50.0        90.0  TYPE=      1  TARGET=        40.000
   6319.00      5.90      600.00      0.00      0.00     600.01       .01        .02        .00     599.10
    170.         0.        170.        0.        0.       186.        0.         4.         1.  100000.00
     .28        0.00        .91       0.00      .038      .034      .038       .036     594.10      50.00
   .000071      248.       248.       248.        2         0         0        0.00      40.00      90.00


 *SECNO 6567.000
     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL        OLOSS   BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL       TWA    LEFT/RIGHT
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN       ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR     TOPWID     ENDST


 3470 ENCROACHMENT STATIONS=        50.0        90.0  TYPE=      1  TARGET=        40.000
   6567.00      5.72      600.02      0.00      0.00     600.03       .01        .02        .00     599.30
    170.         0.        170.        0.        0.       179.        0.         5.         1.  100000.00
     .35        0.00        .95       0.00      .038      .034      .038       .034     594.30      50.00
   .000080      248.       248.       248.        0         0         0        0.00      40.00      90.00


 *SECNO 6815.000

 3470 ENCROACHMENT STATIONS=        50.0        90.0  TYPE=      1  TARGET=        40.000
   6815.0      5.56      600.04      0.0       0.00     600.05       .01        .01        .00     599.50
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      110.       0.      110.       0.       0.     172.       0.       6.       2. 100000.00
      .46      0.00      .64      0.00     .038     .034     .038     .034   594.50     50.00
  .000038      248.     248.     248.        0        0        0     0.00    40.00     90.00

 *SECNO 7063.000

 3470 ENCROACHMENT STATIONS=     50.0     90.0  TYPE=     1  TARGET=     40.000
  7063.00      5.35   600.05      0.00     0.00   600.06      .01      .01      .00    599.70
      110.       0.      110.       0.       0.     164.       0.       7.       2. 100000.00
      .56      0.00      .67      0.00     .038     .034     .038     .034   594.70     50.00
  .000063      248.     248.     248.        0        0        0     0.00    40.00     90.00

 *SECNO 7311.000

 3470 ENCROACHMENT STATIONS=     50.0     90.0  TYPE=     1  TARGET=     40.000
  7311.00      5.16   600.06      0.00     0.00   600.07      .01      .01      .00    599.90
      110.       0.      110.       0.       0.     157.       0.       8.       2. 100000.00
      .65      0.00      .70      0.00     .038     .034     .038     .034   594.90     50.00
  .000051      248.     248.     248.        0        0        0     0.00    40.00     90.00

 *SECNO 7558.000

 3470 ENCROACHMENT STATIONS=     32.0     62.0  TYPE=     1  TARGET=     30.000
  7558.00      4.98   600.08      0.00     0.00   600.09      .01      .01      .00    597.10
      110.       0.      110.       0.       0.     133.       0.       9.       2. 100000.10
      .75      0.00      .83      0.00     .038     .034     .038     .036   595.10     32.00
  .000063      247.     247.     247.        0        0        0     0.00    30.00     62.00

 *SECNO 7559.000
    SECNO     DEPTH    CWSEL    CRIWS    WSELK       EG       HV       HL    OLOSS  BANK ELEV
    Q         QLOB     QCH      QROB     ALOB       ACH      AROB     VOL      TWA   LEFT/RIGHT
    TIME      VLOB     VCH      VROB     XNL        XNCH     XNR      WTN      ELMIN     SSTA
    SLOPE     XLOBL    XLCH     XLOBR    ITRIAL     IDC      ICONT    CORAR    TOPWID    ENDST

  7559.00      2.56   600.06      0.00     0.00   600.11      .05      .00      .02    602.50
      110.       0.      110.       0.       0.      62.       0.       9.       2.    602.50
      .75      0.00     1.76      0.00     .038     .034     .038     .034   597.50     29.73
  .000760        1.       1.       1.        1        0        0     0.00    34.55     64.27

 *SECNO 7608.000
  7608.00      2.50   600.10      0.00     0.00   600.15      .05      .04      .00    601.60
      110.       0.      110.       0.       0.      60.       0.       9.       2.    601.60
      .75      0.00     1.85      0.00     .038     .034     .038     .034   597.60     53.05
  .000862       49.      49.      49.        1        0        0     0.00    33.90     86.95

 *SECNO 7777.000
  7777.00      2.54   600.24      0.00     0.00   600.29      .05      .16      .00    601.70
      110.       0.      110.       0.       0.      61.       0.       9.       2.    601.70
      .78      0.00     1.80      0.00     .038     .034     .038     .034   597.70     52.87
  .000802      169.     169.     169.        0        0        0     0.00    34.26     87.13

 *SECNO 7946.000
  7946.00      2.48   600.38      0.00     0.00   600.43      .05      .14      .00    601.90
      110.       0.      110.       0.       0.      59.       0.      10.       2.    601.90
      .80      0.00     1.85      0.00     .038     .034     .038     .034   597.90     53.08
  .000871      169.     169.     169.        0        0        0     0.00    33.84     86.92
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*SECNO 8112.000
  8112.00     2.38    600.58     0.00     0.00   600.80      .22      .28      .08   605.30
    110.        0.      110.       0.       0.      29.       0.      10.       3.   605.30
     .82      0.00      3.78     0.00     .038     .034     .038     .034   598.20    93.00
 .004673      166.      166.     166.        2        0        0     0.00    14.00   107.00

*SECNO 8113.000
   SECNO     DEPTH     CWSEL    CRIWS    WSELK       EG       HV       HL    OLOSS   BANK ELEV
   Q          QLOB     QCH      QROB     ALOB       ACH     AROB      VOL      TWA  LEFT/RIGHT
   TIME       VLOB     VCH      VROB     XNL       XNCH      XNR      WTN    ELMIN     SSTA
   SLOPE     XLOBL     XLCH     XLOBR    ITRIAL     IDC    ICONT    CORAR   TOPWID    ENDST


3370 NORMAL BRIDGE,NRD= 12 MIN ELTRD=  605.30 MAX ELLC=  601.80

  8113.00     2.35    600.55     0.00     0.00   600.84      .28      .01      .03   605.30
    110.        0.      110.       0.       0.      26.       0.      10.       3.   605.30
     .82      0.00      4.28     0.00     .040     .033     .040     .034   598.20    93.00
 .007487        1.        1.       1.        2        0        0    -3.01    14.00   107.00

*SECNO 8184.000

3370 NORMAL BRIDGE,NRD= 12 MIN ELTRD=  605.30 MAX ELLC=  601.80

  8184.00     2.86    601.06     0.00     0.00   601.26      .20      .40      .03   605.30
    110.        0.      110.       0.       0.      31.       0.      10.       3.   605.30
     .82      0.00      3.57     0.00     .040     .033     .040     .034   598.20    93.00
 .004349       71.       71.      71.        2        0        0    -5.05    14.00   107.00

*SECNO 8185.000
  8185.00     2.94    601.14     0.00     0.00   601.28      .14      .00      .02   605.30
    110.        0.      110.       0.       0.      37.       0.      10.       3.   605.30
     .82      0.00      2.97     0.00     .038     .034     .038     .034   598.20    93.00
 .002248        1.        1.       1.        2        0        0     0.00    14.00   107.00

*SECNO 8234.000
  8234.00     3.12    601.32     0.00     0.00   601.35      .03      .04      .03   602.20
    110.        0.      110.       0.       0.      82.       0.      10.       3.   602.20
     .83      0.00      1.34     0.00     .038     .034     .038     .034   598.20    50.54
 .000352       49.       49.      49.        1        0        0     0.00    38.91    89.46

*SECNO 8373.000
  8373.00     3.07    601.37     0.00     0.00   601.40      .03      .05      .00   602.30
    110.        0.      110.       0.       0.      81.       0.      10.       3.   602.30
     .86      0.00      1.36     0.00     .038     .034     .038     .034   598.30    50.72
 .000373      139.      139.     139.        2        0        0     0.00    38.57    89.28

*SECNO 8512.000
   SECNO     DEPTH     CWSEL    CRIWS    WSELK       EG       HV       HL    OLOSS   BANK ELEV
   Q          QLOB     QCH      QROB     ALOB       ACH     AROB      VOL      TWA  LEFT/RIGHT
   TIME       VLOB     VCH      VROB     XNL       XNCH      XNR      WTN    ELMIN     SSTA
   SLOPE     XLOBL     XLCH     XLOBR    ITRIAL     IDC    ICONT    CORAR   TOPWID    ENDST


  8512.00     2.93    601.43     0.00     0.00   601.46      .03      .06      .00   602.50
    110.        0.      110.       0.       0.      75.       0.      10.       3.   602.50
     .89      0.00      1.47     0.00     .038     .034     .038     .034   598.50    51.31
 .000455      139.      139.     139.        0        0        0     0.00    37.38    88.69
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*SECNO 8651.000
  8651.00      2.89    601.49      0.00      0.00    601.53       .03       .06       .00    602.60
     110.        0.      110.        0.        0.       74.        0.       11.        3.    602.60
     .91       0.00      1.49      0.00      .038      .034      .038      .034    598.60     51.46
 .000480       139.      139.      139.        0         0         0      0.00     32.07     83.54

*SECNO 8790.000

3470 ENCROACHMENT STATIONS=       59.0      81.0  TYPE=      1  TARGET=        22.000
  8790.00      2.76    601.56      0.00      0.00    601.62       .06       .08       .01100000.00
     110.        0.      110.        0.        0.       57.        0.       11.        3. 100000.00
     .93       0.00      1.94      0.00      .038      .034      .038      .034    598.80     59.00
 .000691       139.      139.      139.        0         0         0      0.00     22.00     81.00

*SECNO 8800.000

3470 ENCROACHMENT STATIONS=       62.0      79.0  TYPE=      1  TARGET=        17.000
  8800.00      2.34    601.54      0.00      0.00    601.66       .12       .01       .03100000.00
     110.        0.      110.        0.        0.       39.        0.       11.        3. 100000.00
     .93       0.00      2.81      0.00      .038      .034      .038      .034    599.20     62.00
 .001811        10.       10.       10.        2         0         0      0.00     17.00     79.00

*SECNO 8810.000

3470 ENCROACHMENT STATIONS=       64.0      76.0  TYPE=      1  TARGET=        12.000
  8810.00      1.71    601.41      0.00      0.00    601.86       .44       .04       .16100000.00
     110.        0.      110.        0.        0.       21.        0.       11.        3. 100000.00
     .93       0.00      5.35      0.00      .038      .034      .038      .034    599.70     64.00
 .010210        10.       10.       10.        2         0         0      0.00     12.00     76.00

*SECNO 8819.000

3301 HV CHANGED MORE THAN HVINS

   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
  8819.00      2.06    602.16    602.16      0.00    603.14       .98       .13       .27    606.90
     110.        0.      110.        0.        0.       14.        0.       11.        3.    606.90
     .94       0.00      7.93      0.00      .038      .034      .038      .034    600.10     96.40
 .022220         9.        9.        9.       20        11         0      0.00      7.20    103.60

*SECNO 8820.000

3370 NORMAL BRIDGE,NRD=  7 MIN ELTRD=  606.90 MAX ELLC=  605.30

  8820.00      2.52    602.62      0.00      0.00    603.25       .63       .02       .10    606.90
     110.        0.      110.        0.        0.       17.        0.       11.        3.    606.90
     .94       0.00      6.39      0.00      .040      .033      .040      .034    600.10     96.40
 .011426         1.        1.        1.        7         0         0      0.00      7.20    103.60

*SECNO 8858.000
```

3370 NORMAL BRIDGE,NRD= 7 MIN ELTRD= 606.90 MAX ELLC= 605.30

8858.00	3.16	603.26	0.00	0.00	603.67	.42	.35	.06	606.90
110.	0.	110.	0.	0.	21.	0.	11.	3.	606.90
.94	0.00	5.18	0.00	.040	.033	.040	.034	600.10	96.40
.007714	38.	38.	38.	0	0	0	-.58	7.20	103.60

*SECNO 8859.000

8859.00	3.21	603.31	0.00	0.00	603.69	.38	.01	.01	606.90
110.	0.	110.	0.	0.	22.	0.	11.	3.	606.90
.94	0.00	4.97	0.00	.040	.033	.040	.034	600.10	96.40
.005776	1.	1.	1.	2	0	0	0.00	7.20	103.60

****
HEC2 RELEASE DATED NOV 76 UPDATED AUG1977
ERROR CORR - 01,02
MODIFICATION - 50,51,52,53
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
5281.000	0.00	0.00	0.00	593.20	100.00	597.83	0.00	597.83	.37	.56	178.35	164.49
5281.000	0.00	0.00	0.00	593.20	150.00	598.61	0.00	598.62	.42	.67	224.60	231.17
5281.000	0.00	0.00	0.00	593.20	170.00	598.83	0.00	598.84	.45	.71	237.80	253.07
5281.000	0.00	0.00	0.00	593.20	240.00	599.85	0.00	599.86	.44	.80	299.00	362.84
5493.000	212.00	0.00	0.00	593.40	100.00	597.84	0.00	597.84	.44	.60	167.53	150.96
5493.000	212.00	0.00	0.00	593.40	150.00	598.62	0.00	598.63	.50	.70	213.13	212.72
5493.000	212.00	0.00	0.00	593.40	170.00	598.84	0.00	598.85	.53	.75	226.37	234.08
5493.000	212.00	0.00	0.00	593.40	240.00	599.86	0.00	599.87	.49	.83	287.55	341.34
5705.000	212.00	0.00	0.00	593.60	100.00	597.85	0.00	597.85	.52	.64	157.07	136.16
5705.000	212.00	0.00	0.00	593.60	150.00	598.63	0.00	598.64	.59	.74	201.76	196.60
5705.000	212.00	0.00	0.00	593.60	170.00	598.85	0.00	598.86	.62	.79	215.01	215.71
5705.000	212.00	0.00	0.00	593.60	240.00	599.87	0.00	599.88	.56	.87	276.16	320.35
5908.000	203.00	0.00	0.00	593.90	100.00	597.85	0.00	597.90	4.98	1.30	55.40	44.80
5908.000	203.00	0.00	0.00	593.90	150.00	598.62	0.00	598.70	6.76	2.26	66.25	57.68
5908.000	203.00	0.00	0.00	593.90	170.00	598.84	0.00	598.93	7.71	2.46	69.16	61.24
5908.000	203.00	0.00	0.00	593.90	240.00	599.84	0.00	599.97	9.26	2.89	83.16	78.95
5909.000	1.00	0.00	0.00	593.90	100.00	597.85	0.00	597.90	4.44	1.81	55.30	47.48
5909.000	1.00	0.00	0.00	593.90	150.00	598.62	0.00	598.70	6.02	2.27	66.13	61.13
5909.000	1.00	0.00	0.00	593.90	170.00	598.84	0.00	598.93	6.82	2.46	69.16	65.08
5909.000	1.00	0.00	0.00	593.90	240.00	599.84	0.00	599.97	8.18	2.89	83.17	83.89
6021.000	112.00	602.40	598.00	593.90	100.00	597.92	0.00	598.02	22.44	2.50	40.00	21.11
6021.000	112.00	602.40	598.00	593.90	150.00	599.45	0.00	599.51	3.63	1.98	75.64	78.72
6021.000	112.00	602.40	598.00	593.90	170.00	599.91	0.00	599.97	3.64	2.07	82.11	89.05
6021.000	112.00	602.40	598.00	593.90	240.00	602.03	0.00	602.10	2.92	2.15	111.81	140.46
6022.000	1.00	0.00	0.00	593.90	100.00	597.98	0.00	598.03	6.77	1.81	55.17	45.78
6022.000	1.00	0.00	0.00	593.90	150.00	599.45	0.00	599.51	4.10	1.98	75.64	74.10
6022.000	1.00	0.00	0.00	593.90	170.00	599.91	0.00	599.97	4.11	2.07	82.12	83.82
6022.000	1.00	0.00	0.00	593.90	240.00	602.03	0.00	602.10	3.30	2.15	111.82	132.21
6071.000	49.00	0.00	0.00	593.90	100.00	598.04	0.00	598.06	.94	.85	117.44	103.09
6071.000	49.00	0.00	0.00	593.90	150.00	599.52	0.00	599.53	.67	.86	174.67	183.31
6071.000	49.00	0.00	0.00	593.90	170.00	599.99	0.00	600.00	.63	.88	193.41	214.40
6071.000	49.00	0.00	0.00	593.90	240.00	602.11	0.00	602.12	.62	.86	278.47	371.89

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
6319.000	248.00	0.00	0.00	594.10	100.00	598.07	0.00	598.08	1.11	.90	110.86	95.08
6319.000	248.00	0.00	0.00	594.10	150.00	599.53	0.00	599.55	.76	.90	167.36	171.59
6319.000	248.00	0.00	0.00	594.10	170.00	600.00	0.00	600.01	.71	.91	186.05	202.02
6319.000	248.00	0.00	0.00	594.10	240.00	602.12	0.00	602.15	.45	.89	270.85	356.90
6567.000	248.00	0.00	0.00	594.30	100.00	598.10	0.00	598.11	1.30	.96	104.66	87.68
6567.000	248.00	0.00	0.00	594.30	150.00	599.55	0.00	599.57	.88	.94	160.07	160.16
6567.000	248.00	0.00	0.00	594.30	170.00	600.02	0.00	600.03	.80	.95	178.72	189.89
6567.000	248.00	0.00	0.00	594.30	240.00	602.13	0.00	602.15	.49	.91	263.32	342.10
6815.000	248.00	0.00	0.00	594.50	70.00	598.13	0.00	598.14	.75	.71	98.85	80.90
6815.000	248.00	0.00	0.00	594.50	100.00	599.58	0.00	599.59	.45	.65	152.96	149.19
6815.000	248.00	0.00	0.00	594.50	110.00	600.04	0.00	600.05	.38	.64	171.53	178.24
6815.000	248.00	0.00	0.00	594.50	155.00	602.15	0.00	602.16	.22	.61	255.81	327.60
7063.000	248.00	0.00	0.00	594.70	70.00	598.15	0.00	598.16	.89	.75	93.01	74.22
7063.000	248.00	0.00	0.00	594.70	100.00	599.59	0.00	599.60	.51	.69	145.84	139.44
7063.000	248.00	0.00	0.00	594.70	110.00	600.05	0.00	600.06	.43	.67	164.34	166.82
7063.000	248.00	0.00	0.00	594.70	155.00	602.16	0.00	602.16	.24	.62	248.41	313.48
7311.000	248.00	0.00	0.00	594.90	70.00	598.17	0.00	598.18	1.08	.81	86.81	67.29
7311.000	248.00	0.00	0.00	594.90	100.00	599.60	0.00	599.61	.60	.72	138.28	129.49
7311.000	248.00	0.00	0.00	594.90	110.00	600.06	0.00	600.07	.51	.70	156.55	154.71
7311.000	248.00	0.00	0.00	594.90	155.00	602.16	0.00	602.17	.27	.64	240.52	298.60
7558.000	247.00	0.00	0.00	595.10	70.00	598.20	0.00	598.22	1.39	.91	76.95	59.40
7558.000	247.00	0.00	0.00	595.10	100.00	599.62	0.00	599.63	.73	.86	119.53	117.08
7558.000	247.00	0.00	0.00	595.10	110.00	600.08	0.00	600.09	.63	.83	133.29	138.05
7558.000	247.00	0.00	0.00	595.10	155.00	602.17	0.00	602.18	.40	.79	196.09	244.36
* 7559.000	1.00	0.00	0.00	597.50	70.00	598.34	598.34	598.70	194.02	4.79	14.61	5.03
7559.000	1.00	0.00	0.00	597.50	100.00	599.59	0.00	599.66	14.03	2.14	46.70	26.69
7559.000	1.00	0.00	0.00	597.50	110.00	600.06	0.00	600.11	7.60	1.76	62.34	39.90
7559.000	1.00	0.00	0.00	597.50	155.00	602.17	0.00	602.18	1.30	1.02	152.61	135.84
7608.000	49.00	0.00	0.00	597.60	70.00	598.99	0.00	599.09	32.64	2.60	26.94	12.25
7608.000	49.00	0.00	0.00	597.60	100.00	599.66	0.00	599.73	14.36	2.19	45.76	25.96
7608.000	49.00	0.00	0.00	597.60	110.00	600.10	0.00	600.15	8.62	1.85	59.57	37.47
7608.000	49.00	0.00	0.00	597.60	155.00	602.17	0.00	602.19	1.28	1.06	149.52	136.86
7777.000	169.00	0.00	0.00	597.70	70.00	599.41	0.00	599.47	14.84	1.97	35.53	18.17
7777.000	169.00	0.00	0.00	597.70	100.00	599.89	0.00	599.96	11.65	1.99	50.23	29.56
7777.000	169.00	0.00	0.00	597.70	110.00	600.24	0.00	600.29	8.02	1.80	61.13	38.83
7777.000	169.00	0.00	0.00	597.70	155.00	602.19	0.00	602.21	1.39	1.08	145.18	131.24
7946.000	169.00	0.00	0.00	597.90	70.00	599.65	0.00	599.71	13.50	1.91	36.74	19.05
7946.000	169.00	0.00	0.00	597.90	100.00	600.09	0.00	600.15	11.73	2.01	49.80	29.20
7946.000	169.00	0.00	0.00	597.90	110.00	600.38	0.00	600.43	8.71	1.85	59.34	37.27
7946.000	169.00	0.00	0.00	597.90	155.00	602.22	0.00	602.24	1.70	1.15	135.60	118.77
8112.000	166.00	0.00	0.00	598.20	70.00	599.99	0.00	600.16	53.30	3.36	20.82	9.59
8112.000	166.00	0.00	0.00	598.20	100.00	600.37	0.00	600.60	53.50	3.82	26.16	13.67
8112.000	166.00	0.00	0.00	598.20	110.00	600.58	0.00	600.80	46.73	3.78	29.09	16.09
8112.000	166.00	0.00	0.00	598.20	155.00	602.23	0.00	602.36	16.04	2.96	52.30	38.70

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10KWS	VCH	AREA	.01K
8113.000	1.00	605.30	601.80	598.20	70.00	599.99	0.00	600.17	64.38	3.48	20.10	8.72
8113.000	1.00	605.30	601.80	598.20	100.00	600.35	0.00	600.63	79.35	4.22	23.70	11.23
8113.000	1.00	605.30	601.80	598.20	110.00	600.55	0.00	600.84	74.87	4.28	25.73	12.71
8113.000	1.00	605.30	601.80	598.20	155.00	602.15	0.00	602.45	96.95	4.40	35.20	15.74
8184.000	71.00	605.30	601.80	598.20	70.00	600.43	0.00	600.53	36.30	2.89	24.24	11.62
8184.000	71.00	605.30	601.80	598.20	100.00	600.88	0.00	601.06	43.32	3.45	28.96	15.19
8184.000	71.00	605.30	601.80	598.20	110.00	601.06	0.00	601.26	43.49	3.57	30.82	16.68
8184.000	71.00	605.30	601.80	598.20	155.00	602.85	0.00	603.15	102.12	4.40	35.20	15.34
8185.000	1.00	0.00	0.00	598.20	70.00	600.44	0.00	600.54	23.51	2.58	27.10	14.44
8185.000	1.00	0.00	0.00	598.20	100.00	600.95	0.00	601.08	23.45	2.92	34.27	20.65
8185.000	1.00	0.00	0.00	598.20	110.00	601.14	0.00	601.28	22.48	2.97	37.02	23.20
8185.000	1.00	0.00	0.00	598.20	155.00	603.13	0.00	603.22	8.63	2.39	64.85	52.75
8234.000	49.00	0.00	0.00	598.20	70.00	600.58	0.00	600.60	4.13	1.25	56.06	34.43
8234.000	49.00	0.00	0.00	598.20	100.00	601.12	0.00	601.15	3.79	1.34	74.84	51.36
8234.000	49.00	0.00	0.00	598.20	110.00	601.32	0.00	601.35	3.52	1.34	82.38	58.59
8234.000	49.00	0.00	0.00	598.20	155.00	603.24	0.00	603.25	.79	.91	178.61	174.09
8373.000	139.00	0.00	0.00	598.30	70.00	600.64	0.00	600.66	4.65	1.28	54.57	33.17
8373.000	139.00	0.00	0.00	598.30	100.00	601.17	0.00	601.20	4.02	1.36	73.28	49.88
8373.000	139.00	0.00	0.00	598.30	110.00	601.37	0.00	601.40	3.73	1.36	80.71	56.97
8373.000	139.00	0.00	0.00	598.30	155.00	603.25	0.00	603.26	.87	.93	172.75	166.61
8512.000	139.00	0.00	0.00	598.50	70.00	600.71	0.00	600.74	5.65	1.40	50.09	29.44
8512.000	139.00	0.00	0.00	598.50	100.00	601.23	0.00	601.27	4.94	1.47	68.00	45.00
8512.000	139.00	0.00	0.00	598.50	110.00	601.43	0.00	601.46	4.55	1.47	75.06	51.56
8512.000	139.00	0.00	0.00	598.50	155.00	603.26	0.00	603.28	1.05	.99	160.85	151.40
8651.000	139.00	0.00	0.00	598.60	70.00	600.78	0.00	600.82	5.88	1.42	49.39	28.87
8651.000	139.00	0.00	0.00	598.60	100.00	601.30	0.00	601.34	5.18	1.50	66.84	43.94
8651.000	139.00	0.00	0.00	598.60	110.00	601.49	0.00	601.53	4.80	1.49	73.65	50.23
8651.000	139.00	0.00	0.00	598.60	155.00	603.28	0.00	603.29	1.15	1.02	155.66	144.75
8790.000	139.00	0.00	0.00	598.80	70.00	600.87	0.00	600.91	7.37	1.69	41.63	25.79
8790.000	139.00	0.00	0.00	598.80	100.00	601.38	0.00	601.43	7.15	1.90	52.63	37.40
8790.000	139.00	0.00	0.00	598.80	110.00	601.56	0.00	601.62	6.91	1.94	56.62	41.84
8790.000	139.00	0.00	0.00	598.80	155.00	603.29	0.00	603.33	2.91	1.63	94.84	90.84
8800.000	10.00	0.00	0.00	599.20	70.00	600.85	0.00	600.95	21.72	2.55	27.48	15.02
8800.000	10.00	0.00	0.00	599.20	100.00	601.36	0.00	601.48	19.19	2.77	36.04	22.83
8800.000	10.00	0.00	0.00	599.20	110.00	601.54	0.00	601.66	18.11	2.81	39.09	25.85
8800.000	10.00	0.00	0.00	599.20	155.00	603.27	0.00	603.35	6.72	2.25	68.78	59.81
* 8810.000	10.00	0.00	0.00	599.70	70.00	600.71	600.71	601.23	208.91	5.75	12.18	4.84
8810.000	10.00	0.00	0.00	599.70	100.00	601.22	0.00	601.69	119.86	5.46	18.33	9.13
8810.000	10.00	0.00	0.00	599.70	110.00	601.41	0.00	601.86	102.10	5.35	20.56	10.85
8810.000	10.00	0.00	0.00	599.70	155.00	603.22	0.00	603.63	24.35	3.67	42.25	31.41
* 8819.000	9.00	0.00	0.00	600.10	70.00	601.66	601.66	602.38	214.58	6.82	10.26	4.78
* 8819.000	9.00	0.00	0.00	600.10	100.00	602.04	602.04	602.96	220.07	7.68	13.02	6.74
* 8819.000	9.00	0.00	0.00	600.10	110.00	602.16	602.16	603.14	222.20	7.93	13.88	7.38
8819.000	9.00	0.00	0.00	600.10	155.00	602.95	0.00	603.90	188.64	8.24	18.82	11.29

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
8820.000	1.00	606.90	605.30	600.10	70.00	602.00	0.00	602.47	110.09	5.53	12.66	6.67
8820.000	1.00	606.90	605.30	600.10	100.00	602.47	0.00	603.07	112.82	6.19	16.15	9.41
8820.000	1.00	606.90	605.30	600.10	110.00	602.62	0.00	603.25	114.26	6.39	17.22	10.29
8820.000	1.00	606.90	605.30	600.10	155.00	602.97	0.00	603.94	189.55	7.91	19.61	11.26
8858.000	38.00	606.90	605.30	600.10	70.00	602.53	0.00	602.81	51.92	4.24	16.52	9.72
8858.000	38.00	606.90	605.30	600.10	100.00	603.10	0.00	603.47	71.34	4.92	20.33	11.84
8858.000	38.00	606.90	605.30	600.10	110.00	603.26	0.00	603.67	77.14	5.18	21.22	12.52
8858.000	38.00	606.90	605.30	600.10	155.00	603.98	0.00	604.56	97.56	6.14	25.25	15.69
8859.000	1.00	0.00	0.00	600.10	70.00	602.54	0.00	602.81	51.43	4.22	16.58	9.76
8859.000	1.00	0.00	0.00	600.10	100.00	603.12	0.00	603.48	56.91	4.83	20.72	13.26
8859.000	1.00	0.00	0.00	600.10	110.00	603.31	0.00	603.69	57.76	4.97	22.12	14.47
8859.000	1.00	0.00	0.00	600.10	155.00	604.13	0.00	604.60	61.14	5.52	28.06	19.82

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SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
5281.000	100.00	597.83	0.00	0.00	0.00	57.04	0.00
5281.000	150.00	598.61	.78	0.00	0.00	60.00	0.00
5281.000	170.00	598.83	.22	0.00	0.00	60.00	0.00
5281.000	240.00	599.85	1.02	0.00	0.00	60.00	0.00
5493.000	100.00	597.84	0.00	.01	0.00	55.50	212.00
5493.000	150.00	598.62	.78	.01	0.00	60.00	212.00
5493.000	170.00	598.84	.22	.01	0.00	60.00	212.00
5493.000	240.00	599.86	1.02	.01	0.00	60.00	212.00
5705.000	100.00	597.85	0.00	.01	0.00	53.97	212.00
5705.000	150.00	598.63	.78	.01	0.00	60.00	212.00
5705.000	170.00	598.85	.22	.01	0.00	60.00	212.00
5705.000	240.00	599.87	1.02	.01	0.00	60.00	212.00
5908.000	100.00	597.85	0.00	.00	0.00	14.00	203.00
5908.000	150.00	598.62	.77	-.01	0.00	14.00	203.00
5908.000	170.00	598.84	.22	-.01	0.00	14.00	203.00
5908.000	240.00	599.84	1.00	-.03	0.00	14.00	203.00
5909.000	100.00	597.85	0.00	.00	0.00	14.00	1.00
5909.000	150.00	598.62	.77	.00	0.00	14.00	1.00
5909.000	170.00	598.84	.22	.00	0.00	14.00	1.00
5909.000	240.00	599.84	1.00	.00	0.00	14.00	1.00
6021.000	100.00	597.92	0.00	.07	0.00	14.00	112.00
6021.000	150.00	599.45	1.52	.82	0.00	14.00	112.00
6021.000	170.00	599.91	.46	1.07	0.00	14.00	112.00
6021.000	240.00	602.03	2.12	2.19	0.00	14.00	112.00
6022.000	100.00	597.98	0.00	.06	0.00	14.00	1.00
6022.000	150.00	599.45	1.46	.00	0.00	14.00	1.00
6022.000	170.00	599.91	.46	.00	0.00	14.00	1.00
6022.000	240.00	602.03	2.12	.00	0.00	14.00	1.00
6071.000	100.00	598.06	0.00	.06	0.00	36.60	49.00
6071.000	150.00	599.52	1.47	.07	0.00	40.00	49.00
6071.000	170.00	599.99	.47	.08	0.00	40.00	49.00
6071.000	240.00	602.11	2.13	.08	0.00	40.00	49.00
6319.000	100.00	598.07	0.00	.02	0.00	35.87	248.00
6319.000	150.00	599.53	1.47	.02	0.00	40.00	248.00
6319.000	170.00	600.00	.47	.02	0.00	40.00	248.00
6319.000	240.00	602.12	2.12	.01	0.00	40.00	248.00
6567.000	100.00	598.10	0.00	.03	0.00	35.17	248.00
6567.000	150.00	599.55	1.46	.02	0.00	40.00	248.00
6567.000	170.00	600.02	.47	.02	0.00	40.00	248.00
6567.000	240.00	602.13	2.11	.01	0.00	40.00	248.00
6815.000	70.00	598.13	0.00	.03	0.00	34.51	248.00
6815.000	100.00	599.58	1.45	.03	0.00	40.00	248.00
6815.000	110.00	600.04	.46	.02	0.00	40.00	248.00
6815.000	155.00	602.15	2.11	.02	0.00	40.00	248.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
7063.000	70.00	598.15	0.00	.02	0.00	33.82	248.00
7063.000	100.00	599.59	1.44	.01	0.00	39.58	248.00
7063.000	110.00	600.05	.46	.01	0.00	40.00	248.00
7063.000	155.00	602.16	2.10	.01	0.00	40.00	248.00
7311.000	70.00	598.17	0.00	.02	0.00	33.03	248.00
7311.000	100.00	599.60	1.43	.01	0.00	38.31	248.00
7311.000	110.00	600.06	.46	.01	0.00	40.00	248.00
7311.000	155.00	602.16	2.10	.01	0.00	40.00	248.00
7558.000	70.00	598.20	0.00	.03	0.00	30.00	247.00
7558.000	100.00	599.62	1.42	.01	0.00	30.00	247.00
7558.000	110.00	600.08	.46	.01	0.00	30.00	247.00
7558.000	155.00	602.17	2.09	.01	0.00	30.00	247.00
* 7559.000	70.00	598.34	0.00	.14	0.00	20.73	1.00
7559.000	100.00	599.59	1.25	-.03	0.00	30.71	1.00
7559.000	110.00	600.06	.47	-.02	0.00	34.55	1.00
7559.000	155.00	602.17	2.11	-.00	0.00	51.36	1.00
7608.000	70.00	598.99	0.00	.65	0.00	25.04	49.00
7608.000	100.00	599.66	.67	.07	0.00	30.47	49.00
7608.000	110.00	600.10	.44	.04	0.00	33.98	49.00
7608.000	155.00	602.17	2.03	.01	0.00	57.42	49.00
7777.000	70.00	599.41	0.00	.42	0.00	27.65	169.00
7777.000	100.00	599.89	.49	.24	0.00	31.62	169.00
7777.000	110.00	600.24	.35	.14	0.00	34.26	169.00
7777.000	155.00	602.19	1.95	.02	0.00	55.39	169.00
7946.000	70.00	599.65	0.00	.24	0.00	28.00	169.00
7946.000	100.00	600.09	.44	.20	0.00	31.51	169.00
7946.000	110.00	600.38	.29	.14	0.00	33.84	169.00
7946.000	155.00	602.22	1.84	.02	0.00	52.34	169.00
8112.000	70.00	599.99	0.00	.34	0.00	14.00	166.00
8112.000	100.00	600.37	.38	.28	0.00	14.00	166.00
8112.000	110.00	600.58	.21	.20	0.00	14.00	166.00
8112.000	155.00	602.23	1.65	.01	0.00	14.00	166.00
8113.000	70.00	599.99	0.00	-.00	0.00	14.00	1.00
8113.000	100.00	600.35	.36	-.02	0.00	14.00	1.00
8113.000	110.00	600.55	.20	-.03	0.00	14.00	1.00
8113.000	155.00	602.15	1.59	-.08	0.00	14.00	1.00
8184.000	70.00	600.40	0.00	.41	0.00	14.00	71.00
8184.000	100.00	600.88	.48	.53	0.00	14.00	71.00
8184.000	110.00	601.06	.19	.51	0.00	14.00	71.00
8184.000	155.00	602.85	1.79	.71	0.00	14.00	71.00
8185.000	70.00	600.44	0.00	.04	0.00	14.00	1.00
8185.000	100.00	600.95	.51	.07	0.00	14.00	1.00
8185.000	110.00	601.14	.20	.08	0.00	14.00	1.00
8185.000	155.00	603.13	1.99	.28	0.00	14.00	1.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	8234.000	70.00	600.58	0.00	.14	0.00	33.06	49.00
	8234.000	100.00	601.12	.54	.17	0.00	37.33	49.00
	8234.000	110.00	601.32	.20	.18	0.00	38.91	49.00
	8234.000	155.00	603.24	1.92	.11	0.00	66.78	49.00
	8373.000	70.00	600.64	0.00	.06	0.00	32.70	139.00
	8373.000	100.00	601.17	.54	.05	0.00	36.99	139.00
	8373.000	110.00	601.37	.20	.05	0.00	38.57	139.00
	8373.000	155.00	603.25	1.88	.01	0.00	65.01	139.00
	8512.000	70.00	600.71	0.00	.07	0.00	31.58	139.00
	8512.000	100.00	601.23	.53	.06	0.00	35.83	139.00
	8512.000	110.00	601.43	.19	.05	0.00	37.38	139.00
	8512.000	155.00	603.26	1.84	.01	0.00	61.24	139.00
	8651.000	70.00	600.78	0.00	.08	0.00	31.40	139.00
	8651.000	100.00	601.30	.52	.07	0.00	35.57	139.00
	8651.000	110.00	601.49	.19	.06	0.00	37.07	139.00
	8651.000	155.00	603.28	1.79	.01	0.00	59.52	139.00
	8790.000	70.00	600.87	0.00	.08	0.00	22.00	139.00
	8790.000	100.00	601.38	.51	.07	0.00	22.00	139.00
	8790.000	110.00	601.56	.18	.07	0.00	22.00	139.00
	8790.000	155.00	603.29	1.73	.01	0.00	22.00	139.00
	8800.000	70.00	600.85	0.00	-.02	0.00	17.00	10.00
	8800.000	100.00	601.36	.50	-.02	0.00	17.00	10.00
	8800.000	110.00	601.54	.18	-.02	0.00	17.00	10.00
	8800.000	155.00	603.27	1.74	-.01	0.00	17.00	10.00
*	8810.000	70.00	600.71	0.00	-.14	0.00	12.00	10.00
	8810.000	100.00	601.22	.51	-.13	0.00	12.00	10.00
	8810.000	110.00	601.41	.19	-.12	0.00	12.00	10.00
	8810.000	155.00	603.22	1.81	-.05	0.00	12.00	10.00
*	8819.000	70.00	601.66	0.00	.94	0.00	7.20	9.00
*	8819.000	100.00	602.06	.38	.82	0.00	7.20	9.00
*	8819.000	110.00	602.16	.12	.75	0.00	7.20	9.00
	8819.000	155.00	602.85	.69	-.37	0.00	7.20	9.00
	8820.000	70.00	602.00	0.00	.34	0.00	7.20	1.00
	8820.000	100.00	602.47	.48	.43	0.00	7.20	1.00
	8820.000	110.00	602.62	.15	.46	0.00	7.20	1.00
	8820.000	155.00	602.97	.35	.13	0.00	7.20	1.00
	8858.000	70.00	602.53	0.00	.53	0.00	7.20	38.00
	8858.000	100.00	603.10	.57	.62	0.00	7.20	38.00
	8858.000	110.00	603.26	.16	.63	0.00	7.20	38.00
	8858.000	155.00	603.98	.72	1.00	0.00	7.20	38.00
	8859.000	70.00	602.54	0.00	.01	0.00	7.20	1.00
	8859.000	100.00	603.12	.59	.02	0.00	7.20	1.00
	8859.000	110.00	603.31	.18	.05	0.00	7.20	1.00
	8859.000	155.00	606.13	.82	.15	0.00	7.20	1.00

SUMMARY OF ERRORS

CAUTION SECNO= 7559.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 7559.000 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTIO SEC O= 7559.00 PROFILE= 1 2 TRIALS ATTE PTED TO BALA CE SEL

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CAUTION  SECNO= 8810.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO= 8810.000  PROFILE= 1  MINIMUM SPECIFIC ENERGY

CAUTION  SECNO= 8819.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO= 8819.000  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO= 8819.000  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO= 8819.000  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO= 8819.000  PROFILE= 2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO= 8819.000  PROFILE= 2  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO= 8819.000  PROFILE= 3  CRITICAL DEPTH ASSUMED
CAUTION  SECNO= 8819.000  PROFILE= 3  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO= 8819.000  PROFILE= 3  20 TRIALS ATTEMPTED TO BALANCE WSEL
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HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
ERROR CORR -  01,02
MODIFICATION -  50,51,52,53
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

LEWIS DRAIN

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
54.000	0.00	0.00	0.00	588.10	605.00	596.00	0.00	596.12	4.46	2.76	219.10	286.38
54.000	0.00	0.00	0.00	588.10	895.00	596.70	0.00	596.91	7.42	3.72	240.80	328.62
54.000	0.00	0.00	0.00	588.10	980.00	596.91	0.00	597.15	8.23	3.96	247.31	341.57
54.000	0.00	0.00	0.00	588.10	1385.00	597.72	0.00	598.12	12.45	5.08	272.42	392.56
55.000	1.00	598.10	597.60	588.10	605.00	595.98	0.00	596.14	9.51	3.30	183.24	196.18
55.000	1.00	598.10	597.60	588.10	895.00	596.64	0.00	596.97	22.75	4.60	194.42	187.65
55.000	1.00	598.10	597.60	588.10	980.00	596.84	0.00	597.23	26.63	4.99	196.30	189.92
55.000	1.00	598.10	597.60	588.10	1385.00	597.56	0.00	598.29	57.19	6.83	202.74	183.15
120.000	65.00	598.10	597.60	588.10	605.00	596.04	0.00	596.21	9.34	3.28	184.38	197.93
120.000	65.00	598.10	597.60	588.10	895.00	596.80	0.00	597.12	22.32	4.57	195.89	189.42
120.000	65.00	598.10	597.60	588.10	980.00	597.02	0.00	597.40	26.05	4.95	198.03	192.01
120.000	65.00	598.10	597.60	588.10	1385.00	597.94	0.00	598.66	59.54	6.83	202.80	179.49
121.000	1.00	0.00	0.00	588.10	605.00	596.11	0.00	596.22	5.40	2.72	222.45	260.27
121.000	1.00	0.00	0.00	588.10	895.00	596.96	0.00	597.16	8.54	3.60	248.81	306.28
121.000	1.00	0.00	0.00	588.10	980.00	597.22	0.00	597.45	9.33	3.81	256.99	320.91
121.000	1.00	0.00	0.00	588.10	1385.00	598.48	0.00	598.79	11.77	4.55	376.66	403.63
640.000	520.00	0.00	0.00	588.50	605.00	596.43	0.00	596.58	8.14	3.07	213.49	212.10
640.000	520.00	0.00	0.00	588.50	895.00	597.43	0.00	597.60	7.91	3.43	327.12	318.14
640.000	520.00	0.00	0.00	588.50	980.00	597.74	0.00	597.90	7.33	3.42	378.65	362.03
640.000	520.00	0.00	0.00	588.50	1385.00	599.10	0.00	599.21	4.60	3.13	709.85	645.53
1384.000	744.00	0.00	0.00	588.50	605.00	597.24	0.00	597.40	15.43	4.06	268.74	154.04
1384.000	744.00	0.00	0.00	588.50	895.00	598.17	0.00	598.25	9.03	3.34	504.87	297.87
1384.000	744.00	0.00	0.00	588.50	980.00	598.41	0.00	598.48	7.69	3.13	577.57	353.32
1384.000	744.00	0.00	0.00	588.50	1385.00	599.52	0.00	599.56	4.15	2.48	943.04	679.51
1385.000	1.00	595.40	595.40	588.50	605.00	597.32	0.00	597.42	26.28	3.35	269.41	118.02
1385.000	1.00	595.40	595.40	588.50	895.00	598.20	0.00	598.26	12.67	2.52	495.26	251.39
1385.000	1.00	595.40	595.40	588.50	980.00	598.44	0.00	598.49	10.42	2.33	565.71	303.59
1385.000	1.00	595.40	595.40	588.50	1385.00	599.52	0.00	599.56	5.08	1.77	923.44	614.45
1400.000	15.00	595.40	595.40	588.50	605.00	597.37	0.00	597.46	24.55	3.25	277.47	122.09
1400.000	15.00	595.40	595.40	588.50	895.00	598.22	0.00	598.28	12.34	2.49	500.04	254.82
1400.000	15.00	595.40	595.40	588.50	980.00	598.45	0.00	598.50	10.21	2.31	569.86	306.77
1400.000	15.00	595.40	595.40	588.50	1385.00	599.53	0.00	599.57	5.00	1.76	928.53	619.32

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
1401.000	1.00	0.00	0.00	588.50	605.00	597.35	0.00	597.48	13.29	3.80	291.15	165.95
1401.000	1.00	0.00	0.00	588.50	895.00	598.21	0.00	598.29	8.39	3.23	519.88	309.00
1401.000	1.00	0.00	0.00	588.50	980.00	598.45	0.00	598.51	7.25	3.05	590.92	363.89
1401.000	1.00	0.00	0.00	588.50	1385.00	599.53	0.00	599.57	4.08	2.46	948.97	685.35
1971.000	570.00	0.00	0.00	589.30	100.00	597.71	0.00	597.72	.21	.51	336.59	219.15
1971.000	570.00	0.00	0.00	589.30	150.00	598.45	0.00	598.45	.17	.50	528.20	364.36
1971.000	570.00	0.00	0.00	589.30	170.00	598.65	0.00	598.66	.17	.51	590.84	415.45
1971.000	570.00	0.00	0.00	589.30	240.00	599.66	0.00	599.66	.11	.45	933.49	737.70
2855.000	884.00	0.00	0.00	590.20	100.00	597.73	0.00	597.73	.12	.37	398.22	294.31
2855.000	884.00	0.00	0.00	590.20	150.00	598.46	0.00	598.46	.10	.38	618.08	469.49
2855.000	884.00	0.00	0.00	590.20	170.00	598.67	0.00	598.67	.10	.39	693.46	531.95
2855.000	884.00	0.00	0.00	590.20	240.00	599.66	0.00	599.67	.06	.34	1220.85	960.86
3965.000	1110.00	0.00	0.00	591.70	100.00	597.75	0.00	597.75	.45	.66	150.72	148.55
3965.000	1110.00	0.00	0.00	591.70	150.00	598.48	0.00	598.49	.61	.83	188.30	191.40
3965.000	1110.00	0.00	0.00	591.70	170.00	598.68	0.00	598.70	.67	.89	209.46	207.69
3965.000	1110.00	0.00	0.00	591.70	240.00	599.68	0.00	599.69	.48	.86	455.55	346.93
4095.000	130.00	0.00	0.00	591.70	100.00	597.75	0.00	597.76	.45	.66	150.98	148.90
4095.000	130.00	0.00	0.00	591.70	150.00	598.49	0.00	598.50	.61	.83	189.11	192.05
4095.000	130.00	0.00	0.00	591.70	170.00	598.69	0.00	598.71	.66	.89	210.64	208.54
4095.000	130.00	0.00	0.00	591.70	240.00	599.68	0.00	599.69	.48	.86	418.86	347.06
4770.000	675.00	0.00	0.00	592.30	100.00	597.80	0.00	597.81	1.11	.95	104.88	94.76
4770.000	675.00	0.00	0.00	592.30	150.00	598.54	0.00	598.56	1.45	1.17	128.07	124.42
4770.000	675.00	0.00	0.00	592.30	170.00	598.75	0.00	598.78	1.62	1.26	135.02	133.68
4770.000	675.00	0.00	0.00	592.30	240.00	599.73	0.00	599.76	1.73	1.42	168.65	182.30
4819.000	49.00	0.00	0.00	590.80	100.00	597.81	0.00	597.82	.49	.71	140.39	143.56
4819.000	49.00	0.00	0.00	590.80	150.00	598.56	0.00	598.57	.78	.96	155.94	169.64
4819.000	49.00	0.00	0.00	590.80	170.00	598.77	0.00	598.79	.92	1.06	160.36	177.31
4819.000	49.00	0.00	0.00	590.80	240.00	599.74	0.00	599.77	1.26	1.33	180.58	213.68
4820.000	1.00	0.00	0.00	590.80	100.00	597.81	0.00	597.82	.16	.71	140.55	246.56
4820.000	1.00	0.00	0.00	590.80	150.00	598.56	0.00	598.57	.27	.96	156.13	291.37
4820.000	1.00	0.00	0.00	590.80	170.00	598.77	0.00	598.79	.31	1.06	160.56	304.56
4820.000	1.00	0.00	0.00	590.80	240.00	599.74	0.00	599.77	.43	1.33	180.73	366.79
4880.000	60.00	600.60	597.30	590.80	100.00	597.82	0.00	597.82	.16	.71	140.90	247.53
4880.000	60.00	600.60	597.30	590.80	150.00	598.58	0.00	598.59	.26	.96	156.76	293.23
4880.000	60.00	600.60	597.30	590.80	170.00	598.80	0.00	598.82	.31	1.05	161.38	307.02
4880.000	60.00	600.60	597.30	590.80	240.00	599.81	0.00	599.83	.42	1.32	182.16	371.33
4881.000	1.00	0.00	0.00	590.80	100.00	597.82	0.00	597.82	.43	.71	140.73	152.60
4881.000	1.00	0.00	0.00	590.80	150.00	598.58	0.00	598.59	.69	.96	156.61	180.84
4881.000	1.00	0.00	0.00	590.80	170.00	598.80	0.00	598.82	.81	1.05	161.20	189.30
4881.000	1.00	0.00	0.00	590.80	240.00	599.81	0.00	599.83	1.09	1.32	182.16	229.36
4950.000	69.00	0.00	0.00	592.90	100.00	597.82	0.00	597.83	.32	.55	182.84	176.38
4950.000	69.00	0.00	0.00	592.90	150.00	598.59	0.00	598.60	.39	.67	225.50	240.16
4950.000	69.00	0.00	0.00	592.90	170.00	598.82	0.00	598.82	.42	.71	238.54	260.98
4950.000	69.00	0.00	0.00	592.90	240.00	599.83	0.00	599.84	.43	.80	299.06	365.44

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
5115.000	165.00	0.00	0.00	593.00	100.00	597.83	0.00	597.83	.35	.56	178.02	170.02
5115.000	165.00	0.00	0.00	593.00	150.00	598.60	0.00	598.61	.41	.68	220.88	232.89
5115.000	165.00	0.00	0.00	593.00	170.00	598.82	0.00	598.83	.45	.73	233.72	253.24
5115.000	165.00	0.00	0.00	593.00	240.00	599.84	0.00	599.85	.46	.82	293.81	355.47
5280.000	165.00	0.00	0.00	593.20	100.00	597.83	0.00	597.84	.41	.60	167.66	156.55
5280.000	165.00	0.00	0.00	593.20	150.00	598.61	0.00	598.61	.48	.71	209.83	215.79
5280.000	165.00	0.00	0.00	593.20	170.00	598.83	0.00	598.84	.52	.76	222.54	235.50
5280.000	165.00	0.00	0.00	593.20	240.00	599.85	0.00	599.86	.52	.85	281.93	333.60
5281.000	1.00	0.00	0.00	593.20	100.00	597.83	0.00	597.84	.37	.56	178.58	164.79
5281.000	1.00	0.00	0.00	593.20	150.00	598.61	0.00	598.61	.42	.67	224.35	230.77
5281.000	1.00	0.00	0.00	593.20	170.00	598.83	0.00	598.84	.45	.71	237.85	253.16
5281.000	1.00	0.00	0.00	593.20	240.00	599.85	0.00	599.86	.44	.80	298.94	362.74
5493.000	212.00	0.00	0.00	593.40	100.00	597.84	0.00	597.85	.44	.60	167.83	151.33
5493.000	212.00	0.00	0.00	593.40	150.00	598.62	0.00	598.62	.50	.70	213.01	212.52
5493.000	212.00	0.00	0.00	593.40	170.00	598.84	0.00	598.85	.53	.75	226.56	234.39
5493.000	212.00	0.00	0.00	593.40	240.00	599.86	0.00	599.87	.49	.83	287.65	341.51
5705.000	212.00	0.00	0.00	593.60	100.00	597.85	0.00	597.86	.52	.64	157.34	138.48
5705.000	212.00	0.00	0.00	593.60	150.00	598.63	0.00	598.64	.60	.74	201.58	194.34
5705.000	212.00	0.00	0.00	593.60	170.00	598.85	0.00	598.86	.62	.79	215.16	215.94
5705.000	212.00	0.00	0.00	593.60	240.00	599.87	0.00	599.88	.56	.87	276.20	320.43
5908.000	203.00	0.00	0.00	593.90	100.00	597.85	0.00	597.91	4.96	1.80	55.47	44.88
5908.000	203.00	0.00	0.00	593.90	150.00	598.62	0.00	598.70	6.77	2.27	66.21	57.64
5908.000	203.00	0.00	0.00	593.90	170.00	598.84	0.00	598.94	7.70	2.46	69.19	61.28
5908.000	203.00	0.00	0.00	593.90	240.00	599.84	0.00	599.97	9.24	2.89	83.17	78.96
5909.000	1.00	0.00	0.00	593.90	100.00	597.86	0.00	597.91	4.42	1.81	55.37	47.56
5909.000	1.00	0.00	0.00	593.90	150.00	598.62	0.00	598.70	6.03	2.27	66.09	61.08
5909.000	1.00	0.00	0.00	593.90	170.00	598.84	0.00	598.94	6.81	2.46	69.20	65.12
5909.000	1.00	0.00	0.00	593.90	240.00	599.84	0.00	599.97	8.18	2.89	83.18	83.91
6021.000	112.00	602.40	598.00	593.90	100.00	597.93	0.00	598.02	22.44	2.50	40.00	21.11
6021.000	112.00	602.40	598.00	593.90	150.00	598.78	0.00	598.86	5.41	2.26	66.31	64.49
6021.000	112.00	602.40	598.00	593.90	170.00	599.06	0.00	599.15	5.84	2.42	70.20	70.33
6021.000	112.00	602.40	598.00	593.90	240.00	600.33	0.00	600.45	5.89	2.72	88.09	98.90
6022.000	1.00	0.00	0.00	593.90	100.00	597.99	0.00	598.04	4.75	1.81	55.23	45.87
6022.000	1.00	0.00	0.00	593.90	150.00	598.78	0.00	598.86	6.10	2.26	66.32	60.71
6022.000	1.00	0.00	0.00	593.90	170.00	599.06	0.00	599.15	6.59	2.42	70.21	66.20
6022.000	1.00	0.00	0.00	593.90	240.00	600.34	0.00	600.45	6.65	2.72	88.10	93.10
6071.000	49.00	0.00	0.00	593.90	100.00	598.05	0.00	598.06	.94	.85	117.61	103.30
6071.000	49.00	0.00	0.00	593.90	150.00	598.87	0.00	598.89	1.09	1.01	148.93	143.55
6071.000	49.00	0.00	0.00	593.90	170.00	599.16	0.00	599.18	1.12	1.06	160.57	160.94
6071.000	49.00	0.00	0.00	593.90	240.00	600.47	0.00	600.49	.94	1.13	212.77	248.02
6319.000	248.00	0.00	0.00	594.10	100.00	598.07	0.00	598.09	1.10	.90	111.02	95.27
6319.000	248.00	0.00	0.00	594.10	150.00	598.90	0.00	598.92	1.24	1.06	142.13	134.53
6319.000	248.00	0.00	0.00	594.10	170.00	599.19	0.00	599.21	1.28	1.11	153.73	150.39
6319.000	248.00	0.00	0.00	594.10	240.00	600.49	0.00	600.51	1.04	1.17	205.72	235.61

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Macomb

3) WATERCOURSE: Lewis Drain

4) DOCUMENT TYPE: 100 year flood

00BREAK00

LEWIS DRAIN
J&A FILE No. 5850-03
MACOMB TWP. FIS
"NATURAL FLOODWAY"
100 YEAR FLOOD

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
**************************************************


C
T1               MACOMB TWP. FIS J&A FILE NO. 5850-03-1
T2               100 YEAR FLOOD
T3               LEWIS DRAIN

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC     HVINS      Q        WSEL       FQ

       0.        4.        0.        0.  0.000000      0.00       0.0       0.    596.910     0.000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH      FN        ALLDC      IBW      CHNIM     ITRACE

     1.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

NC      .040      .040      .032      .300      .500     0.000     0.000     0.000     0.000     0.000
QT     4.000   605.000   895.000   980.000  1385.000     0.000     0.000     0.000     0.000     0.000

X1    54.000    24.000   384.500   415.500     0.000     0.000     0.000     0.000      .100     0.000
GR   598.800     0.000   598.500   200.000   598.500   384.500   591.200   384.500   589.500   385.100
GR   588.300   387.500   588.000   390.700   588.000   391.500   588.000   392.300   588.300   395.500
GR   589.500   397.900   591.200   398.500   591.200   401.500   589.500   402.100   588.300   404.500
GR   588.000   407.700   588.000   408.500   588.000   409.300   588.300   412.500   589.500   414.900
GR   591.200   415.500   598.500   415.500   598.000   600.000   598.200   800.000     0.000     0.000

X1    55.000     0.000     0.000     0.000     1.000     1.000     1.000     0.000     0.000     0.000
BT    22.000     0.000   598.900     0.000   200.000   598.600     0.000   384.500   598.600   591.300
BT   385.100   598.600   593.400   387.500   598.600   596.400   390.700   598.600   597.500   391.500
BT   598.600   597.600   392.300   598.600   597.500   395.500   598.600   596.400   397.900   598.600
BT   593.400   398.500   598.600   591.300   401.500   598.600   591.300   402.100   598.600   593.400
BT   404.500   598.600   596.400   407.700   598.600   597.500   408.500   598.600   597.600   409.300
BT   598.600   597.500   412.500   598.600   596.400   414.900   598.600   593.400   415.500   598.600
BT   591.300   600.000   598.100     0.000   800.000   598.300     0.000     0.000     0.000     0.000

               LAKESIDE VILLA ENTRANCE ROAD     (MCS)          SECT.A

               2-14' X 9'8" CMP ARCH PIPES

X1   120.000     0.000     0.000     0.000    65.000    65.000    65.000     0.000     0.000     0.000
X2     0.000     0.000     0.000     0.000     0.000     0.000     1.000     0.000     0.000     0.000
NC      .042      .042      .036     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1   121.000     0.000     0.000     0.000     1.000     1.000     1.000     0.000     0.000     0.000

               VALLEY SECTION B (MCS)                          SECT.B

X1   640.000     9.000   400.000   444.000   520.000   520.000   520.000     0.000      .100     0.000
GR   600.700     0.000   600.700   200.000   596.700   400.000   590.900   414.000   588.400   421.000
GR   589.900   428.000   595.300   444.000   600.400   644.000   600.600   844.000     0.000     0.000
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X1	1384.000	17.000	409.700	420.400	744.000	744.000	744.000	0.000	.100	0.000
X3	0.000	0.000	0.000	0.000	0.000	580.000	0.000	0.000	0.000	0.000
GR	601.000	0.000	599.900	200.000	595.700	400.000	595.700	409.700	590.600	409.700
GR	589.400	410.300	588.800	412.100	588.500	413.900	588.400	415.000	588.500	416.100
GR	588.800	417.900	589.400	419.700	590.600	420.400	595.300	420.400	595.300	430.000
GR	598.700	630.000	600.900	830.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.042	.042	.032	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	1385.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	580.000	0.000	0.000	0.000	0.000
BT	14.000	0.000	601.100	0.000	200.000	600.000	0.000	400.000	595.800	0.000
BT	409.700	595.800	590.700	410.300	595.800	592.500	412.100	595.700	594.500	413.900
BT	595.600	595.200	415.000	595.600	595.400	416.100	595.600	595.200	417.900	595.500
BT	594.500	419.700	595.400	592.500	420.400	595.400	590.700	430.000	595.400	0.000
BT	580.000	598.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

PRIVATE CULVERT BRIDGE SECTION C (MCS) SECT.C

83" X 128" CMP

X1	1400.000	0.000	0.000	0.000	15.000	15.000	15.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	580.000	0.000	0.000	0.000	0.000
NC	.042	.042	.036	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	1401.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	580.000	0.000	0.000	0.000	0.000
QT	4.000	100.000	150.000	170.000	240.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION FROM MCS LEWIS DRAIN DESIGN

X1	1971.000	7.000	215.000	230.000	570.000	570.000	570.000	0.000	.100	0.000
X3	0.000	0.000	0.000	100.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	597.400	0.000	596.400	100.000	596.400	200.000	589.200	215.000	596.200	230.000
GR	597.500	320.000	599.000	450.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION D (MCS) SECT.D

X1	2855.000	10.000	450.000	500.000	884.000	884.000	884.000	0.000	.100	0.000
GR	598.500	0.000	598.500	50.000	596.800	250.000	597.000	450.000	591.200	467.000
GR	590.100	476.000	591.800	485.000	598.300	500.000	598.800	700.000	600.300	900.000

VALLEY SECTION E (MCS) SECT.E

X1	3965.000	9.000	400.000	441.000	1300.000	800.000	1110.000	0.000	.100	0.000
GR	600.000	0.000	600.100	200.000	598.500	400.000	591.800	418.000	591.600	424.000
GR	591.800	431.000	598.000	441.000	599.600	641.000	600.300	841.000	0.000	0.000

X1	4095.000	0.000	0.000	0.000	130.000	130.000	130.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	230.000	0.000	540.000	0.000	0.000	0.000	0.000

VALLEY SECTION F (MCS) SECT.F

X1	4770.000	8.000	400.000	438.000	625.000	700.000	675.000	0.000	.100	0.000
X3	0.000	0.000	0.000	0.000	0.000	448.000	0.000	0.000	0.000	0.000
GR	600.600	0.000	600.300	200.000	600.700	400.000	593.000	417.000	592.200	423.000
GR	593.100	430.000	598.800	438.000	600.000	638.000	0.000	0.000	0.000	0.000

X1	4819.000	10.000	100.000	120.800	49.000	49.000	49.000	0.000	.100	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	600.500	600.500	0.000
GR	600.500	0.000	600.500	75.000	590.700	100.000	590.700	110.000	597.200	110.000
GR	597.200	110.800	590.700	110.800	590.700	120.800	600.500	146.000	600.500	200.000
NC	.040	.040	.021	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	4820.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	600.500	600.500	0.000
SB	0.000	1.810	3.000	0.000	20.000	0.000	130.000	0.000	590.800	590.800

21 MILE ROAD BRIDGE SECTION 7.1 (MCS) SECT.G

CONCRETE BOX CULVERT

X1	4880.000	0.000	0.000	0.000	60.000	60.000	60.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	597.300	600.600	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	600.600	600.600	0.000
BT	6.000	0.000	600.600	0.000	100.000	600.600	590.800	100.000	600.600	597.300
BT	120.800	600.600	597.300	120.800	600.600	590.800	200.000	600.600	0.000	0.000
NC	.038	.038	.034	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	4881.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	600.500	600.500	0.000

VALLEY SECTION 8.1 (MCS) SECT.H

X1	4950.000	7.000	40.000	100.000	69.000	69.000	69.000	0.000	.100	0.000
GR	601.800	0.000	599.800	20.000	597.800	40.000	592.800	60.000	592.800	80.000
GR	599.500	100.000	600.500	120.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	5115.000	0.000	0.000	0.000	165.000	165.000	165.000	0.000	.100	0.000
X1	5280.000	0.000	0.000	0.000	165.000	165.000	165.000	0.000	.200	0.000

VALLEY SECTION 11.1 (MCS) SECT.I

X1	5281.000	8.000	40.000	100.000	1.000	1.000	1.000	0.000	.100	0.000
GR	602.100	0.000	600.100	20.000	598.100	40.000	593.100	60.000	593.100	80.000
GR	598.100	100.000	600.100	120.000	602.100	140.000	0.000	0.000	0.000	0.000
X1	5493.000	0.000	0.000	0.000	212.000	212.000	212.000	0.000	.200	0.000
X1	5705.000	0.000	0.000	0.000	212.000	212.000	212.000	0.000	.200	0.000
X1	5908.000	6.000	59.000	141.000	203.000	203.000	203.000	0.000	.100	0.000
X3	0.000	0.000	0.000	93.000	0.000	107.000	0.000	0.000	0.000	0.000
GR	602.600	0.000	602.600	59.000	593.800	93.000	593.800	107.000	602.300	141.000
GR	602.300	200.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.040	.040	.032	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	5909.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	93.000	0.000	107.000	0.000	0.000	0.000	0.000
SB	0.000	4.350	3.000	0.000	19.510	0.000	80.000	0.000	593.900	593.900

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*PROF 1

CCHV=      .300 CEHV=      .500
*SECNO 5281.000
      SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
      Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA     LEFT/RIGHT
      TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
      SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


    5281.00      5.63     598.83       0.00     598.83     598.84        .01       0.00       0.00     598.20
       170.        0.       170.         0.         2.       238.         2.         0.         0.     598.20
       0.00       .12        .71        .12       .038       .034       .038      0.000     593.20      33.70
    .000044        0.         0.         0.          0          0          0       0.00      72.60     106.30

*SECNO 5493.000
    5493.00      5.44     598.84       0.00       0.00     598.85        .01        .01        .00     593.40
       170.        0.       170.         0.         1.       226.         1.         1.         0.     598.40
        .08       .10        .75        .10       .038       .034       .038       .034     593.40      35.61
    .000052      212.       212.       212.          0          0          0       0.00      68.78     104.39

*SECNO 5705.000
    5705.00      5.25     598.85       0.00       0.00     598.86        .01        .01        .00     598.60
       170.        0.       170.         0.         0.       215.         0.         2.         1.     598.60
        .15       .08        .79        .08       .038       .034       .038       .034     593.60      37.50
    .000061      212.       212.       212.          0          0          0       0.00      64.99     102.50

*SECNO 5908.000

3470 ENCROACHMENT STATIONS=       93.0       107.0   TYPE=       1  TARGET=       14.000
    5908.00      4.94     598.84       0.00       0.00     598.93        .09        .03       .04100000.10
       170.        0.       170.         0.         0.        69.         0.         3.         1. 100000.10
        .18      0.00       2.46       0.00       .038       .034       .038       .034     593.90      93.00
    .000771      203.       203.       203.          2          0          0       0.00      14.00     107.00

*SECNO 5909.000
      SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
      Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA     LEFT/RIGHT
      TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
      SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3470 ENCROACHMENT STATIONS=       93.0       107.0   TYPE=       1  TARGET=       14.000
    5909.00      4.94     598.84       0.00       0.00     598.93        .09        .00       .00100000.00
       170.        0.       170.         0.         0.        69.         0.         3.         1. 100000.00
        .18      0.00       2.46       0.00       .040       .032       .040       .034     593.90      93.00
    .000683        1.         1.         1.          0          0          0       0.00      14.00     107.00

SPECIAL BRIDGE

SB   XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
       0.00       4.35       3.00       0.00      10.20       0.00      41.50       0.00     593.90     593.90

*SECNO 6021.000
PRESSURE FLOW
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EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
599.97	598.94	0.00	0.	170.	42.	42.	598.00	602.40

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 602.40 ELREA= 602.40

6021.00	6.01	599.91	0.00	0.00	599.97	.07	1.04	0.00	594.90
170.	0.	170.	0.	0.	82.	0.	3.	1.	594.90
.19	0.00	2.07	0.00	.040	.032	.040	.033	593.90	93.00
.000365	112.	112.	112.	2	0	0	0.00	14.00	107.00

*SECNO 6022.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 602.30 ELREA= 602.30

6022.00	6.01	599.91	0.00	0.00	599.97	.07	.00	.00	594.90
170.	0.	170.	0.	0.	82.	0.	3.	1.	594.90
.19	0.00	2.07	0.00	.038	.034	.038	.033	593.90	93.00
.000412	1.	1.	1.	0	0	0	0.00	14.00	107.00

*SECNO 6071.000

6071.00	6.09	599.99	0.00	0.00	600.00	.01	.00	.02	598.90
170.	1.	133.	37.	6.	194.	78.	3.	1.	593.90
.21	.14	.69	.47	.038	.034	.038	.033	593.90	39.11
.000031	49.	49.	49.	2	0	0	0.00	81.78	120.89

*SECNO 6319.000

6319.00	5.90	600.00	0.00	0.00	600.00	.01	.01	.00	599.10
170.	1.	134.	36.	4.	186.	72.	5.	1.	594.10
.32	.14	.72	.50	.038	.034	.038	.034	594.10	41.03
.000036	248.	248.	248.	2	0	0	0.00	77.94	118.97

*SECNO 6567.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
6567.00	5.71	600.01	0.00	0.00	600.01	.01	.01	.00	599.30
170.	0.	135.	35.	2.	178.	67.	6.	2.	594.30
.41	.13	.76	.52	.038	.034	.038	.034	594.30	42.95
.000042	248.	248.	248.	0	0	0	0.00	74.10	117.05

*SECNO 6815.000

6815.00	5.52	600.02	0.00	0.00	600.02	.00	.01	.00	599.50
110.	0.	88.	22.	1.	171.	62.	8.	2.	594.50
.56	.07	.52	.36	.038	.034	.038	.034	594.50	44.84
.000021	248.	248.	248.	0	0	0	0.00	70.31	115.16

*SECNO 7063.000

7063.00	5.32	600.02	0.00	0.00	600.03	.00	.01	.00	599.70
110.	0.	89.	21.	1.	163.	57.	9.	3.	594.70
.69	.06	.54	.37	.038	.034	.038	.034	594.70	46.73
.000024	248.	248.	248.	0	0	0	0.00	66.54	113.27

*SECNO 7311.000

7311.00	5.13	600.03	0.00	0.00	600.04	.00	.01	.00	599.90
110.	0.	89.	21.	0.	155.	53.	10.	3.	594.90
.82	.00	.58	.39	.038	.034	.038	.034	594.90	48.70
.000029	248.	248.	248.	0	0	0	0.00	62.60	111.30

*SECNO 7558.000

7558.00	4.96	600.04	0.00	0.00	600.05	.01	.01	.00	597.10
110.	3.	104.	3.	10.	132.	10.	11.	3.	597.10
.91	.32	.79	.32	.038	.034	.038	.034	595.10	25.47
.000046	247.	247.	247.	0	0	0	0.00	63.06	68.53

*SECNO 7559.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
7559.00	2.52	600.02	0.00	0.00	600.07	.05	.00	.02	602.50
110.	0.	110.	0.	0.	61.	0.	11.	3.	602.50
.91	0.00	1.82	0.00	.038	.034	.038	.034	597.50	29.93
.000823	1.	1.	1.	2	0	0	0.00	34.13	64.07

*SECNO 7608.000

7608.00	2.46	600.06	0.00	0.00	600.11	.06	.04	.00	601.60
110.	0.	110.	0.	0.	58.	0.	11.	3.	601.60
.92	0.00	1.89	0.00	.038	.034	.038	.034	597.60	53.21
.000919	49.	49.	49.	1	0	0	0.00	33.58	86.79

*SECNO 7777.000

7777.00	2.51	600.21	0.00	0.00	600.25	.05	.15	.00	601.70
110.	0.	110.	0.	0.	60.	0.	11.	3.	601.70
.94	0.00	1.83	0.00	.038	.034	.038	.034	597.70	52.98
.000839	169.	169.	169.	0	0	0	0.00	34.03	87.02

*SECNO 7946.000

7946.00	2.46	600.36	0.00	0.00	600.41	.05	.15	.00	601.90
110.	0.	110.	0.	0.	59.	0.	12.	4.	601.90
.97	0.00	1.88	0.00	.038	.034	.038	.034	597.90	53.17
.000903	169.	169.	169.	0	0	0	0.00	33.67	86.83

*SECNO 8112.000

8112.00	2.36	600.56	0.00	0.00	600.79	.23	.29	.09	605.30
110.	0.	110.	0.	0.	29.	0.	12.	4.	605.30
.98	0.00	3.81	0.00	.038	.034	.038	.034	598.20	93.00
.004786	166.	166.	166.	2	0	0	0.00	14.00	107.00

*SECNO 8113.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3370 NORMAL BRIDGE,NRD= 12 MIN ELTRD= 605.30 MAX ELLC= 601.80

8113.00	2.34	600.56	0.00	0.00	600.82	.29	.11	.03	605.30

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     110.        0.      110.        0.        0.       26.        0.       12.        4.     605.30
      .98      0.00      4.30      0.00      .040      .033      .040      .034    598.20      93.00
  .007630        1.        1.        1.         2         0         0     -2.95     14.00     107.00

*SECNO 8184.000

3370 NORMAL BRIDGE,NRD= 12 MIN ELTRD=  605.30 MAX ELLC=  601.80

  8184.00      2.85    601.05      0.00      0.00    601.25       .20       .40       .03     605.30
     110.        0.      110.        0.        0.       31.        0.       12.        4.     605.30
      .98      0.00      3.58      0.00      .040      .033      .040      .034    598.20      93.00
  .004382       71.       71.       71.         2         0         0     -5.02     14.00     107.00

*SECNO 8185.000
  8185.00      2.94    601.14      0.00      0.00    601.27       .14       .00       .02     605.30
     110.        0.      110.        0.        0.       37.        0.       12.        4.     605.30
      .98      0.00      2.98      0.00      .038      .034      .038      .034    598.20      93.00
  .002267        1.        1.        1.         2         0         0      0.00     14.00     107.00

*SECNO 8234.000
  8234.00      3.12    601.32      0.00      0.00    601.34       .03       .04       .03     602.20
     110.        0.      110.        0.        0.       82.        0.       12.        4.     602.20
      .99      0.00      1.34      0.00      .038      .034      .038      .034    598.20      50.57
  .000355       49.       49.       49.         1         0         0      0.00     38.86      89.43

*SECNO 8373.000
  8373.00      3.07    601.37      0.00      0.00    601.39       .03       .05       .08     602.30
     110.        0.      110.        0.        0.       80.        0.       12.        4.     602.30
     1.02      0.00      1.37      0.00      .038      .034      .038      .034    598.30      50.74
  .000376      139.      139.      139.         2         0         0      0.00     38.52      89.26

*SECNO 8512.000
   SECNO     DEPTH     CWSEL     CRIWS     WSELK      EG        HV        HL      OLOSS   BANK ELEV
     Q       QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN      ELMIN     SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR    TOPWID    ENDST

  8512.00      2.92    601.42      0.00      0.00    601.45       .03       .06       .00     602.50
     110.        0.      110.        0.        0.       75.        0.       12.        4.     602.50
     1.05      0.00      1.47      0.00      .038      .034      .038      .034    598.50      51.33
  .000459      139.      139.      139.         0         0         0      0.00     37.33      88.67

*SECNO 8651.000
  8651.00      2.89    601.49      0.00      0.00    601.52       .03       .07       .00     602.60
     110.        0.      110.        0.        0.       73.        0.       13.        4.     602.60
     1.07      0.00      1.50      0.00      .038      .034      .038      .034    598.60      51.48
  .000483      139.      139.      139.         0         0         0      0.00     37.03      88.52

*SECNO 8790.000

3470 ENCROACHMENT STATIONS=      59.0      81.0  TYPE=     1  TARGET=      22.000
  8790.00      2.75    601.55      0.00      0.00    601.61       .06       .08       .01  100000.00
     110.        0.      110.        0.        0.       57.        0.       13.        4.  100000.00
     1.09      0.00      1.95      0.00      .038      .034      .038      .034    598.80      59.00
  .000695      139.      139.      139.         0         0         0      0.00     22.00      81.00

*SECNO 8800.000
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 3470 ENCROACHMENT STATIONS=         62.0        79.0  TYPE=       1  TARGET=          17.000
   8800.00       2.33   601.53      0.00      0.00   601.66        .12        .01       .03100000.00
     110.          0.     110.        0.        0.      39.         0.        13.         4. 100000.00
      1.09       0.00     2.82      0.00      .038     .034       .038       .034     599.20     62.00
   .001822        10.      10.       10.         2        0          0       0.00      17.00     79.00

 *SECNO 8810.000

 3470 ENCROACHMENT STATIONS=         64.0        76.0  TYPE=       1  TARGET=          12.000
   8810.00       1.71   601.41      0.00      0.00   601.85        .45        .04       .16100000.00
     110.          0.     110.        0.        0.      20.         0.        13.         4. 100000.00
      1.10       0.00     5.37      0.00      .038     .034       .038       .034     599.70     64.00
   .010310        10.      10.       10.         2        0          0       0.00      12.00     76.00

 *SECNO 8819.000

 3301 HV CHANGED MORE THAN HVINS

      SECNO      DEPTH     CWSEL     CRIWS     WSELK     EG         HV         HL         OLOSS    BANK ELEV
      Q          QLOB      QCH       QROB      ALOB      ACH        AROB       VOL        TWA     LEFT/RIGHT
      TIME       VLOB      VCH       VROB      XNL       XNCH       XNR        WTN        ELMIN       SSTA
      SLOPE      XLOBL     XLCH      XLOBR     ITRIAL    IDC        ICONT      CORAR      TOPWID      ENDST

 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
   8819.00       2.06   602.16    602.16      0.00   603.14        .98        .13        .26    606.90
     110.          0.     110.        0.        0.      14.         0.        13.         4.    606.90
      1.10       0.00     7.93      0.00      .038     .034       .038       .034     600.10     96.40
   .022221         9.       9.        9.        20       11          0       0.00       7.20    103.60

 *SECNO 8820.000

 3370 NORMAL BRIDGE,NRD=   7 MIN ELTRD=   606.90 MAX ELLC=   605.30

   8820.00       2.52   602.62      0.00      0.00   603.25        .63        .02        .10    606.90
     110.          0.     110.        0.        0.      17.         0.        13.         4.    606.90
      1.10       0.00     6.39      0.00      .040     .033       .040       .034     600.10     96.40
   .011423         1.       1.        1.         7        0          0       0.00       7.20    103.60

 *SECNO 8858.000

 3370 NORMAL BRIDGE,NRD=   7 MIN ELTRD=   606.90 MAX ELLC=   605.30

   8858.00       3.16   603.26      0.00      0.00   603.67        .42        .35        .06    606.90
     110.          0.     110.        0.        0.      21.         0.        13.         4.    606.90
      1.10       0.00     5.18      0.00      .040     .033       .040       .034     600.10     96.40
   .007713        38.      38.       38.         0        0          0       -.58       7.20    103.60

 *SECNO 8859.000
   8859.00       3.21   603.31      0.00      0.00   603.69        .38        .01        .01    606.90
     110.          0.     110.        0.        0.      22.         0.        13.         4.    606.90
      1.10       0.00     4.97      0.00      .040     .033       .040       .034     600.10     96.40
   .005776         1.       1.        1.         2        0          0       0.00       7.20    103.60
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 *******************************************************
   HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
   ERROR CORR -  01,02
   MODIFICATION -  50,51,52,53
 *******************************************************

 T1
 T2
 T3

 J1  ICHECK      INQ       NINV       IDIR       STRT      METRIC     HVINS      Q          WSEL       FQ

          0.        6.        0.         0.   0.000000      0.00       0.0       0.   598.830     0.000

 J2  NPROF      IPLOT     PRFVS      XSECV      XSECH       FN        ALLDC      IBW        CHNIM      ITRACE

        1.000     0.000    -1.000      0.000      0.000     0.000      0.000     0.000      0.000      0.000

 NC      .038      .038      .034       .300       .500     0.000      0.000      0.000      0.000      0.000
 QT     4.000   100.000   150.000    170.000    240.000     0.000      0.000      0.000      0.000      0.000

 X1  5281.000     8.000    40.000    100.000      0.000     0.000      0.000      0.000       .100      0.000
 GR   602.100     0.000   600.100     20.000    598.100    40.000    593.100     60.000    593.100     80.000
 GR   598.100   100.000   600.100    120.000    602.100   140.000      0.000      0.000      0.000      0.000

 X1  5493.000     0.000     0.000      0.000    212.000   212.000    212.000      0.000       .200      0.000

 X1  5705.000     0.000     0.000      0.000    212.000   212.000    212.000      0.000       .200      0.000

 X1  5908.000     6.000    59.000    141.000    203.000   203.000    203.000      0.000       .100      0.000
 X3     0.000     0.000     0.000     93.000      0.000   107.000      0.000      0.000      0.000      0.000
 GR   602.600     0.000   602.600     59.000    593.800    93.000    593.800    107.000    602.300    141.000
 GR   602.300   200.000     0.000      0.000      0.000     0.000      0.000      0.000      0.000      0.000
 NC      .040      .040      .032      0.000      0.000     0.000      0.000      0.000      0.000      0.000

 X1  5909.000     0.000     0.000      0.000      1.000     1.000      1.000      0.000      0.000      0.000
 X3     0.000     0.000     0.000     93.000      0.000   107.000      0.000      0.000      0.000      0.000
 SB     0.000     4.350     3.000      0.000     10.200     0.000     41.500      0.000    593.900    593.900

 X1  6021.000    20.000    93.000    107.000    112.000   112.000    112.000      0.000       .100      0.000
 X2     0.000     0.000     1.000    598.000    602.400     0.000      0.000      0.000      0.000      0.000
 X3    10.000   593.800     0.000      0.000      0.000     0.000      0.000    602.400    602.400      0.000
 BT    14.000     0.000   602.700      0.000     93.000   602.600    594.900     94.000    602.600    597.400
 BT    95.000   602.600   597.900     97.000    602.600   597.900     98.000    602.600    597.400     99.000
 BT   602.600   594.900   101.000    602.500    594.900   102.000    602.500    597.400    103.000    602.500
 BT   597.900   105.000   602.500    597.900    106.000   602.500    597.400    107.000    602.500    594.900
 BT   200.000   602.400     0.000      0.000      0.000     0.000      0.000      0.000      0.000      0.000
 GR   602.600     0.000   602.500     68.000    594.800    93.000    593.800     93.000    592.300     94.000
 GR   591.800    95.000   591.800     97.000    592.300    98.000    593.800     99.000    594.800     99.000
 GR   594.800   101.000   593.800    101.000    592.300   102.000    591.800    103.000    591.800    105.000
 GR   592.300   106.000   593.800    107.000    594.800   107.000    602.400    132.000    602.300    200.000
 NC      .038      .038      .034      0.000      0.000     0.000      0.000      0.000      0.000      0.000
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X1	6022.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	602.300	602.300	0.000
X1	6071.000	8.000	50.000	90.000	49.000	49.000	49.000	0.000	.100	0.000
GR	603.800	0.000	600.800	30.000	598.800	50.000	593.800	70.000	593.800	90.000
GR	598.800	110.000	600.800	130.000	603.800	160.000	0.000	0.000	0.000	0.000
X1	6319.000	0.000	0.000	0.000	248.000	248.000	248.000	0.000	.200	0.000
X1	6567.000	0.000	0.000	0.000	248.000	248.000	248.000	0.000	.200	0.000
DT	6.000	70.000	100.000	110.000	155.000	0.000	0.000	0.000	0.000	0.000
X1	6815.000	0.000	0.000	0.000	248.000	248.000	248.000	0.000	.200	0.000
X1	7063.000	0.000	0.000	0.000	248.000	248.000	248.000	0.000	.200	0.000
X1	7311.000	0.000	0.000	0.000	248.000	248.000	248.000	0.000	.200	0.000
X1	7558.000	8.000	32.000	62.000	247.000	247.000	247.000	0.000	.100	0.000
GR	604.400	0.000	602.400	20.000	597.000	32.000	595.000	40.000	595.000	54.000
GR	597.000	62.000	602.400	74.000	604.400	94.000	0.000	0.000	0.000	0.000
X1	7559.000	6.000	20.000	74.000	1.000	1.000	1.000	0.000	.100	0.000
GR	604.400	0.000	602.400	20.000	597.400	40.000	597.400	54.000	602.400	74.000
GR	604.400	94.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	7608.000	8.000	47.000	93.000	49.000	49.000	49.000	0.000	.100	0.000
GR	606.200	0.000	604.200	20.000	601.500	47.000	597.500	63.000	597.500	77.000
GR	601.500	93.000	604.200	120.000	606.200	140.000	0.000	0.000	0.000	0.000
X1	7777.000	0.000	0.000	0.000	169.000	169.000	169.000	0.000	.100	0.000
X1	7946.000	0.000	0.000	0.000	169.000	169.000	169.000	0.000	.200	0.000
X1	8112.000	18.000	93.000	107.000	166.000	166.000	166.000	0.000	.100	0.000
GR	605.200	0.000	605.200	93.000	599.700	93.000	598.600	93.000	598.100	94.000
GR	598.100	96.000	598.100	98.000	593.600	99.000	599.700	99.000	599.700	101.000
GR	598.600	101.000	598.100	102.000	593.100	104.000	593.100	106.000	598.600	107.000
GR	599.700	107.000	605.200	107.000	605.200	200.000	0.000	0.000	0.000	0.000
NC	.040	.040	.033	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	8113.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	12.000	0.000	605.300	0.000	93.000	605.300	599.800	94.000	605.300	601.300
BT	96.000	605.300	601.800	98.000	605.300	601.300	99.000	605.300	599.800	101.000
BT	605.300	599.800	102.000	605.300	601.300	104.000	605.300	601.800	106.000	605.300
BT	601.300	107.000	605.300	599.800	200.000	605.300	0.000	0.000	0.000	0.000
X1	8184.000	0.000	0.000	0.000	71.000	71.000	71.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NC	.038	.038	.034	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	8185.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X1	8234.000	8.000	47.000	93.000	49.000	49.000	49.000	0.000	.100	0.000
GR	606.800	0.000	604.800	20.000	602.100	47.000	598.100	63.000	598.100	77.000
GR	602.100	93.000	604.800	120.000	606.800	140.000	0.000	0.000	0.000	0.000
X1	8373.000	0.000	0.000	0.000	139.000	139.000	139.000	0.000	.100	0.000
X1	8512.000	0.000	0.000	0.000	139.000	139.000	139.000	0.000	.200	0.000
X1	8651.000	0.000	0.000	0.000	139.000	139.000	139.000	0.000	.100	0.000
X1	8790.000	0.000	0.000	0.000	139.000	139.000	139.000	0.000	.200	0.000
X3	0.000	0.000	0.000	59.000	0.000	81.000	0.000	0.000	0.000	0.000
X1	8800.000	0.000	0.000	0.000	10.000	10.000	10.000	0.000	.400	0.000
X3	0.000	0.000	0.000	62.000	0.000	79.000	0.000	0.000	0.000	0.000
X1	8810.000	0.000	0.000	0.000	10.000	10.000	10.000	0.000	.500	0.000
X3	0.000	0.000	0.000	64.000	0.000	76.000	0.000	0.000	0.000	0.000
X1	8819.000	11.000	96.400	103.600	9.000	9.000	9.000	0.000	.100	0.000
GR	606.800	0.000	606.800	96.400	602.800	96.400	600.600	96.400	600.000	98.000
GR	600.000	100.000	600.000	102.000	600.600	103.600	602.800	103.600	606.800	103.600
GR	606.800	200.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.040	.040	.033	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	8820.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	7.000	0.000	606.900	0.000	96.400	606.900	602.900	98.000	606.900	604.900
BT	100.000	606.900	605.300	102.000	606.900	604.900	103.600	606.900	602.900	200.000
BT	606.900	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	8858.000	0.000	0.000	0.000	38.000	38.000	38.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
X1	8859.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: macomb

3) WATERCOURSE: Lewis Drain

4) DOCUMENT TYPE: 100 Year Flood
REVISED TILCH ROAD
CULVERT AREA

00BREAK00

79/07/12. 13.37.44. NOS 1.3 - L485. VYD064I EXPRESS MCAUTO - CYBER 175-1 1005.

```
HH          HH EEEEEEEEEEEE   CCCCCCCC                 22222222
HH          HH EEEEEEEEEEEE  CCCCCCCCCC              2222222222
HH          HH EE           CCC        CC          22         222
HH          HH EE           CC                                 22
HH          HH EE           CC                                 22
HH          HH EE           CC                                 22
HH          HH EE           CC                                 22
HHHHHHHHHHHHHH EEEEEEEEEE   CC                                222
HHHHHHHHHHHHHH EEEEEEEEEE   CC                     222222222
HH          HH EE           CC                   222222222
HH          HH EE           CC                 222
HH          HH EE           CC                 22
HH          HH EE           CC                 22
HH          HH EE           CCC        CC      22
HH          HH EEEEEEEEEEEE  CCCCCCCCCC        222222222222
HH          HH EEEEEEEEEEEE   CCCCCCCC         222222222222

   IIIIIIII    NN          NN PPPPPPPPPP  UU          UU TTTTTTTTTTTT
   IIIIIIII    NN          NN PPPPPPPPPPP UU          UU TTTTTTTTTTTT
      II       NNN         NN PP       PPP UU          UU      TT
      II       NNN         NN PP        PP UU          UU      TT
      II       NNNN        NN PP        PP UU          UU      TT
      II       NN NN       NN PP        PP UU          UU      TT
      II       NN  NN      NN PP       PPP UU          UU      TT
      II       NN    NN    NN PPPPPPPPPPP  UU          UU      TT
      II       NN      NN  NN PPPPPPPPPP   UU          UU      TT
      II       NN       NN NN PP           UU          UU      TT
      II       NN        NNNN PP           UU          UU      TT
      II       NN         NNN PP           UU          UU      TT
      II       NN         NNN PP           UU          UU      TT
      II       NN          NN PP           UUU        UUU      TT
   IIIIIIII    NN          NN PP            UUUUUUUUUU         TT
   IIIIIIII    NN          NN PP              UUUUUUUU         TT

 EEEEEEEEEEEE   CCCCCCCC    HH          HH   00000000
 EEEEEEEEEEEE  CCCCCCCCCC   HH          HH  0000000000
 EE           CCC        CC HH          HH 000        000
 EE           CC            HH          HH 00          00
 EE           CC            HH          HH 00          00
 EE           CC            HH          HH 00          00
 EE           CC            HH          HH 00          00
 EEEEEEEEEEE  CC            HHHHHHHHHHHHHH 00          00
 EEEEEEEEEEE  CC            HHHHHHHHHHHHHH 00          00
 EE           CC            HH          HH 00          00
 EE           CC            HH          HH 00          00
 EE           CC            HH          HH 00          00
 EE           CC            HH          HH 00          00
 EE           CCC        CC HH          HH 000        000
 EEEEEEEEEEEE  CCCCCCCCCC   HH          HH  0000000000
 EEEEEEEEEEEE   CCCCCCCC    HH          HH   00000000
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LEWIS DRAIN
J&A FILE No. 5850-03
MACOMB TWP AS
"NATURAL FLOODWAY"
100 YR FLOOD

-REVISED TILCH ROAD
CULVERT AREA
8-10-79

T1										
T2										
T3										
J1		4							598.83	
J2	1		-1							
NC	.038	.038	.034	.3	.5					
QT	4	100	150	170	240					
X1	5281	8	40	100					.1	
GR	602.1	0	600.1	20	598.1	40	593.1	60	593.1	80
GR	598.1	100	600.1	120	602.1	140				
X1	5493				212	212	212		.2	
X1	5705				212	212	212		.2	
X1	5908	6	59	141	203	203	203		.1	
X3				93		107				
GR	602.6	0	602.6	59	593.8	93	593.8	107	602.3	141
GR	602.3	200								
NC	.04	.04	.032							
X1	5909				1	1	1			
X3				93		107				
SB		4.35	3.0		10.2		41.5		593.9	593.9
X1	6021	20	93	107	112	112	112		.1	
X2			1	599.0	602.4					
X3	10	593.8						602.4	602.4	
BT	14	0	602.7	0.0	93	602.6	594.9	94	602.6	597.4
BT	95	602.6	597.9	97	602.6	597.9	98	602.6	597.4	99
BT	602.6	594.9	101	602.5	594.9	102	602.5	597.4	103	602.5
BT	597.9	105	602.5	597.9	106	602.5	597.4	107	602.5	594.9
BT	200	602.4	0.0							
GR	602.6	0	602.5	68	594.8	93	593.8	93	592.3	94
GR	591.8	95	591.8	97	592.3	98	593.8	99	594.8	99
GR	594.8	101	593.8	101	592.3	102	591.8	103	591.8	105
GR	592.3	106	593.8	107	594.8	107	602.4	132	602.3	200
NC	.038	.038	.034							
X1	6022				1	1	1			
X3	10							602.3	602.3	
X1	6071	8	50	90	49	49	49		.1	
GR	603.8	0	600.8	30	598.8	50	593.8	70	593.8	90
GR	598.8	110	600.8	130	603.8	160				
X1	6319				248	248	248		.2	
X1	6567				248	248	248		.2	
QT	4	70	100	110	155					
X1	6815				248	249	249		.2	
X1	7063				248	248	248		.2	
X1	7311				248	248	248		.2	
X1	7558	8	32	62	247	247	247		.1	
GR	604.4	0	602.4	20	597.0	32	595.0	40	595.0	54
GR	597.0	62	602.4	74	604.4	94				
X1	7559	6	20	74	1	1	1		.1	
GR	604.4	0	602.4	20	597.4	40	597.4	54	602.4	74
GR	604.4	94								
X1	7608	8	47	93	49	49	49		.1	
GR	606.2	0	604.2	20	601.5	47	597.5	63	597.5	77
GR	601.5	93	604.2	120	606.2	140				
X1	7777				169	169	169		.1	
X1	7946				169	169	169		.2	
X1	8112	18	93	107	166	166	166		.1	
GR	605.2	0	605.2	93	599.7	93	598.6	93	598.1	94
GR	598.1	96	598.1	98	598.6	99	599.7	99	599.7	101
GR	598.6	101	598.1	102	598.1	104	598.1	106	598.6	107
GR	599.7	107	605.2	107	605.2	200				
NC	.04	.04	.033							
X1	8113				1	1	1			
BT	12	0	605.3	0.0	93	605.3	599.8	94	605.3	601.3
BT	96	605.3	601.8	98	605.3	601.3	99	605.3	599.8	101

```
BT  605.3   599.8     102   605.3   601.3     104   605.3   601.8     106   605.3
BT  601.3     107   605.3   599.8     200   605.3     0.0
X1   8184                              71      71      71
X2                                                      1
NC   .038    .038    .034
X1   8185                               1       1       1
X1   8234       8      47      93      69      69      69                  .1
GR  606.8       0   604.8      20   602.1      47   598.1      63   598.1      77
GR  602.1      93   604.8     120   606.8     140
X1   8373                             139     139     139                  .1
X1   8512                             139     139     139                  .2
X1   8651                             139     139     139                  .1
X1   8790                             139     139     139                  .2
X3                             59              81
X1   8800                              10      10      10                  .4
X3                             62              79
X1   8810                              10      10      10                  .5
X3                             64              75
X1   8819      11    96.4   103.6       9       9       9                  .1
GR  606.8       0   606.8    96.4   602.8    96.4   600.6    96.6   600.0      93
GR  600.0     100   600.0     102   600.6   103.6   602.8   103.6   606.8   103.6
GR  606.8     200
NC    .04     .04    .033
X1   8820                               1       1       1
BT      7       0   606.9     0.0    96.4   606.9   602.9      98   606.9   604.9
BT    100   606.9   605.3     102   606.9   604.9   103.6   606.9   602.9     200
BT  606.9     0.0
X1   8858                              38      38      38
X2                                                      1
X1   8859                               1       1       1
EJ

ER
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*PROF 1

CCHV= .300 CEHV= .500

*SECNO 54.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

54.00	8.81	596.91	0.00	596.91	597.15	.24	0.00	0.00	598.60
980.	0.	980.	0.	0.	247.	0.	0.	0.	598.60
0.00	0.00	3.96	0.00	.040	.032	.040	0.000	588.10	384.50
.000823	0.	0.	0.	0	0	0	0.00	31.00	415.50

*SECNO 55.000

3370 NORMAL BRIDGE,NRD= 22 MIN ELTRD= 598.10 MAX ELLC= 597.60

55.00	8.74	596.84	0.00	0.00	597.23	.39	.00	.07	598.60
980.	0.	980.	0.	0.	196.	0.	0.	0.	598.60
.00	0.00	4.99	0.00	.040	.032	.040	.016	588.10	384.50
.002663	1.	1.	1.	2	0	0	-48.83	31.00	415.50

596.22

Dirt@ 589.0

Invert: 586.72

*SECNO 120.000

3370 NORMAL BRIDGE,NRD= 22 MIN ELTRD= 598.10 MAX ELLC= 597.60

LAKESIDE VILLA ENTRANCE ROAD (MCS) SECT.A

2-14' X 9'8" CMP ARCH PIPES

120.00	8.92	597.02	0.00	0.00	597.40	.38	.17	.00	598.60
980.	0.	980.	0.	0.	198.	0.	0.	0.	598.60
.00	0.00	4.95	0.00	.040	.032	.040	.031	588.10	384.50
.002605	65.	65.	65.	2	0	0	-52.68	31.00	415.50

*SECNO 121.000

121.00	9.12	597.22	0.00	0.00	597.45	.23	.00	.05	598.60
980.	0.	980.	0.	0.	257.	0.	0.	0.	598.60
.00	0.00	3.81	0.00	.042	.036	.042	.031	588.10	384.50
.000933	1.	1.	1.	2	0	0	0.00	31.00	415.50

*SECNO 640.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

VALLEY SECTION B (MCS) SECT.B

640.00	9.24	597.74	0.00	0.00	597.90	.16	.43	.02	596.80
980.	13.	854.	114.	22.	250.	107.	4.	1.	595.40
.05	.58	3.42	1.06	.042	.036	.042	.035	588.50	353.15
.000733	520.	520.	520.	2	0	0	0.00	182.49	535.64

Glorde El. = 597.8

```
*SECNO 1384.000

3470 ENCROACHMENT STATIONS=        .0     580.0  TYPE=     1  TARGET=      579.999
  1384.00      9.91    598.41      0.00      0.00    598.48      .07       .56       .03    595.80
    980.       238.      315.      428.      188.      100.      289.       12.        5.     595.40
     .16       1.27      3.13      1.48      .042      .036      .042      .036    588.50    275.64
 .000769       744.      744.      744.         2         0         0      0.00    304.36    580.00


*SECNO 1385.000

3370 NORMAL BRIDGE,NRD= 14 MIN ELTRD=  595.40 MAX ELLC=  595.40

3470 ENCROACHMENT STATIONS=        .0     580.0  TYPE=     1  TARGET=      579.999
  1385.00      9.94    598.44      0.00      0.00    598.49      .05       .00       .01    595.80
    980.       283.      197.      499.      191.       85.      290.       12.        5.     595.40
     .16       1.48      2.33      1.72      .042      .032      .042      .036    588.50    274.39
 .001042         1.        1.        1.         2         0         0    -19.85    305.61    580.00


*SECNO 1400.000

3370 NORMAL BRIDGE,NRD= 14 MIN ELTRD=  595.40 MAX ELLC=  595.40

3470 ENCROACHMENT STATIONS=        .0     580.0  TYPE=     1  TARGET=      579.999

                  PRIVATE CULVERT  BRIDGE SECTION C (MCS)          SECT.C


                  83" X 128" CMP

  1400.00      9.95    598.45      0.00      0.00    598.50      .05       .02       .00    595.80
    980.       284.      196.      500.      193.       85.      292.       12.        6.     595.40
     .16       1.47      2.31      1.71      .042      .032      .042      .036    588.50    273.74
 .001021        15.       15.       15.         0         0         0    -19.85    306.25    580.00


*SECNO 1401.000

3470 ENCROACHMENT STATIONS=        .0     580.0  TYPE=     1  TARGET=      579.999
  1401.00      9.95    598.45      0.00      0.00    598.51      .07       .00       .01    595.80
    980.       240.      308.      432.      194.      101.      296.       12.        6.     595.40
     .16       1.24      3.05      1.46      .042      .036      .042      .036    588.50    273.56
 .000725         1.        1.        1.         0         0         0      0.00    306.44    580.00


*SECNO 1971.000
    SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS  BANK ELEV
        Q      QLOB       QCH      QROB      ALOB       ACH      AROB       VOL       TWA  LEFT/RIGHT
     TIME      VLOB       VCH      VROB       XNL      XNCH       XNR       WTN     ELMIN      SSTA
    SLOPE     XLOBL      XLCH     XLOBR    ITRIAL       IDC     ICONT     CORAR    TOPWID     ENDST


3470 ENCROACHMENT STATIONS=     100.0     450.0  TYPE=     1  TARGET=     -100.000

                  VALLEY SECTION FROM MCS LEWIS DRAIN DESIGN

  1971.00      9.35    598.65      0.00      0.00    598.66      .00       .12       .02    589.30
    170.        89.       45.       36.      302.       88.      201.       20.       10.     596.30
     .64        .29       .51       .18      .042      .036      .042      .036    589.30    100.00
 .000017       570.      570.      570.         2         0         0      0.00    311.29    411.29
```

```
*SECNO 2855.000
3280 CROSS SECTION    2855.00 EXTENDED        .07 FEET

                 VALLEY SECTION D (MCS)                              SECT.D

   2855.00      8.47    598.67     0.00      0.00    598.67      .00      .01      .00    597.10
      170.       69.      100.       0.      520.      268.      14.      34.      19.    598.40
      1.53       .13       .37      .03      .042      .036     .042     .036   590.20      0.00
   .000009      884.      884.     884.         2         0        0     0.00   606.26    606.26

*SECNO 3965.000

                 VALLEY SECTION E (MCS)                              SECT.E

   3965.00      6.98    598.68     0.00      0.00    598.70      .01      .02      .01    598.60
      170.        0.      167.       3.        0.      188.      21.      48.      29.    598.10
      1.90       .03       .89      .13      .042      .036     .042     .035   591.70    390.05
   .000067     1300.     1110.     800.         0         0        0     0.00   123.41    513.45

*SECNO 4095.000

3470 ENCROACHMENT STATIONS=      230.0     540.0  TYPE=      1  TARGET=     310.000
   4095.00      6.99    598.69     0.00      0.00    598.70      .01      .01      .00    598.60
      170.        0.      167.       3.        0.      188.      22.      49.      29.    598.10
      1.94       .04       .89      .13      .042      .036     .042     .035   591.70    389.00
   .000067      130.      130.     130.         0         0        0     0.00   125.49    514.49

*SECNO 4770.000

3470 ENCROACHMENT STATIONS=         .0     448.0  TYPE=      1  TARGET=     447.999

                 VALLEY SECTION F (MCS)                              SECT.F

   4770.00      6.45    598.75     0.00      0.00    598.78      .02      .07      .01    600.80
      170.        0.      170.       0.        0.      135.       0.      52.      30.    598.90
      2.09      0.00      1.26     0.00      .042      .036     .042     .036   592.30    404.54
   .000162      625.      675.     700.         1         0        0     0.00    33.24    437.78

*SECNO 4819.000
     SECNO     DEPTH     CWSEL     CRIWS     WSELK       EG       HV       HL     OLOSS  BANK ELEV
     Q         QLOB      QCH       QROB      ALOB       ACH      AROB     VOL       TWA  LEFT/RIGHT
     TIME      VLOB      VCH       VROB      XNL        XNCH     XNR      WTN     ELMIN      SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL     IDC      ICONT    CORAR   TOPWID     ENDST

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       600.50 ELREA=       600.50

   4819.00      7.97    598.77     0.00      0.00    598.78      .02      .01      .00    590.80
      170.        0.      170.       0.        0.      160.       0.      52.      30.    590.80
      2.10      0.00      1.06     0.00      .042      .036     .042     .036   590.80    100.00
   .000092       49.       49.      49.         0         0        0     0.00    20.80    120.80

*SECNO 4820.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       600.50 ELREA=       600.50
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```
  4820.00     7.97   598.77     0.00     0.00   598.78      .02      .00      .00   590.80
     170.       0.     170.       0.       0.     161.       0.      52.      30.    590.80
     2.10     0.00     1.06     0.00     .040     .021     .040     .036   590.80   100.00
  .000031       1.       1.       1.        0        0        0     0.00    20.80   120.80
```

SPECIAL BRIDGE

```
SB   XK       XKOR      COFQ     RDLEN      BWC      BWP      BAREA       SS      ELCHU    ELCHD
   0.00       1.81      3.00      0.00    20.00     0.00    130.00      0.00   590.80   590.80
```

*SECNO 4880.000
PRESSURE FLOW

```
 EGPRS      EGLWC       H3       QWEIR       QPR      BAREA   TRAPEZOID    ELLC      ELTRD
                                                                AREA
  598.82    598.78     0.00        0.      170.       130.       130.     597.30    600.60
```

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=   600.60 ELREA=   600.60

21 MILE ROAD BRIDGE SECTION 7.1 (MCS)   SECT.G

CONCRETE BOX CULVERT

```
  4880.00     8.00   598.80     0.00     0.00   598.82      .02      .03     0.00   590.80
     170.       0.     170.       0.       0.     161.       0.      52.      30.    590.80
     2.12     0.00     1.05     0.00     .040     .021     .040     .035   590.80   100.00
  .000031      60.      60.      60.        1        0        0     0.00    20.80   120.80
```

*SECNO 4881.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=   600.50 ELREA=   600.50

```
  4881.00     8.00   598.80     0.00     0.00   598.82      .02      .00      .00   590.80
     170.       0.     170.       0.       0.     161.       0.      52.      30.    590.80
     2.12     0.00     1.05     0.00     .038     .034     .038     .035   590.80   100.00
  .000081       1.       1.       1.        0        0        0     0.00    20.80   120.80
```

*SECNO 4950.000

VALLEY SECTION 8.1 (MCS)   SECT.H

```
  4950.00     5.91   598.81     0.00     0.00   598.82      .01      .00      .00   597.90
     170.       1.     169.       0.       4.     238.       0.      52.      30.    599.60
     2.14      .15      .71     0.00     .038     .034     .038     .035   592.90    30.92
  .000041      69.      69.      69.        1        0        0     0.00    66.72    97.64
```

*SECNO 5115.000

```
   SECNO     DEPTH    CWSEL    CRIWS    WSELK       EG       HV       HL    OLOSS  BANK ELEV
   Q         QLOB     QCH      QROB     ALOB       ACH      AROB     VOL     TWA   LEFT/RIGHT
   TIME      VLOB     VCH      VROB     XNL        XNCH     XNR      WTN     ELMIN     SSTA
   SLOPE     XLOBL    XLCH     XLOBR    ITRIAL     IDC      ICONT    CORAR   TOPWID    ENDST

  5115.00     5.82   598.82     0.00     0.00   598.83      .01      .01      .00   598.00
     170.       0.     170.       0.       3.     234.       0.      53.      31.    599.70
     2.21      .14      .73     0.00     .038     .034     .038     .035   593.00    31.75
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 .000044    165.     165.     165.       0        0        0     0.00    65.63    97.39

*SECNO 5280.000
  5280.00    5.63   598.83    0.00     0.00   598.84     .01      .01      .00   598.20
   170.       0.     170.      0.       2.     222.      0.       54.      31.    599.90
   2.27      .13      .76     0.00     .038     .034    .038     .035   593.20    33.72
 .000051    165.     165.     165.       0        0        0     0.00    63.09    96.80

*SECNO 5281.000

              VALLEY SECTION 11.1 (MCS)                           SECT.I

  5281.00    5.63   598.83    0.00     0.00   598.84     .01      .00      .00   598.20
   170.       0.     170.      0.       2.     238.      2.       54.      31.    598.20
   2.27      .12      .71      .12     .038     .034    .038     .035   593.20    33.71
 .000044      1.       1.       1.       0        0        0     0.00    72.58   106.29

*SECNO 5493.000
  5493.00    5.44   598.84    0.00     0.00   598.85     .01      .01      .00   598.40
   170.       0.     170.      0.       1.     226.      1.       55.      31.    598.40
   2.35      .10      .75      .10     .038     .034    .038     .035   593.40    35.60
 .000051    212.     212.     212.       0        0        0     0.00    68.81   104.40

*SECNO 5705.000
  5705.00    5.25   598.85    0.00     0.00   598.86     .01      .01      .00   598.60
   170.       0.     170.      0.       0.     215.      0.       56.      32.    598.60
   2.42      .08      .79      .08     .038     .034    .038     .035   593.60    37.50
 .000061    212.     212.     212.       0        0        0     0.00    65.00   102.50

*SECNO 5908.000
   SECNO    DEPTH    CWSEL    CRIWS    WSELK     EG       HV       HL      OLOSS  BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN     SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID    ENDST

3470 ENCROACHMENT STATIONS=      93.0     107.0  TYPE=      1  TARGET=      14.000
  5908.00    4.94   598.84    0.00     0.00   598.93     .09      .03     .04100000.10
   170.       0.     170.      0.       0.      69.      0.       57.      32. 100000.10
   2.44     0.00     2.46     0.00     .038     .034    .038     .035   593.90    93.00
 .000771    203.     203.     203.       2        0        0     0.00    14.00   107.00

*SECNO 5909.000

3470 ENCROACHMENT STATIONS=      93.0     107.0  TYPE=      1  TARGET=      14.000
  5909.00    4.94   598.84    0.00     0.00   598.93     .09      .00     .00100000.00
   170.       0.     170.      0.       0.      69.      0.       57.      32. 100000.00
   2.44     0.00     2.46     0.00     .040     .032    .040     .035   593.90    93.00
 .000683      1.       1.       1.       0        0        0     0.00    14.00   107.00

SPECIAL BRIDGE

SB   XK        XKOR      COFQ      RDLEN     BWC      BWP      BAREA     SS      ELCHU    ELCHD
    0.00       4.35      3.00      0.00     19.51     0.00     80.00     0.00    593.90   593.90

*SECNO 6021.000
PRESSURE FLOW
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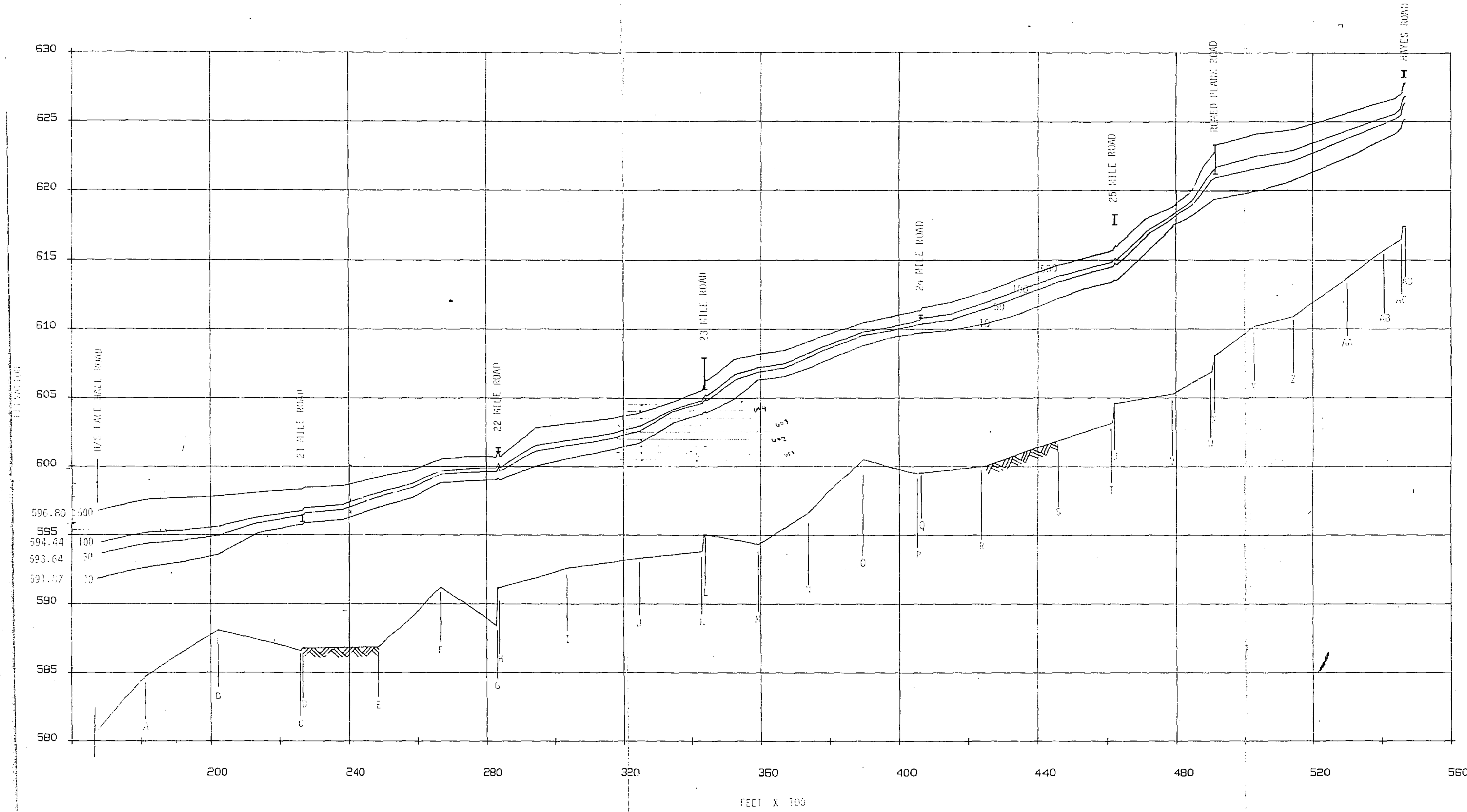
$\frac{\pi 6^2}{4} \times 2 = 56.6$ (but pipe ⅓ full of silt)



Revised 4-11-79

DRAWN: SER
DESIGN:

TOPOGRAPHIC INFORMATION	
DATE OBTAINED	
DATE UPDATED	

DRAWING ISSUE DATES			
OWNER			
UTILITIES	TEL	ELEC	GAS	PIPE LINE
APPR. AGENCIES			
BIDDERS			

CHECKED	DATE	BY
PM		
QA		
CONSTR		

REVISIONS	MARK	ADDENDUM-CHANGE ORDER	DATE	MARK	ADDENDUM-CHANGE ORDER	DATE	MARK	ADDENDUM-CHANGE ORDER	DATE

JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS
PONTIAC, MICHIGAN

MACOMB TOWNSHIP, MI, FIS

MIDDLE BRANCH CLINTON RIVER

SCALE: VERT. 1" = 5'
HORIZ. 1" = 2000'

JOB NO. 5850-03-1

SHEET NO.

RECEIVED APR 19 1979

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Macomb Twp

3) WATERCOURSE: Middle Branch Clinton River

4) DOCUMENT TYPE: 100 YR Encroached Fldy

00BREAK00

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MACJOAU   JANDA                 01/08/79   08.47.52   7600    JO
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Macomb Twp. FIS 5850-03
Middle Branch Clinton River
100-Year Flow
Encroached Floodway

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**********************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

MIDDLE BRANCH CLINTON R.

SUMMARY PRINTOUT

SECNO	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	HV	OLOSS	EG	XMCHSL	TOPWID	AREA
16771.000	0.00	0.00	580.80	1380.00	591.87	11.07	.18	0.00	592.05	0.00	45.00	401.44
16771.000	0.00	0.00	580.80	2040.00	593.64	12.84	.28	0.00	593.92	0.00	45.00	461.09
16771.000	0.00	0.00	580.80	2340.00	594.44	13.64	.32	0.00	594.76	0.00	45.00	517.09
16771.000	0.00	0.00	580.80	3250.00	596.80	16.00	.42	0.00	597.22	0.00	45.00	623.29
18100.000	0.00	0.00	584.70	1380.00	592.65	7.95	.04	.04	592.69	2.89	333.77	930.01
18100.000	0.00	0.00	584.70	2040.00	594.40	9.70	.03	.05	594.42	2.89	583.36	1743.81
18100.000	0.00	0.00	584.70	2340.00	595.18	10.48	.02	.09	595.20	2.89	686.68	2231.08
18100.000	0.00	0.00	584.70	3250.00	597.51	12.81	.01	.12	597.52	2.89	1599.87	4515.64
19150.000	0.00	0.00	586.40	1380.00	593.02	6.62	.05	.00	593.07	1.62	336.47	878.23
19150.000	0.00	0.00	586.40	2040.00	594.60	8.20	.05	.01	594.65	1.62	398.30	1292.10
19150.000	0.00	0.00	586.40	2340.00	595.33	8.93	.05	.01	595.38	1.62	476.05	1499.08
19150.000	0.00	0.00	586.40	3250.00	597.58	11.18	.03	.01	597.61	1.62	2095.45	3010.29
20200.000	0.00	0.00	588.10	1380.00	593.59	5.49	.11	.03	593.70	1.62	306.31	647.81
20200.000	0.00	0.00	588.10	2040.00	594.95	6.85	.07	.01	595.02	1.62	342.60	1089.11
20200.000	0.00	0.00	588.10	2340.00	595.62	7.52	.06	.01	595.68	1.62	360.37	1323.28
20200.000	0.00	0.00	588.10	3250.00	597.72	9.62	.04	.00	597.76	1.62	595.31	2264.31
21421.000	0.00	0.00	587.40	1380.00	595.21	7.81	.13	.01	595.34	-.57	650.00	787.73
21421.000	0.00	0.00	587.40	2040.00	595.91	8.51	.09	.01	596.00	-.57	650.00	1246.66
21421.000	0.00	0.00	587.40	2340.00	596.35	8.95	.07	.00	596.41	-.57	650.00	1527.68
21421.000	0.00	0.00	587.40	3250.00	598.04	10.64	.03	.00	598.07	-.57	650.00	2631.45
22642.000	0.00	0.00	586.60	1380.00	595.72	9.12	.01	.04	595.73	-.66	850.00	2046.16
22642.000	0.00	0.00	586.60	2040.00	596.35	9.75	.01	.02	596.36	-.66	850.00	2579.40
22642.000	0.00	0.00	586.60	2340.00	596.71	10.11	.01	.02	596.72	-.66	850.00	2883.34
22642.000	0.00	0.00	586.60	3250.00	598.22	11.62	.01	.01	598.23	-.66	850.00	4170.39
22692.000	0.00	0.00	586.80	1380.00	595.71	8.91	.05	.02	595.76	4.00	441.61	890.39
22692.000	0.00	0.00	586.80	2040.00	596.34	9.54	.06	.02	596.40	4.00	542.05	1203.99
22692.000	0.00	0.00	586.80	2340.00	596.70	9.90	.06	.02	596.76	4.00	783.87	1437.82
22692.000	0.00	0.00	586.80	3250.00	598.22	11.42	.02	.01	598.24	4.00	1849.48	3461.31
22708.000	596.50	596.00	586.80	1380.00	595.69	8.89	.11	.03	595.79	0.00	307.54	549.45
22708.000	596.50	596.00	586.80	2040.00	596.35	9.55	.14	0.00	596.49	0.00	532.99	836.06
22708.000	596.50	596.00	586.80	2340.00	596.71	9.91	.13	0.00	596.84	0.00	798.74	1075.40
22708.000	596.50	596.00	586.80	3250.00	598.25	11.45	.03	0.00	598.28	0.00	1677.55	3121.75

SECNO	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	HV	QLOSS	EG	K*CHSL	TOPWID	AREA
22758.000	0.00	0.00	586.80	1380.00	595.82	9.02	.01	.03	595.84	-.00	750.00	1731.82
22758.000	0.00	0.00	586.80	2040.00	596.53	9.73	.02	.04	596.54	-.00	750.00	2310.37
22758.000	0.00	0.00	586.80	2340.00	596.88	10.08	.02	.03	596.89	-.00	750.00	2572.16
22758.000	0.00	0.00	586.80	3250.00	598.28	11.48	.01	.01	598.29	-.00	750.00	3623.91
23829.000	0.00	0.00	586.85	1380.00	596.10	9.25	.20	.09	596.30	.05	356.44	573.42
23829.000	0.00	0.00	586.85	2040.00	596.80	9.95	.22	.10	597.02	.05	395.90	838.18
23829.000	0.00	0.00	586.85	2340.00	597.13	10.28	.21	.10	597.34	.05	404.47	970.94
23829.000	0.00	0.00	586.85	3250.00	598.44	11.59	.14	.07	598.58	.05	438.47	1524.99
24900.000	0.00	0.00	596.90	1380.00	597.04	10.14	.05	.04	597.09	.05	400.77	913.25
24900.000	0.00	0.00	586.90	2040.00	597.78	10.88	.06	.05	597.84	.05	419.97	1217.93
24900.000	0.00	0.00	586.90	2340.00	598.08	11.18	.06	.04	598.15	.05	427.31	1346.46
24900.000	0.00	0.00	586.90	3250.00	599.12	12.22	.05	.02	599.18	.05	495.79	1804.23
25800.000	0.00	0.00	589.00	1380.00	597.68	8.68	.30	.12	597.98	2.33	258.55	386.37
25800.000	0.00	0.00	589.00	2040.00	598.43	9.43	.29	.11	598.72	2.33	368.44	640.73
25800.000	0.00	0.00	589.00	2340.00	598.73	9.73	.27	.11	599.00	2.33	387.59	752.78
25800.000	0.00	0.00	589.00	3250.00	599.65	10.65	.21	.08	599.87	2.33	414.28	1126.23
26700.000	0.00	0.00	591.20	1380.00	598.71	7.51	.04	.06	598.75	2.44	530.00	1129.12
26700.000	0.00	0.00	591.20	2040.00	599.41	8.21	.04	.07	599.45	2.44	530.00	1498.85
26700.000	0.00	0.00	591.20	2340.00	599.67	8.47	.04	.07	599.72	2.44	530.00	1639.41
26700.000	0.00	0.00	591.20	3250.00	600.44	9.24	.05	.05	600.49	2.44	530.00	2046.06
27508.000	0.00	0.00	589.80	1380.00	598.88	9.08	.01	.01	598.89	-1.73	524.00	1908.72
27508.000	0.00	0.00	589.80	2040.00	599.59	9.79	.02	.01	599.60	-1.73	524.00	2282.61
27508.000	0.00	0.00	589.80	2340.00	599.86	10.06	.02	.01	599.88	-1.73	524.00	2425.94
27508.000	0.00	0.00	589.80	3250.00	600.64	10.84	.02	.01	600.67	-1.73	524.00	2836.13
28316.000	0.00	0.00	588.40	1380.00	598.94	10.54	.18	.08	599.11	-1.73	86.56	419.41
28316.000	0.00	0.00	588.40	2040.00	599.63	11.23	.30	.14	599.94	-1.73	120.00	500.37
28316.000	0.00	0.00	588.40	2340.00	599.90	11.50	.36	.17	600.26	-1.73	120.00	532.04
28316.000	0.00	0.00	588.40	3250.00	600.64	12.24	.53	.25	601.17	-1.73	120.00	621.23
28365.000	0.00	0.00	591.20	1380.00	599.09	7.89	.08	.03	599.17	57.14	93.60	602.27
28365.000	0.00	0.00	591.20	2040.00	599.88	8.68	.14	.05	600.02	57.14	93.60	676.86
28365.000	0.00	0.00	591.20	2340.00	600.19	8.99	.17	.06	600.36	57.14	93.60	705.64
28365.000	0.00	0.00	591.20	3250.00	601.05	9.85	.27	.08	601.31	57.14	93.60	786.00
28366.000	601.10	601.40	591.20	1380.00	599.08	7.88	.10	.01	599.18	0.00	93.60	549.09
28366.000	601.10	601.40	591.20	2040.00	599.86	8.66	.18	.02	600.04	0.00	93.60	601.70
28366.000	601.10	601.40	591.20	2340.00	600.17	8.97	.22	.02	600.39	0.00	93.60	621.19
28366.000	601.10	601.40	591.20	3250.00	600.99	9.79	.38	.06	601.37	0.00	93.60	654.37
28384.000	601.10	601.40	591.20	1380.00	599.08	7.88	.10	.00	599.18	0.00	93.60	548.97
28384.000	601.10	601.40	591.20	2040.00	599.87	8.67	.15	.00	600.05	0.00	93.60	601.76
28384.000	601.10	601.40	591.20	2340.00	600.18	8.98	.22	.00	600.40	0.00	93.60	622.01
28384.000	601.10	601.40	591.20	3250.00	601.02	9.82	.38	.00	601.40	0.00	93.60	654.62
28385.000	0.00	0.00	591.20	1380.00	599.11	7.91	.08	.01	599.19	0.00	93.60	604.22
28385.000	0.00	0.00	591.20	2040.00	599.93	8.73	.14	.01	600.07	0.00	93.60	680.88
28385.000	0.00	0.00	591.20	2340.00	600.25	9.05	.17	.02	600.41	0.00	93.60	710.85
28385.000	0.00	0.00	591.20	3250.00	601.18	9.98	.26	.04	601.44	0.00	93.60	798.61

SECNO	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	HV	OLOSS	EG	K*CHSL	TOPWID	AREA
28434.000	0.00	0.00	591.20	1380.00	598.96	7.76	.43	.17	599.39	0.00	47.79	262.54
28434.000	0.00	0.00	591.20	2040.00	599.67	8.47	.73	.30	600.40	0.00	49.66	297.16
28434.000	0.00	0.00	591.20	2340.00	599.93	8.73	.88	.36	600.81	0.00	50.35	310.45
28434.000	0.00	0.00	591.20	3250.00	600.70	9.50	1.34	.54	602.04	0.00	52.38	350.16
29407.000	0.00	0.00	591.90	1380.00	600.05	8.15	.10	.10	600.15	.72	442.75	900.67
29407.000	0.00	0.00	591.90	2040.00	601.13	9.23	.07	.20	601.20	.72	681.07	1536.93
29407.000	0.00	0.00	591.90	2340.00	601.56	9.66	.06	.25	601.62	.72	726.64	1843.58
29407.000	0.00	0.00	591.90	3250.00	602.82	10.92	.04	.39	602.86	.72	838.21	2831.70
30375.000	0.00	0.00	592.60	1430.00	600.55	7.95	.13	.02	600.68	.72	428.12	812.25
30375.000	0.00	0.00	592.60	2120.00	601.51	8.91	.10	.02	601.61	.72	638.72	1328.96
30375.000	0.00	0.00	592.60	2420.00	601.90	9.30	.09	.02	601.99	.72	690.55	1585.33
30375.000	0.00	0.00	592.60	3370.00	603.05	10.45	.06	.01	603.11	.72	796.13	2442.49
31425.000	0.00	0.00	592.95	1430.00	601.12	8.17	.10	.01	601.23	.33	444.59	912.03
31425.000	0.00	0.00	592.95	2120.00	601.99	9.04	.09	.00	602.08	.33	656.45	1414.43
31425.000	0.00	0.00	592.95	2420.00	602.33	9.38	.08	.00	602.41	.33	700.93	1642.20
31425.000	0.00	0.00	592.95	3370.00	603.35	10.40	.06	.00	603.41	.33	791.92	2404.66
32475.000	0.00	0.00	593.30	1430.00	601.71	8.41	.62	.26	602.33	.33	141.95	230.71
32475.000	0.00	0.00	593.30	2120.00	602.53	9.23	.60	.25	603.13	.33	673.16	598.69
32475.000	0.00	0.00	593.30	2420.00	602.87	9.57	.45	.18	603.32	.33	681.92	632.85
32475.000	0.00	0.00	593.30	3370.00	603.79	10.49	.21	.07	604.00	.33	851.87	1592.99
33389.000	0.00	0.00	593.55	1430.00	603.18	9.63	.32	.09	603.50	.27	184.38	350.06
33389.000	0.00	0.00	593.55	2120.00	604.07	10.52	.22	.11	604.30	.27	569.62	958.48
33389.000	0.00	0.00	593.55	2420.00	604.22	10.67	.25	.06	604.47	.27	572.38	1037.51
33389.000	0.00	0.00	593.55	3370.00	604.74	11.19	.27	.03	605.01	.27	582.79	1338.09
34303.000	0.00	0.00	593.80	1430.00	603.85	10.05	.27	.01	604.12	.27	94.00	360.67
34303.000	0.00	0.00	593.80	2120.00	604.66	10.86	.42	.10	605.08	.27	94.00	436.59
34303.000	0.00	0.00	593.80	2420.00	604.88	11.08	.51	.13	605.39	.27	94.00	457.77
34303.000	0.00	0.00	593.80	3370.00	605.53	11.73	.79	.26	606.31	.27	94.00	518.07
34352.000	0.00	0.00	595.00	1430.00	604.01	9.01	.17	.03	604.18	24.49	66.00	427.08
34352.000	0.00	0.00	595.00	2120.00	604.88	9.88	.30	.04	605.18	24.49	66.00	434.80
34352.000	0.00	0.00	595.00	2420.00	605.14	10.14	.36	.04	605.50	24.49	66.00	502.13
34352.000	0.00	0.00	595.00	3370.00	605.90	10.90	.58	.06	606.48	24.49	66.00	551.95
34353.000	607.90	605.60	595.00	1430.00	604.00	9.00	.19	.01	604.19	0.00	66.00	408.20
34353.000	607.90	605.60	595.00	2120.00	604.84	9.84	.38	.04	605.22	0.00	66.00	428.29
34353.000	607.90	605.60	595.00	2420.00	605.03	10.08	.49	.06	605.57	0.00	66.00	432.67
34353.000	607.90	605.60	595.00	3370.00	605.74	10.74	.90	.16	606.64	0.00	66.00	442.06
34383.000	607.90	605.60	595.00	1430.00	604.01	9.01	.19	.00	604.20	0.00	66.00	408.63
34383.000	607.90	605.60	595.00	2120.00	604.87	9.87	.38	.00	605.25	0.00	66.00	428.96
34383.000	607.90	605.60	595.00	2420.00	605.12	10.12	.48	.00	605.61	0.00	66.00	433.48
34383.000	607.90	605.60	595.00	3370.00	605.82	10.82	.90	.00	606.73	0.00	66.00	442.06
34384.000	0.00	0.00	595.00	1430.00	604.03	9.03	.17	.01	604.21	0.00	66.00	428.97
34384.000	0.00	0.00	595.00	2120.00	604.99	9.99	.29	.03	605.28	0.00	66.00	492.04
34384.000	0.00	0.00	595.00	2420.00	605.30	10.30	.35	.04	605.65	0.00	66.00	512.64
34384.000	0.00	0.00	595.00	3370.00	606.32	11.32	.52	.11	606.84	0.00	66.00	579.78

SECNO	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	HV	OLOSS	EG	K*CHSL	TOPWID	AREA
34433.000	0.00	0.00	595.00	1430.00	603.92	8.92	.44	.13	604.36	-.00	62.65	268.49
34433.000	0.00	0.00	595.00	2120.00	604.86	9.86	.62	.16	605.48	-.00	167.00	383.76
34433.000	0.00	0.00	595.00	2420.00	605.17	10.17	.68	.17	605.85	-.00	767.00	436.58
34433.000	0.00	0.00	595.00	3370.00	605.25	11.25	.75	.11	607.00	-.00	167.00	616.08
35180.000	0.00	0.00	594.65	1430.00	604.96	10.31	.66	.11	605.63	-.47	61.50	223.46
35180.000	0.00	0.00	594.65	2120.00	606.32	11.67	.14	.14	606.46	-.47	527.84	1006.78
35180.000	0.00	0.00	594.65	2420.00	606.71	12.06	.12	.17	606.83	-.47	585.35	1227.48
35180.000	0.00	0.00	594.65	3370.00	607.80	13.15	.08	.20	607.87	-.47	690.49	1917.01
35928.000	0.00	0.00	594.30	1430.00	606.28	11.98	.05	.19	606.32	-.47	576.70	1177.77
35928.000	0.00	0.00	594.30	2120.00	606.85	12.55	.05	.03	606.91	-.47	635.07	1527.42
35928.000	0.00	0.00	594.30	2420.00	607.18	12.88	.05	.02	607.23	-.47	667.14	1739.91
35928.000	0.00	0.00	594.30	3370.00	608.13	13.83	.04	.01	608.18	-.47	766.84	2419.22
36628.000	0.00	0.00	595.45	1430.00	606.50	11.05	.30	.13	606.81	1.64	510.37	624.09
36628.000	0.00	0.00	595.45	2120.00	607.16	11.71	.31	.13	607.47	1.64	553.94	973.45
36628.000	0.00	0.00	595.45	2420.00	607.48	12.03	.28	.11	607.76	1.64	575.87	1155.96
36628.000	0.00	0.00	595.45	3370.00	608.41	12.96	.21	.08	608.61	1.64	638.51	1716.39
37328.000	0.00	0.00	596.60	1430.00	607.14	10.54	.50	.10	607.64	1.64	399.08	382.75
37328.000	0.00	0.00	596.60	2120.00	607.93	11.33	.48	.08	608.42	1.64	529.33	773.35
37328.000	0.00	0.00	596.60	2420.00	608.24	11.64	.44	.08	608.68	1.64	549.43	936.78
37328.000	0.00	0.00	596.60	3370.00	609.08	12.48	.33	.06	609.41	1.64	606.09	1419.13
* 38928.000	0.00	0.00	600.50	1470.00	608.80	8.30	.30	3.34	609.10	2.44	168.55	443.59
38928.000	0.00	0.00	600.50	2180.00	609.55	9.05	.16	.10	609.70	2.44	439.81	1176.05
38928.000	0.00	0.00	600.50	2500.00	609.80	9.30	.17	.08	609.97	2.44	447.19	1290.61
38928.000	0.00	0.00	600.50	3460.00	610.47	9.97	.20	.04	610.67	2.44	563.22	1612.58
39724.000	0.00	0.00	599.95	1470.00	609.35	9.41	.19	.03	609.56	-.69	439.59	554.31
39724.000	0.00	0.00	599.95	2180.00	609.87	9.92	.29	.06	610.16	-.69	500.92	800.16
39724.000	0.00	0.00	599.95	2500.00	610.14	10.19	.30	.07	610.45	-.69	525.40	939.74
39724.000	0.00	0.00	599.95	3460.00	610.85	10.90	.33	.06	611.18	-.69	598.37	1336.49
40521.000	0.00	0.00	599.40	1470.00	609.69	10.29	.13	.02	609.81	-.69	205.00	668.39
40521.000	0.00	0.00	599.40	2180.00	610.33	10.93	.20	.02	610.54	-.69	205.00	799.53
40521.000	0.00	0.00	599.40	2500.00	610.61	11.21	.24	.02	610.85	-.69	205.00	657.95
40521.000	0.00	0.00	599.40	3460.00	611.31	11.91	.34	.01	611.65	-.69	205.00	1001.52
40571.000	0.00	0.00	599.50	1470.00	609.72	10.22	.11	.00	609.83	2.00	60.00	550.18
40571.000	0.00	0.00	599.50	2180.00	610.34	10.84	.21	.00	610.56	2.00	60.00	583.37
40571.000	0.00	0.00	599.50	2500.00	610.62	11.12	.27	.01	610.88	2.00	60.00	604.57
40571.000	0.00	0.00	599.50	3460.00	611.29	11.79	.42	.04	611.71	2.00	207.35	764.92
40605.000	611.00	610.80	599.50	1470.00	609.72	10.22	.11	.00	609.83	0.00	60.00	550.58
40605.000	611.00	610.80	599.50	2180.00	610.35	10.35	.21	.00	610.56	0.00	60.00	588.01
40605.000	611.00	610.80	599.50	2500.00	610.71	11.21	.26	0.00	610.97	0.00	151.29	660.95
40605.000	611.00	610.80	599.50	3460.00	611.34	11.84	.42	0.00	611.76	0.00	262.45	775.42
40655.000	0.00	0.00	599.50	1470.00	609.73	10.23	.13	.01	609.85	0.00	277.26	715.56
40655.000	0.00	0.00	599.50	2180.00	610.40	10.90	.19	.01	610.59	0.00	290.00	907.35
40655.000	0.00	0.00	599.50	2500.00	610.80	11.30	.20	.02	611.00	0.00	290.00	1023.91
40655.000	0.00	0.00	599.50	3460.00	611.56	12.06	.26	.05	611.83	0.00	290.00	1244.63

SECNO	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	HV	OLOSS	EG	K*CHSL	TOPWID	AREA
41521.000	0.00	0.00	599.75	1470.00	609.92	10.17	.30	.09	610.22	.29	248.23	408.70
41521.000	0.00	0.00	599.75	2180.00	610.67	10.92	.49	.15	611.16	.29	538.45	694.02
41521.000	0.00	0.00	599.75	2500.00	611.08	11.33	.51	.15	611.59	.29	614.54	949.32
41521.000	0.00	0.00	599.75	3460.00	611.96	12.21	.42	.08	612.38	.29	1005.64	2128.58
42388.000	0.00	0.00	600.00	1470.00	610.36	10.36	.28	.01	610.64	.29	325.58	463.50
42388.000	0.00	0.00	600.00	2180.00	611.40	11.40	.37	.03	611.78	.29	561.34	955.74
42388.000	0.00	0.00	600.00	2500.00	611.86	11.86	.38	.04	612.23	.29	561.84	1209.94
42388.000	0.00	0.00	600.00	3460.00	612.65	12.65	.36	.02	613.01	.29	750.00	2125.56
43488.000	0.00	0.00	600.95	1470.00	611.08	10.13	.32	.02	611.39	.86	127.17	367.92
43488.000	0.00	0.00	600.95	2180.00	612.37	11.42	.26	.03	612.63	.86	381.54	776.10
43488.000	0.00	0.00	600.95	2500.00	612.85	11.90	.23	.05	613.08	.86	420.47	970.61
43488.000	0.00	0.00	600.95	3460.00	613.66	12.71	.21	.04	613.88	.86	474.87	1333.95
44588.000	0.00	0.00	601.90	1590.00	612.23	10.33	.34	.01	612.56	.86	135.93	394.52
44588.000	0.00	0.00	601.90	2340.00	613.42	11.52	.28	.01	613.70	.86	391.54	813.22
44588.000	0.00	0.00	601.90	2670.00	613.82	11.92	.26	.01	614.07	.86	421.15	974.91
44588.000	0.00	0.00	601.90	3680.00	614.64	12.74	.24	.01	614.83	.86	476.51	1345.62
45371.000	0.00	0.00	602.55	1590.00	612.97	10.42	.21	.04	613.18	.83	97.30	439.47
45371.000	0.00	0.00	602.55	2340.00	614.02	11.47	.28	.00	614.30	.83	370.89	702.29
45371.000	0.00	0.00	602.55	2670.00	614.39	11.84	.29	.01	614.67	.83	393.73	842.02
45371.000	0.00	0.00	602.55	3680.00	615.21	12.66	.31	.03	615.52	.83	417.28	1173.40
46154.000	0.00	0.00	603.20	1590.00	613.41	10.21	.23	.01	613.64	.83	83.35	418.71
46154.000	0.00	0.00	603.20	2340.00	614.51	11.31	.34	.03	614.85	.83	98.00	521.34
46154.000	0.00	0.00	603.20	2670.00	614.88	11.68	.39	.05	615.27	.83	98.00	556.97
46154.000	0.00	0.00	603.20	3680.00	615.70	12.50	.58	.14	616.28	.83	98.00	637.36
46203.000	0.00	0.00	604.60	1590.00	613.51	8.91	.17	.02	613.68	28.57	71.00	432.93
46203.000	0.00	0.00	604.60	2340.00	614.64	10.04	.27	.02	614.91	28.57	71.00	562.92
46203.000	0.00	0.00	604.60	2670.00	615.01	10.41	.32	.02	615.33	28.57	71.00	569.24
46203.000	0.00	0.00	604.60	3680.00	615.86	11.26	.50	.03	616.35	28.57	71.00	649.27
46204.000	617.50	618.20	604.60	1590.00	613.49	8.89	.21	.02	613.70	0.00	71.00	436.45
46204.000	617.50	618.20	604.60	2340.00	614.60	10.00	.35	.04	614.95	0.00	71.00	495.42
46204.000	617.50	618.20	604.60	2670.00	614.96	10.36	.42	.05	615.38	0.00	71.00	514.79
46204.000	617.50	618.20	604.60	3680.00	615.77	11.17	.67	.09	616.44	0.00	71.00	558.18
46221.000	617.50	618.20	604.60	1590.00	613.51	8.91	.21	.00	613.71	0.00	71.00	436.46
46221.000	617.50	618.20	604.60	2340.00	614.62	10.02	.35	.00	614.97	0.00	71.00	496.16
46221.000	617.50	618.20	604.60	2670.00	614.96	10.38	.42	.00	615.40	0.00	71.00	515.65
46221.000	617.50	618.20	604.60	3680.00	615.80	11.20	.67	.00	616.48	0.00	71.00	559.74
46222.000	0.00	0.00	604.60	1590.00	613.56	8.96	.17	.01	613.73	0.00	71.00	486.25
46222.000	0.00	0.00	604.60	2340.00	614.73	10.13	.26	.02	614.99	0.00	71.00	569.31
46222.000	0.00	0.00	604.60	2670.00	615.12	10.52	.31	.03	615.43	0.00	71.00	597.27
46222.000	0.00	0.00	604.60	3680.00	616.06	11.46	.48	.06	616.53	0.00	71.00	663.68
46271.000	0.00	0.00	604.60	1590.00	613.49	8.89	.38	.11	613.86	0.00	64.67	322.48
46271.000	0.00	0.00	604.60	2340.00	614.64	10.04	.53	.13	615.17	0.00	35.13	404.43
46271.000	0.00	0.00	604.60	2670.00	615.02	10.42	.60	.14	615.62	0.00	97.36	439.65
46271.000	0.00	0.00	604.60	3680.00	615.96	11.36	.78	.15	616.74	0.00	204.03	592.86

SECNO	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	HV	OLOSS	EG	K*CHSL	TOPWID	AREA
47092.000	0.00	0.00	604.95	1590.00	615.36	10.41	.39	.00	615.74	.43	53.72	319.24
* 47092.000	0.00	0.00	604.95	2340.00	616.75	11.80	.10	2.54	616.85	.43	798.00	1109.51
47092.000	0.00	0.00	604.95	2670.00	616.99	12.04	.08	.15	617.08	.43	798.00	1303.64
47092.000	0.00	0.00	604.95	3680.00	617.89	12.94	.06	.22	617.94	.43	798.00	2014.63
47913.000	0.00	0.00	605.30	1590.00	617.44	12.14	.07	.09	617.52	.43	387.00	832.56
47913.000	0.00	0.00	605.30	2340.00	618.04	12.74	.09	.00	618.12	.43	387.00	1062.78
47913.000	0.00	0.00	605.30	2670.00	618.23	12.93	.09	.00	618.32	.43	387.00	1137.12
47913.000	0.00	0.00	605.30	3680.00	618.81	13.51	.12	.03	618.92	.43	387.00	1362.24
48475.000	0.00	0.00	606.10	1590.00	618.18	12.08	.19	.06	618.37	1.42	84.92	454.54
48475.000	0.00	0.00	606.10	2340.00	619.00	12.90	.32	.12	619.32	1.42	101.77	531.76
48475.000	0.00	0.00	606.10	2670.00	619.31	13.21	.37	.14	619.68	1.42	106.00	563.21
48475.000	0.00	0.00	606.10	3680.00	620.07	13.97	.54	.21	620.61	1.42	106.00	644.19
48756.000	0.00	0.00	606.50	1590.00	618.71	12.21	.19	.00	618.90	1.42	87.31	466.14
48756.000	0.00	0.00	606.50	2340.00	619.99	13.49	.26	.02	620.25	1.42	106.00	593.39
48756.000	0.00	0.00	606.50	2670.00	620.43	13.93	.29	.03	620.72	1.42	106.00	640.15
48756.000	0.00	0.00	606.50	3680.00	621.54	15.04	.36	.05	621.92	1.42	106.00	757.29
49038.000	0.00	0.00	606.90	1590.00	619.27	12.37	.18	.00	619.44	1.42	90.54	479.92
49038.000	0.00	0.00	606.90	2340.00	620.80	13.90	.22	.00	621.02	1.42	106.00	636.68
49038.000	0.00	0.00	606.90	2670.00	621.28	14.38	.25	.00	621.53	1.42	106.00	687.84
49038.000	0.00	0.00	606.90	3680.00	622.52	15.62	.32	.01	622.84	1.42	106.00	817.84
49123.000	0.00	0.00	608.10	1590.00	619.40	11.30	.12	.02	619.52	14.12	65.80	581.49
49123.000	0.00	0.00	608.10	2340.00	620.93	12.83	.18	.01	621.11	14.12	65.80	681.92
49123.000	0.00	0.00	608.10	2670.00	621.48	13.38	.21	.01	621.69	14.12	68.20	718.71
49123.000	0.00	0.00	608.10	3680.00	622.71	14.61	.33	.00	623.03	14.12	68.20	802.60
49153.000	623.30	621.20	608.10	1590.00	619.41	11.31	.12	.00	619.53	0.00	65.80	581.49
49153.000	623.30	621.20	608.10	2340.00	620.94	12.84	.18	.00	621.13	0.00	65.80	582.40
49153.000	623.30	621.20	608.10	2670.00	621.70	13.60	.21	0.00	621.90	0.00	68.20	733.82
49153.000	623.30	621.20	608.10	3680.00	623.29	15.19	.22	0.00	623.51	0.00	526.42	976.85
50308.000	0.00	0.00	610.20	1590.00	619.90	9.70	.16	.02	620.06	1.82	287.36	651.47
50308.000	0.00	0.00	610.20	2340.00	621.56	11.36	.10	.03	621.65	1.82	330.00	1176.32
50308.000	0.00	0.00	610.20	2670.00	622.48	12.28	.07	.04	622.55	1.82	348.29	1487.01
50308.000	0.00	0.00	610.20	3680.00	624.06	13.86	.06	.05	624.12	1.82	380.00	2065.62
51428.000	0.00	0.00	610.90	1590.00	620.71	9.31	.18	.01	620.83	.63	278.70	605.35
51428.000	0.00	0.00	610.90	2340.00	622.12	11.22	.17	.02	622.29	.63	294.37	1010.22
51428.000	0.00	0.00	610.90	2670.00	622.90	12.00	.15	.02	623.05	.63	303.03	1243.40
51428.000	0.00	0.00	610.90	3680.00	624.41	13.51	.14	.02	624.54	.63	319.66	1712.44
52958.000	0.00	0.00	613.60	1340.00	622.28	8.68	.22	.01	622.50	1.76	183.52	408.70
52958.000	0.00	0.00	613.60	2150.00	623.65	10.05	.21	.01	623.86	1.76	349.54	826.56
52958.000	0.00	0.00	613.60	2540.00	624.24	10.64	.19	.01	624.42	1.76	360.87	1033.28
52958.000	0.00	0.00	613.60	3570.00	625.57	11.97	.15	.00	625.72	1.76	378.87	1527.73
54038.000	0.00	0.00	615.70	1340.00	623.65	7.95	.11	.01	623.75	1.94	351.29	745.02
54038.000	0.00	0.00	615.70	2150.00	624.85	9.15	.08	.01	624.93	1.94	403.72	1204.77
54038.000	0.00	0.00	615.70	2540.00	625.32	9.62	.08	.01	625.39	1.94	415.74	1395.51
54038.000	0.00	0.00	615.70	3570.00	626.43	10.73	.07	.01	626.51	1.94	439.57	1376.62

SECNO	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	HV	OLOSS	EG	K*CHSL	TOPWID	AREA
54368.000	0.00	0.00	616.20	1340.00	624.05	7.85	.34	.17	624.39	1.52	217.93	405.70
54368.000	0.00	0.00	616.20	2150.00	625.16	8.96	.32	.17	625.48	1.52	237.24	660.92
54368.000	0.00	0.00	616.20	2540.00	625.60	9.40	.32	.17	625.92	1.52	244.90	768.08
54368.000	0.00	0.00	616.20	3570.00	626.67	10.47	.31	.16	626.98	1.52	252.37	1033.94
54468.000	0.00	0.00	616.35	1340.00	624.29	7.94	.36	.01	624.65	1.50	169.68	360.19
54468.000	0.00	0.00	616.35	2150.00	625.39	9.04	.38	.04	625.77	1.50	188.58	556.62
54468.000	0.00	0.00	616.35	2540.00	625.83	9.48	.39	.05	626.22	1.50	196.14	641.18
54468.000	0.00	0.00	616.35	3570.00	626.87	10.52	.41	.07	627.27	1.50	202.52	850.16
54568.000	0.00	0.00	616.50	1340.00	624.47	7.97	.61	.17	625.08	1.50	92.04	252.53
54568.000	0.00	0.00	616.50	2150.00	625.54	9.04	.80	.30	626.34	1.50	96.00	355.17
54568.000	0.00	0.00	616.50	2540.00	625.97	9.47	.69	.35	626.85	1.50	96.00	395.94
54568.000	0.00	0.00	616.50	3570.00	626.96	10.46	1.09	.48	628.05	1.50	96.00	491.31
54637.000	0.00	0.00	617.40	1340.00	625.11	7.71	.19	.12	625.31	13.04	59.44	381.06
54637.000	0.00	0.00	617.40	2150.00	626.27	8.87	.35	.13	626.63	13.04	59.44	450.05
54637.000	0.00	0.00	617.40	2540.00	626.72	9.32	.44	.13	627.16	13.04	59.44	476.45
54637.000	0.00	0.00	617.40	3570.00	627.70	10.30	.69	.12	628.39	13.04	59.44	535.17
54638.000	628.20	628.70	617.40	1340.00	625.12	7.72	.19	.00	625.31	0.00	59.44	381.08
54638.000	628.20	628.70	617.40	2150.00	626.27	8.87	.35	.00	626.63	0.00	59.44	450.00
54638.000	628.20	628.70	617.40	2540.00	626.72	9.32	.44	.00	627.16	0.00	59.44	476.33
54638.000	628.20	628.70	617.40	3570.00	627.71	10.31	.69	.00	628.40	0.00	59.44	535.07
54678.000	628.20	628.70	617.40	1340.00	625.16	7.76	.19	.00	625.35	0.00	59.44	383.30
54678.000	628.20	628.70	617.40	2150.00	626.34	8.94	.35	.00	626.69	0.00	59.44	453.46
54678.000	628.20	628.70	617.40	2540.00	626.80	9.40	.43	.00	627.23	0.00	59.44	480.44
54678.000	628.20	628.70	617.40	3570.00	627.82	10.42	.67	.01	628.50	0.00	59.44	541.99
54679.000	0.00	0.00	617.40	1340.00	625.16	7.76	.19	.00	625.35	0.00	59.44	383.51
54679.000	0.00	0.00	617.40	2150.00	626.34	8.94	.35	.00	626.69	0.00	59.44	453.92
54679.000	0.00	0.00	617.40	2540.00	626.80	9.40	.43	.00	627.23	0.00	59.44	481.06
54679.000	0.00	0.00	617.40	3570.00	627.83	10.43	.67	.00	628.50	0.00	59.44	542.13

SUMMARY OF ERRORS

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CAUTION  SECNO=38928.000  PROFILE= 1  WSEL ASSUMED BASED ON MIN DIFF
CAUTION  SECNO=38928.000  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION  SECNO=47092.000  PROFILE= 2  WSEL ASSUMED BASED ON MIN DIFF
CAUTION  SECNO=47092.000  PROFILE= 2  20 TRIALS ATTEMPTED TO BALANCE WSEL
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**** 7000 SCOPE 2.1 LVL  221  12/14/78  20.52.16  01/08/79      79008

 SYS DEVICES 819/ 4/PF FLS=200K FLL=764K MXS=160K MXL=453K MXB=4533

HH.MM.SS CPU SECOND ORIGIN
             08.39.12.MFA. JO     LV461 NOSBE B+W LYNRELEASE447 02/04/78
08.34.04 00000.014 MFZ.       -MACJ001,T20,STMFZ.    MACOMB TWP FIS
08.34.05 00000.030 USR.        CHARGE.810-0037-45-78-5801,JANDA,001,D,JANDA.
08.34.06 00000.066 JOB.       -ATTACH,LGO,HEC2N76V2,ID=HEC.
08.34.06 00000.071 MFZ.          PF254 - CYCLE     1 ATTACHED FROM SN=SYSTEM
08.34.06 00000.072 LOD.       -LGO(PL=999999).
08.34.08 00000.894 MFZ.          LD610 - FLS REQUIRED TO LOAD - 0027777 OU.COG
08.34.08 00000.898 MFZ.          LD603 - EXECUTION INITIATED OS.EXP
08.34.08 00000.899 USR.         FORTRAN LIBRARY 439            08/20/78
08.34.13 00004.487 USR.              STOP
08.34.13 00004.488 USR.              3.588 CP SECONDS EXECUTION TIME
08.34.13 00004.492 MFZ.          RM770 - MAXIMUM ACTIVE FILES                      7
08.34.13 00004.492 MFZ.          RM771 - OPEN/CLOSE CALLS                         30
08.34.13 00004.492 MFZ.          RM772 - DATA TRANSFER CALLS                  10,068
08.34.13 00004.493 MFZ.          RM773 - CONTROL/POSITIONING CALLS                66
08.34.13 00004.493 MFZ.          RM774 - BM DATA TRANSFER CALLS                  656
08.34.13 00004.493 MFZ.          RM775 - BM CONTROL/POSITIONING CALLS             69
08.34.13 00004.493 MFZ.          RM776 - QUEUE MANAGER CALLS                     131
08.34.13 00004.493 MFZ.          RM777 - RECALL CALLS                             84
08.34.13 00004.494 MFZ.          BWMSG - NUMBER OF TAPES MOUNTED
08.34.13 00004.494 MFZ.          SRU                      4.647  SEC
08.34.13 00004.494 MFZ.          SCM                    109.468  KWS
08.34.13 00004.495 MFZ.          I/O                      0.127  MW
08.34.13 00004.495 MFZ.          RMS                      0.197  MWS
08.34.13 00004.495 MFZ.          USER                     2.788  SEC
08.34.13 00004.495 MFZ.          JOB                      4.497  SEC
08.34.13 00004.495 MFZ.          SC050 - 000140 SC/LC SWAPS
08.34.13 00004.496 MFZ.        MACJ091    MACJ091
08.34.13.EJ  END OF JOB
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  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

MIDDLE BRANCH CLINTON R.

SUMMARY PRINTOUT

SECNO	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	HV	OLOSS	EG	K*CHSL	TOPWID	AREA
28316.000	0.00	0.00	588.40	2340.00	599.94	11.54	.36	0.00	600.30	0.00	120.00	537.13
28365.000	0.00	0.00	591.20	2340.00	600.23	9.03	.17	.06	600.40	57.14	93.60	709.05
28366.000	601.10	601.40	591.20	2340.00	600.20	9.00	.22	.02	600.42	0.00	93.60	623.63
28384.000	601.10	601.40	591.20	2340.00	600.22	9.02	.22	.00	600.43	0.00	93.60	624.44
28385.000	0.00	0.00	591.20	2340.00	600.28	9.08	.17	.02	600.45	0.00	93.60	714.25
28434.000	0.00	0.00	591.20	2340.00	599.97	8.77	.87	.35	600.84	0.00	50.46	312.49
29407.000	0.00	0.00	591.90	2340.00	601.59	9.69	.07	.24	601.66	.72	500.00	1660.66
30375.000	0.00	0.00	592.60	2420.00	601.94	9.34	.09	.01	602.03	.72	600.00	1573.80
31425.000	0.00	0.00	592.95	2420.00	602.37	9.42	.10	.00	602.46	.33	580.83	1490.30
32475.000	0.00	0.00	593.30	2420.00	602.97	9.67	.38	.14	603.35	.33	684.42	900.27
33389.000	0.00	0.00	593.55	2420.00	604.18	10.63	.25	.04	604.44	.27	571.87	1022.80
34303.000	0.00	0.00	593.80	2420.00	604.86	11.06	.51	.13	605.38	.27	94.00	455.86

SUMMARY OF ERRORS

Macomb Twp. FIS 5850-03

Middle Branch Clinton River

SUMMARY PRINTOUT

Summary Printout for HEC-2 run used to match gage rating curve

SECNO	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	HV	OLOSS	EG	K*CHSL	TOPWID	AREA
1425.000	0.00	0.00	592.95	180.00	601.79	8.84	.01	0.00	601.80	0.00	451.18	369.03
31425.000	0.00	0.00	592.95	453.00	602.55	9.60	.02	0.00	602.57	0.00	682.49	848.1
31425.000	0.00	0.00	592.95	725.00	602.89	9.94	.03	0.00	602.92	0.00	801.71	1134.67
31425.000	0.00	0.00	592.95	1099.00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.00	[illegible]	[illegible]
32475.000	0.00	0.00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.00	601.82	.33	[illegible]	[illegible]
32475.000	0.00	0.00	593.30	453.00	602.60	9.30	.03	.00	602.62	.33	674.64	638.0
32475.000	0.00	0.00	593.30	72.00	~~602.97~~ 602.9	9.67	.04	.00	603.01	.33	684.10	891.64
32475.000	0.00	0.00	593.30	1097.00	404.06	10.76	.03	.00	604.09	.33	910.34	1826.05
[illegible]	0.00	0.00	593.55	180.00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.27	[illegible]	[illegible]
33389.000	0.00	0.00	593.55	453.00	[illegible]	[illegible]	[illegible]	.00	[illegible]	[illegible]	[illegible]	[illegible]
33389.000	0.00	0.00	593.55	725.00	603.07	9.52	.09	.01	603.15	.27	160.45	330.41
33389.000	0.00	0.00	593.55	1099.00	604.14	10.59	.06	.01	604.19	.27	713.00	1021.33
34303.000	0.00	0.00	[illegible]	180.00	601.84	[illegible]	.01	.02	601.85	.27	[illegible]	[illegible]
34303.000	0.00	0.00	[illegible]	453.00	602.74	8.94	.02	.00	602.78	.27	[illegible]	[illegible]
34303.000	0.00	0.00	593.80	725.00	603.28	9.48	[illegible]	.01	603.36	.27	78.46	302.50
34303.000	0.00	0.00	593.80	1099.00	604.27	10.47	.13	.02	604.40	.27	94.00	400.11
34352.000	0.00	0.00	595.00	180.00	601.85	6.85	.01	.00	601.86	24.49	60.49	289.26
34352.000	0.00	0.00	595.00	453.00	602.77	7.77	.03	.01	602.80	24.49	63.45	342.79
34352.000	0.00	0.00	595.00	725.00	603.30	8.30	.06	.00	603.36	24.49	64.79	380.91
34352.000	0.00	0.00	595.00	1099.00	604.34	9.34	[illegible]	[illegible]	[illegible]	24.49	66.00	[illegible]
34353.000	607.90	605.60	595.00	180.00	601.85	6.85	.01	.00	601.86	0.00	60.52	289.64
34353.000	607.90	605.60	595.00	453.00	602.77	7.77	.03	.00	602.80	0.00	63.48	342.85
34353.000	607.90	605.60	595.00	725.00	603.30	8.30	.06	.00	603.36	0.00	64.73	373.38
34353.000	607.90	605.60	595.00	1099.00	604.33	9.33	.11	.00	604.44	0.00	66.00	419.30
34383.000	607.90	605.60	595.00	180.00	601.85	6.85	.01	.00	601.86	0.00	60.53	289.69
34383.000	607.90	605.60	595.00	453.00	602.77	7.77	.03	.00	602.80	0.00	63.49	343.01
34383.000	607.90	605.60	595.00	725.00	603.30	8.30	.06	.00	603.36	0.00	64.80	373.66
34383.000	607.90	605.60	595.00	1099.00	604.34	9.34	.11	.00	[illegible]	0.00	66.00	[illegible]
34384.000	0.00	0.00	595.00	180.00	601.85	6.85	[illegible]	.00	601.86	0.00	60.52	289.64
34384.000	0.00	0.00	595.00	453.00	602.77	7.77	.03	.00	602.80	0.00	63.49	346.82
34384.000	0.00	0.00	595.00	725.00	603.31	8.31	.06	.00	603.36	0.00	64.79	381.03
34384.000	0.00	0.00	595.00	1099.00	604.34	9.34	.09	.00	604.45	0.00	66.00	448.83

SECNO	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	HV	OLOSS	EG	K*CHSL	TOPWID	AREA
34433.000	0.00	0.00	595.00	180.00	601.84	6.84	.02	.00	601.86	-.00	37.73	162.00
34433.000	0.00	0.00	595.00	453.00	602.74	7.74	.08	.01	602.82	-.00	47.39	204.81
34433.000	0.00	0.00	595.00	725.00	603.25	8.25	.15	.03	603.40	-.00	50.82	230.16
34433.000	0.00	0.00	595.00	1099.00	604.28	9.28	.22	.04	604.50	-.00	76.81	294.78
35180.000	0.00	0.00	594.65	180.00	601.91	7.26	.04	.01	601.95	-.47	30.27	110.00
35180.000	0.00	0.00	594.65	453.00	603.00	8.35	.15	.02	603.15	-.47	33.90	144.77
35180.000	0.00	0.00	594.65	725.00	603.74	9.09	.26	.04	604.02	-.47	36.40	171.01

359[illegible]	0.00	0.00	[illegible]	1099.00	[illegible]	10.2[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
35928.000	0.00	0.00	394.30	180.00	602.29	7.99	.03	.00	602.32	-.47	32.70	132.87
35928.000	0.00	0.00	594.30	453.00	603.93	8.68	.09	.02	604.07	-.47	38.38	157.[illegible]
35928.000	0.00	0.00	594.30	725.00	605.10	10.80	.14	[illegible]	605.23	-.47	82.84	288.02
35928.000	0.00	0.00	594.30	1099.00	605.99	11.69	.03	.11	606.01	-.47	530.96	1018.18
36628.000	0.00	0.00	595.45	180.00	602.43	6.98	.04	.00	602.46	1.64	28.01	116.47
36628.000	0.00	0.00	595.45	453.00	604.30	8.85	.11	.01	604.41	1.64	32.57	173.17
36628.000	0.00	0.00	595.45	725.00	605.54	10.09	.17	.01	605.71	1.64	71.67	231.51
36628.000	0.00	0.00	595.45	1099.00	[illegible]	[illegible]	[illegible]	[illegible]	606.42	1.64	465.82	454.93
37328.000	0.00	0.00	596.60	180.00	602.54	[illegible]	[illegible]	[illegible]	602.60	1.64	25.88	80.2[illegible]
37328.000	0.00	0.00	596.60	453.00	604.53	7.93	.15	.01	604.69	1.64	30.34	144.33
37328.000	0.00	0.00	596.60	725.00	605.86	9.26	.23	.02	606.10	1.64	36.18	186.97
37328.000	0.00	0.00	596.60	1099.00	606.64	10.04	.40	.04	607.05	1.64	49.70	238.24
38128.000	0.00	0.00	598.55	184.00	602.90	4.35	.04	.01	602.94	2.44	32.50	117.22
38128.000	0.00	0.00	598.55	465.00	605.[illegible]	[illegible]	.03	[illegible]	605.[illegible]	2.44	44.93	203.9[illegible]
38128.000	0.00	0.00	598.55	744.00	606.58	8.03	.07	.05	606.66	2.44	160.55	399.93
38128.000	0.00	0.00	598.55	1128.00	607.45	8.90	.01	.12	607.47	2.44	614.97	1441.97
38928.000	0.00	0.00	600.50	184.00	603.7[illegible]	[illegible]	[illegible]	.01	605.84	2.44	33.63	[illegible]
38928.000	0.00	0.00	600.50	465.00	605.[illegible]	5.46	[illegible]	.02	606.11	2.44	41.28	181.92
38928.000	0.00	0.00	600.50	744.00	[illegible]	[illegible]	[illegible]	[illegible]	607.49	2.44	43.74	219.90
38928.000	0.00	0.00	600.50	1128.00	607.62	7.12	.36	.10	607.98	2.44	46.74	233.88
39724.000	0.00	0.00	599.95	184.00	604.66	4.71	.03	.02	604.70	-.69	41.05	123.40
39724.000	0.00	0.00	599.95	465.00	606.91	6.98	.06	.02	606.97	-.69	57.50	234.70
39724.000	0.00	0.00	599.95	744.00	608.33	8.38	.08	.03	608.41	-.69	[illegible]	[illegible]
39724.000	0.00	0.00	599.95	[illegible]	609.2[illegible]	9.27	[illegible]	.07	609.33	-.69	377.72	[illegible]
40521.000	0.00	0.00	599.40	184.00	605.01	5.61	.02	.00	605.03	-.69	47.75	163.15
40521.000	0.00	0.00	599.40	465.00	607.36	7.96	.04	.01	607.40	-.69	71.12	294.39
40521.000	0.00	0.00	599.40	744.00	608.80	9.40	.05	.01	608.86	-.69	87.00	412.81
40521.000	0.00	0.00	599.40	1128.00	609.80	10.40	.08	.01	609.87	-.69	87.00	500.13
40571.000	0.00	0.00	599.50	184.00	605.04	5.54	.01	.00	605.04	2.00	60.00	269.67
40571.000	0.00	0.00	599.50	465.00	607.39	7.89	.02	.01	607.41	2.00	60.00	410.61
40571.000	0.00	0.00	599.50	744.00	608.84	9.34	.03	.01	608.88	2.00	60.00	497.42
40571.000	0.00	0.00	599.50	1128.00	609.85	10.35	.06	.0[illegible]	609.91	2.00	60.00	538.23
40605.000	611.00	610.80	599.50	184.00	605.04	5.54	[illegible]	.00	605.03	0.00	60.00	269.69
40605.000	611.00	610.80	599.50	465.00	607.40	7.90	.02	.00	607.42	0.00	60.00	411.03
40605.000	611.00	610.80	599.50	744.00	608.85	9.35	.03	.00	608.88	0.00	60.00	497.91
40605.000	611.00	610.80	599.50	1128.00	609.86	10.36	.06	.00	609.93	0.00	60.00	558.90

SECNO	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	HV	OLOSS	EG	K*CHSL	TOPWID	AREA
40655.000	0.00	0.00	599.50	184.00	605.03	5.53	.03	.00	605.05	0.00	47.28	160.16
40655.000	0.00	0.00	599.50	465.00	607.39	7.89	.04	.01	607.43	0.00	68.53	292.35
40655.000	0.00	0.00	599.50	744.00	608.84	9.34	.06	.01	608.90	0.00	87.00	408.38
40655.000	0.00	0.00	599.50	1128.00	609.85	10.35	.09	.01	609.94	0.00	87.00	495.90
41521.000	0.00	0.00	599.75	184.00	605.10	5.35	.03	.00	605.13	.29	34.48	138.74
41521.000	0.00	0.00	599.75	465.00	607.48	7.73	.07	.01	607.54	.29	39.48	226.47
41521.000	0.00	0.00	599.75	744.00	608.93	9.18	.11	.01	609.04	.29	42.55	286.06
41521.000	0.00	0.00	599.75	1128.00	609.97	10.2[illegible]	.12	.03	610.13	.29	259.46	421.2[illegible]
42388.000	0.00	0.00	600.00	184.00	605.18	5.18	.03	.00	605.21	.29	34.10	132.65
42388.000	0.00	0.00	600.00	465.00	607.60	7.60	.07	.00	607.67	.29	39.20	221.18
42388.000	0.00	0.00	600.00	744.00	609.10	9.10	.11	.00	609.20	.29	42.37	282.45
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	10.22	.17	.00	610.39	.29	268.86	420.88

43488.000	0.00	0.00	600.95	184.00	605.37	4.42	.09	.02	605.46	.86	29.89	75.00
43488.000	0.00	0.00	600.95	465.00	607.84	6.89	.13	.02	607.97	.86	39.17	160.57
43488.000	0.00	0.00	600.95	744.00	609.41	8.46	.17	.02	609.57	.86	45.01	226.09
43488.000	0.00	0.00	600.95	1128.00	610.67	9.72	.23	.02	610.90	.86	102.42	319.50
44588.000	0.00	0.00	601.90	200.00	606.19	4.29	.12	.01	606.32	.86	28.45	71.23
44588.000	0.00	0.00	601.90	500.00	608.54	6.64	.17	.01	608.71	.86	39.21	150.62
44588.000	0.00	0.00	601.90	800.00	610.14	8.24	.21	.01	610.35	.86	44.20	216.63
44588.000	0.00	0.00	601.90	1200.00	611.54	9.64	.27	.01	611.81	.86	106.19	311.46
45371.000	0.00	0.00	602.55	200.00	607.17	4.62	.07	.02	607.24	.83	41.73	94.39
45371.000	0.00	0.00	602.55	500.00	609.35	6.80	.10	.03	609.45	.83	53.48	129.00
45371.000	0.00	0.00	602.55	800.00	610.95	8.40	.12	.03	611.07	.83	62.26	291.65
45371.000	0.00	0.00	602.55	1200.00	612.43	9.88	.15	.04	612.58	.83	80.13	391.37
46154.000	0.00	0.00	603.20	200.00	608.15	4.95	.06	[illegible]	608.21	.83	43.76	109.00
46154.000	0.00	0.00	603.20	500.00	610.15	6.95	.07	.00	610.27	.83	54.66	200.90
46154.000	0.00	0.00	603.20	800.00	611.70	8.50	.10	.00	611.82	.83	62.52	298.88
46154.000	0.00	0.00	603.20	1200.00	613.17	9.97	.14	.00	613.32	.83	82.94	398.61
46203.000	0.00	0.00	604.60	200.00	608.20	3.60	.04	.00	608.23	28.57	52.17	129.72
46203.000	0.00	0.00	604.60	500.00	610.24	5.64	.06	.01	610.30	28.57	67.41	233.13
46203.000	0.00	0.00	604.60	800.00	611.77	7.17	.08	.01	611.85	28.57	71.00	335.41
46203.000	0.00	0.00	604.60	1200.00	613.24	8.64	.10	.01	613.35	28.57	71.00	461.26
46204.000	617.50	618.20	604.60	200.00	608.20	3.60	.04	.00	608.23	0.00	52.17	129.75
46204.000	617.50	618.20	604.60	500.00	610.24	5.64	.06	.00	610.31	0.00	67.47	251.68
46204.000	617.50	618.20	604.60	800.00	611.77	7.17	.08	.00	611.85	0.00	71.00	343.41
46204.000	617.50	618.20	604.60	1200.00	613.23	8.63	.13	.01	613.36	0.00	71.00	421.12
46221.000	617.50	618.20	604.60	200.00	608.20	3.60	.04	.00	608.24	0.00	52.19	129.95
46221.000	617.50	618.20	604.60	500.00	610.25	5.65	.06	.00	610.31	0.00	67.50	251.96
46221.000	617.50	618.20	604.60	800.00	611.77	7.17	.08	.00	611.86	0.00	71.00	343.41
46221.000	617.50	618.20	604.60	1200.00	613.24	8.64	.13	.00	613.37	0.00	71.00	423.30
46222.000	0.00	0.00	604.60	200.00	608.20	3.60	.04	.00	608.24	0.00	52.19	129.95
46222.000	0.00	0.00	604.60	500.00	610.25	5.65	.06	.00	610.31	0.00	67.50	251.96
46222.000	0.00	0.00	604.60	800.00	611.78	7.18	.08	.00	611.86	0.00	71.00	359.44
46222.000	0.00	0.00	604.60	1200.00	613.27	8.67	.10	.01	613.37	0.00	71.00	465.71

SECNO	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	HV	OLOSS	EG	K*CHSL	TOPWID	AREA
46271.000	0.00	0.00	604.60	200.00	608.09	3.49	.23	.07	608.32	0.00	31.17	52.26
46271.000	0.00	0.00	604.60	500.00	610.17	5.57	.20	.04	610.37	0.00	47.04	136.76
46271.000	0.00	0.00	604.60	800.00	611.70	7.10	.22	.04	611.92	0.00	55.30	215.01
46271.000	0.00	0.00	604.60	1200.00	613.19	8.59	.24	.04	613.43	0.00	63.27	303.42
47092.000	0.00	0.00	604.95	200.00	609.56	4.61	.15	.02	609.71	.43	34.14	64.23
47092.000	0.00	0.00	604.95	500.00	611.10	6.15	.27	.02	611.37	.43	39.32	120.70
47092.000	0.00	0.00	604.95	800.00	612.59	7.64	.29	.02	612.87	.43	44.35	183.62
47092.000	0.00	0.00	604.95	1200.00	614.13	9.18	.35	.03	614.48	.43	48.73	252.49
47913.000	0.00	0.00	605.30	200.00	610.33	5.03	.10	.02	610.43	.43	35.57	79.02
47913.000	0.00	0.00	605.30	500.00	612.04	6.74	.19	.02	612.23	.43	41.33	144.42
47913.000	0.00	0.00	605.30	800.00	613.93	8.63	.19	.03	614.12	.43	47.59	228.62
47913.000	0.00	0.00	605.30	1200.00	615.79	10.49	.22	.04	616.01	.43	55.97	323.22
48475.000	0.00	0.00	606.10	200.00	610.59	4.49	.07	.01	610.66	1.42	28.69	94.17
48475.000	0.00	0.00	606.10	500.00	612.43	6.33	.16	.01	612.59	1.42	37.32	154.79
48475.000	0.00	0.00	606.10	800.00	614.45	8.35	.17	.01	614.63	1.42	46.85	240.10
48475.000	0.00	0.00	606.10	1200.00	616.48	10.38	.19	.01	616.67	1.42	56.39	344.83

48756.000	0.00	0.00	606.50	500.00	612.57	6.07	.18	.01	612.75	1.42	36.11	145.13
48756.000	0.00	0.00	606.50	800.00	614.67	8.17	.19	.00	614.85	1.42	45.97	281.37
48756.000	0.00	0.00	606.50	1200.00	616.78	10.28	.19	.00	616.97	1.42	55.90	[illegible]
49038.000	0.00	0.00	606.90	200.00	610.87	3.97	.10	.00	610.97	1.42	25.02	78.95
49038.000	0.00	0.00	606.90	500.00	[illegible]	[illegible]	[illegible]	[illegible]	612.98	[illegible]	[illegible]	[illegible]
49038.000	0.00	0.00	606.90	800.00	614.90	8.00	.20	.00	615.10	1.42	45.16	223.51
49038.000	0.00	0.00	606.90	1200.00	617.09	10.19	.20	.00	617.29	1.42	55.46	333.78
49123.000	0.00	0.00	608.10	200.00	610.08	[illegible]	.09	[illegible]	[illegible]	14.12	47.85	183.00
49123.000	0.00	0.00	608.10	500.00	[illegible]	[illegible]	.11	.03	613.03	14.12	58.02	184.27
49123.000	0.00	0.00	[illegible]	800.00	615.08	[illegible]	.13	.03	615.18	14.12	[illegible]	29[illegible].61
49123.000	0.00	0.00	608.10	1200.00	617.26	9.16	.12	.03	617.37	14.12	65.80	440.24
49153.000	623.30	621.20	608.10	200.00	610.86	2.76	.09	.00	610.95	0.00	47.52	84.31
49153.000	623.30	621.20	608.10	500.00	612.93	4.83	.11	.00	613.03	0.00	57.02	184.48
49153.000	623.30	621.20	608.10	800.00	615.08	6.98	.11	.00	615.19	0.00	61.30	[illegible]
49153.000	623.30	621.20	608.10	1200.00	617.32	[illegible]	.12	.00	[illegible]	0.00	[illegible]	[illegible]
50308.000	0.00	0.00	610.20	200.00	612.37	2.17	.15	.03	612.52	1.82	31.42	64.11
50308.000	0.00	0.00	610.20	500.00	614.03	3.83	.28	.08	614.31	1.82	33.34	118.14
50308.000	0.00	0.00	610.20	800.00	615.[illegible]	5.43	[illegible]	.10	616.14	1.82	37.01	180.73
50308.000	0.00	0.00	610.20	1200.00	617.[illegible]	7.[illegible]	[illegible]	.10	618.20	1.82	46.64	[illegible]

SUMMARY OF ERRORS

CAUTION SECNO=35928.000 PROFILE= 3 WSEL ASSUMED BASED ON MIN DIFF
CAUTION SECNO=35928.000 PROFILE= 3 20 TRIALS ATTEMPTED TO BALANCE WSEL

****
HEC2 RELEASE DATED NOV 76 UPDATED 4/AUG/1977
ERROR CORR - 01,02
MODIFICATION - 50,51,52,53
****

COMMAND- LOGOUT

CPA 8.243 SEC. 8.243 ADJ.
CPB .004 SEC. .004 ADJ.
SYS TIME 8.524
CONVERSATION SECND 8.248
CONNECT TIME 0 HRS. 23 MIN.
08/11/78 LOGGED OUT AT 17.31.3[illegible]
<

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Macomb Twp.

3) WATERCOURSE: Middle Branch Clinton River

4) DOCUMENT TYPE: Encroached USED FOR FIS

00BREAK00

Encroached -
used for FIS

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**********************************************
 HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
 ERROR CORR -  01,02
 MODIFICATION -  50,51,52,53
**********************************************

C
T1      MACOMB TOWNSHIP FIS    5650-03      P.M. = OLE ANDERSON
T2      100 YEAR FLOOD
T3      MIDDLE BRANCH CLINTON R.

J1  ICHECK      INQ       NINV      IDIR      STRT      METRIC     HVINS     Q          WSEL       FQ

      0.         4.         0.         0.  0.000000     0.00       0.0       0.     594.440    0.000

J2  NPROF      IPLOT      PRFVS     XSECV     XSECH      FN        ALLDC     IBW        CHNIM      ITRACE

    -1.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    38.000    40.000    41.000    42.000    43.000     1.000     8.000    10.000    12.000     3.000

    33.000     4.000    25.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

NC       .066       .045       .038       .300       .500      0.000      0.000      0.000      0.000      0.000
QT      4.000   1380.000   2040.000   2340.000   3250.000      0.000      0.000      0.000      0.000      0.000

                        REPEAT OF A, INVERT ADJUSTED

X1  16771.000     28.000   1185.000   1230.000      0.000      0.000      0.000      0.000     -3.900      0.000
X3     10.000      0.000      0.000   1185.000      0.000   1230.000      0.000      0.000      0.000      0.000
GR    598.100      0.000    597.900    100.000    597.700    200.000    597.900    300.000    597.600    400.000
GR    597.100    500.000    597.600    600.000    597.900    700.000    597.500    800.000    597.300    900.000
GR    594.100   1000.000    591.000   1100.000    591.400   1185.000    584.700   1195.000    584.900   1206.000
GR    586.000   1216.000    591.200   1230.000    588.000   1300.000    588.300   1358.000    595.900   1400.000
GR    596.900   1500.000    593.700   1600.000    592.800   1700.000    595.400   1800.000    596.300   1900.000
GR    596.600   2000.000    597.400   2100.000    596.800   2200.000      0.000      0.000      0.000      0.000
NC       .045       .045       .042      0.000      0.000      0.000      0.000      0.000      0.000      0.000

               A        VALLEY SECTION A

X1  18100.000      0.000      0.000      0.000   1400.000   1300.000   1350.000      0.000      3.900      0.000
X3     10.000      0.000      0.000   1050.000      0.000   1360.000      0.000      0.000      0.000      0.000
NH      4.000       .048    700.000       .083    960.000       .038   1010.000       .045   1200.000      0.000

                        REPEAT OF B, INVERT ADJUSTED

X1  19150.000     29.000    960.000   1010.000   1050.000   1050.000   1050.000      0.000     -1.700      0.000
X3     10.000      0.000      0.000      0.000      0.000   1350.000      0.000      0.000      0.000      0.000
GR    599.300      0.000    599.300    100.000    593.500    200.000    598.300    300.000    593.000    400.000
GR    598.400    500.000    597.700    600.000    598.400    700.000    598.400    800.000    597.000    900.000
GR    596.300    935.000    592.500    950.000    591.600    960.000    588.600    970.000    588.800    985.000
GR    588.100   1000.000    592.500   1010.000    591.600   1100.000    591.500   1200.000    595.700   1300.000
GR    597.500   1400.000    598.100   1500.000    598.700   1600.000    599.000   1700.000    599.000   1800.000
GR    598.600   1900.000    598.300   2000.000    598.000   2100.000    599.300   2200.000      0.000      0.000
NC       .088       .045       .038      0.000      0.000      0.000      0.000      0.000      0.000      0.000
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B VALLEY SECTION B

X1	20200.000	0.000	0.000	0.000	1050.000	1050.000	1050.000	0.000	1.700	0.000
X3	10.000	0.000	0.000	0.000	0.000	1350.000	0.000	0.000	0.000	0.000
NC	.066	.048	.042	0.000	0.000	0.000	0.000	0.000	0.000	0.000

REPEAT OF C, INVERT ADJUSTED

X1	21421.000	36.000	1400.000	1430.000	1000.000	1500.000	1221.000	0.000	.800	0.000
X3	10.000	0.000	0.000	1090.000	0.000	1740.000	0.000	0.000	0.000	0.000
GR	596.200	0.000	594.900	100.000	594.500	200.000	597.100	300.000	598.500	400.000
GR	598.200	500.000	598.400	600.000	598.500	700.000	598.500	800.000	598.500	900.000
GR	594.100	1000.000	593.400	1100.000	593.300	1200.000	593.300	1300.000	593.200	1400.000
GR	593.200	1400.000	587.500	1407.000	586.600	1409.000	587.200	1412.000	587.400	1415.000
GR	588.500	1416.000	589.100	1420.000	583.900	1425.000	590.900	1430.000	593.900	1500.000
GR	593.800	1600.000	593.200	1700.000	593.700	1800.000	593.500	1900.000	594.900	2000.000
GR	598.600	2100.000	598.700	2200.000	600.100	2237.000	599.400	2300.000	599.200	2400.000
GR	599.000	2500.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.045	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

C VALLEY SECTION C

X1	22642.000	0.000	0.000	0.000	1000.000	1500.000	1221.000	0.000	-.800	0.000
X3	10.000	0.000	0.000	1125.000	0.000	1775.000	0.000	0.000	0.000	0.000

D/S FACE OF 21 MILE RD. BRIDGE

BRIDGE PARRICADED AND NOT IN USE

X1	22692.000	47.000	1500.000	1600.000	50.000	50.000	50.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	1250.000	0.000	1350.000	0.000	0.000	0.000	0.000
GR	597.200	0.000	597.300	100.000	597.400	200.000	597.400	300.000	597.800	400.000
GR	598.200	500.000	598.300	600.000	598.400	700.000	598.500	800.000	598.600	900.000
GR	597.900	1000.000	597.000	1100.000	595.800	1200.000	595.500	1300.000	595.600	1400.000
GR	590.300	1500.000	590.100	1510.000	590.000	1520.000	591.600	1530.000	591.300	1535.000
GR	588.000	1539.000	587.700	1540.000	587.000	1545.000	586.800	1550.000	586.800	1555.000
GR	587.400	1560.000	587.800	1563.000	583.500	1565.000	592.400	1570.000	593.500	1580.000
GR	592.800	1590.000	594.000	1600.000	596.400	1700.000	596.900	1800.000	596.700	1900.000
GR	596.400	2000.000	597.000	2100.000	598.000	2200.000	598.300	2300.000	600.100	2336.000
GR	599.800	2400.000	599.200	2500.000	599.400	2600.000	599.300	2700.000	599.400	2800.000
CR	599.500	2900.000	599.600	3000.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	1.200	3.000	0.000	100.000	0.000	553.600	0.000	586.800	586.800

D BRIDGE SECTION D

U/S FACE OF 21 MILE RD. BRIDGE

X1	22708.000	49.000	1500.000	1600.000	16.000	16.000	16.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	596.000	596.500	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	1250.000	0.000	1850.000	0.000	0.000	0.000	0.000
BT	9.000	1250.000	595.600	0.000	1300.000	595.500	0.000	1400.000	595.600	0.000
BT	1500.000	598.600	595.800	1550.000	598.800	596.000	1600.000	598.800	596.000	1700.000
BT	596.400	0.000	1800.000	596.900	0.000	1850.000	596.800	0.000	0.000	0.000
GR	597.200	0.000	597.300	100.000	597.400	200.000	597.400	300.000	597.800	400.000
GR	598.200	500.000	598.300	600.000	598.400	700.000	598.500	800.000	598.600	900.000
GR	597.900	1000.000	597.000	1100.000	595.800	1200.000	595.500	1300.000	595.600	1400.000
GR	595.800	1500.000	590.300	1500.000	590.100	1510.000	590.000	1520.000	591.600	1530.000
GR	591.300	1535.000	588.000	1539.000	587.700	1540.000	587.000	1545.000	586.800	1550.000
GR	586.800	1555.000	587.400	1560.000	587.800	1563.000	588.500	1565.000	592.400	1570.000
					594.000	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

GR	596.900	1800.000	598.700	1900.000	598.400	2000.000	597.000	2100.000	598.000	2200.000
GR	598.300	2300.000	600.100	2386.000	599.800	2400.000	599.200	2500.000	599.400	2600.000
GR	599.300	2700.000	599.400	2800.000	599.500	2900.000	599.600	3000.000	0.000	0.000
NC	.048	.048	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000

REPEAT OF C, INVERT ADJUSTED

X1	22758.000	36.000	1400.000	1430.000	50.000	50.000	50.000	0.000	.200	0.000
X3	10.000	0.000	0.000	1050.000	0.000	1750.000	0.000	0.000	0.000	0.000
GR	596.200	0.000	594.900	100.000	594.500	200.000	597.100	300.000	598.500	400.000
GR	598.200	500.000	598.400	600.000	598.500	700.000	598.500	800.000	598.500	900.000
GR	594.100	1000.000	593.400	1100.000	593.800	1200.000	593.300	1300.000	593.200	1400.000
GR	593.200	1400.000	587.500	1407.000	586.600	1409.000	587.200	1412.000	587.400	1415.000
GR	588.500	1416.000	589.100	1420.000	588.900	1425.000	590.900	1430.000	593.900	1500.000
GR	593.800	1600.000	593.200	1700.000	593.700	1800.000	593.500	1900.000	594.900	2000.000
GR	598.600	2100.000	598.700	2200.000	600.100	2237.000	599.400	2300.000	599.200	2400.000
GR	599.000	2500.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	4.000	.045	885.000	.040	940.000	.075	1300.000	.046	2200.000	0.000

REPEAT OF E, INVERT ADJUSTED

X1	23829.000	29.000	885.000	940.000	1200.000	900.000	1071.000	0.000	-.050	0.000
X3	10.000	0.000	0.000	650.000	0.000	1200.000	0.000	0.000	0.000	0.000
GR	599.800	0.000	600.200	100.000	599.900	200.000	600.000	300.000	600.100	400.000
GR	601.600	500.000	601.200	600.000	601.600	700.000	600.700	730.000	596.700	755.000
GR	595.700	800.000	595.500	885.000	591.400	900.000	586.900	920.000	589.600	930.000
GR	595.800	940.000	595.000	1000.000	594.300	1100.000	599.400	1200.000	600.300	1300.000
GR	601.500	1400.000	600.000	1500.000	599.500	1600.000	599.000	1700.000	599.700	1800.000
GR	600.200	1900.000	600.200	2000.000	600.400	2100.000	601.700	2200.000	0.000	0.000
NH	5.000	.045	533.000	.075	633.000	.040	670.000	.075	770.000	.045
NH	1500.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

E VALLEY SECTION E

X1	24900.000	0.000	0.000	0.000	1150.000	950.000	1071.000	0.000	.050	0.000
X3	10.000	0.000	0.000	770.000	0.000	1170.000	0.000	0.000	0.000	0.000
NC	.047	.047	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000

REPEAT OF E, INVERT ADJUSTED

X1	25800.000	0.000	0.000	0.000	850.000	950.000	900.000	0.000	2.100	0.000
X3	10.000	0.000	0.000	500.000	0.000	1100.000	0.000	0.000	0.000	0.000

F VALLEY SECTION F

X1	26700.000	22.000	633.000	670.000	900.000	900.000	900.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	420.000	0.000	950.000	0.000	0.000	0.000	0.000
GR	600.900	0.000	600.100	100.000	597.500	200.000	597.500	300.000	597.500	400.000
GR	597.100	500.000	596.600	600.000	596.300	633.000	592.700	635.000	591.200	655.000
GR	593.100	665.000	596.800	670.000	596.700	700.000	597.100	800.000	596.700	900.000
GR	596.500	1000.000	596.400	1100.000	596.700	1200.000	600.100	1300.000	600.300	1400.000
GR	600.000	1500.000	601.300	1600.000	0.000	0.000	0.000	0.000	0.000	0.000

REPEAT OF F, INVERT ADJUSTED

X1	27508.000	0.000	0.000	0.000	700.000	900.000	808.000	0.000	-1.400	0.000
X3	10.000	0.000	0.000	390.000	0.000	914.000	0.000	0.000	0.000	0.000

G VALLEY SECTION G

X1	28316.000	32.000	1200.000	1255.000	808.000	808.000	608.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	1168.000	0.000	1238.000	0.000	0.000	0.000	0.000
GR	606.100	0.000	604.600	100.000	603.900	200.000	604.200	300.000	602.300	400.000
GR	602.600	500.000	602.500	600.000	603.300	700.000	601.400	800.000	598.600	900.000
GR	598.200	1000.000	599.000	1100.000	598.400	1200.000	592.100	1206.000	590.300	1210.000
GR	589.100	1215.000	588.600	1220.000	588.400	1225.000	588.900	1230.000	589.800	1235.000
GR	591.400	1240.000	591.600	1242.000	599.200	1255.000	598.700	1300.000	598.400	1400.000
GR	598.800	1500.000	602.000	1600.000	602.700	1700.000	603.700	1800.000	604.300	1860.000
GR	604.200	1900.000	604.200	2000.000	0.000	0.000	0.000	0.000	0.000	0.000

REPEAT OF H, NO BRIDGE TABLE

X1	28365.000	46.000	1500.000	1593.600	49.000	49.000	49.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	1500.000	0.000	1593.600	0.000	0.000	0.000	0.000
GR	605.900	0.000	604.800	100.000	606.000	200.000	605.300	300.000	603.800	400.000
GR	603.100	500.000	603.200	600.000	603.000	700.000	603.300	800.000	602.800	900.000
GR	602.600	1000.000	601.300	1100.000	601.200	1200.000	601.100	1300.000	601.100	1400.000
GR	597.200	1500.000	595.900	1500.000	593.900	1511.300	591.600	1522.500	591.200	1533.700
GR	592.100	1545.000	597.100	1545.000	597.100	1546.800	597.100	1549.400	592.100	1549.400
GR	591.600	1560.400	591.400	1571.400	591.900	1582.400	595.100	1593.600	597.000	1593.600
GR	602.200	1600.000	601.900	1700.000	602.100	1800.000	602.400	1900.000	602.900	2000.000
GR	603.900	2100.000	604.300	2185.000	604.400	2200.000	604.500	2300.000	604.400	2400.000
GR	604.600	2500.000	604.400	2600.000	604.400	2700.000	604.900	2800.000	604.600	2900.000
GR	605.200	3000.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.024	.024	.028	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D/S FACE OF 22 MILE RD. BRIDGE

ONE CONCRETE PIER, 4.4" WIDE

X1	28366.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	1500.000	0.000	1593.600	0.000	0.000	0.000	0.000
BT	44.000	0.000	605.900	0.000	100.000	604.800	0.000	200.000	606.000	0.000
BT	300.000	605.300	0.000	400.000	603.800	0.000	500.000	603.100	0.000	600.000
BT	603.200	0.000	700.000	603.000	0.000	800.000	603.300	0.000	900.000	602.800
BT	0.000	1000.000	602.600	0.000	1100.000	601.800	0.000	1200.000	601.200	0.000
BT	1300.000	601.100	0.000	1400.000	601.100	0.000	1500.000	603.200	597.200	1500.000
BT	605.700	597.200	1511.300	605.700	601.000	1522.500	605.700	601.400	1533.700	605.600
BT	600.400	1545.000	605.600	597.100	1546.800	605.600	597.100	1549.400	605.600	597.100
BT	1560.400	605.500	600.300	1571.400	605.400	601.000	1582.400	605.300	600.300	1593.600
BT	605.300	597.000	1593.600	602.300	597.000	1600.000	602.200	0.000	1700.000	601.900
BT	0.000	1800.000	602.100	0.000	1900.000	602.400	0.000	2000.000	602.900	0.000
BT	2100.000	603.900	0.000	2185.000	604.300	0.000	2200.000	604.400	0.000	2300.000
BT	604.500	0.000	2400.000	604.400	0.000	2500.000	604.600	0.000	2600.000	604.400
BT	0.000	2700.000	604.400	0.000	2800.000	604.900	0.000	2900.000	604.600	0.000
BT	3000.000	605.200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

H BRIDGE SECTION H

X1	28384.000	0.000	0.000	0.000	16.000	18.000	18.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	1500.000	0.000	1593.600	0.000	0.000	0.000	0.000
NC	.048	.050	.032	0.000	0.000	0.000	0.000	0.000	0.000	0.000

REPEAT OF H, NO BRIDGE TABLE

X1	28385.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	1500.000	0.000	1593.600	0.000	0.000	0.000	0.000

REPEAT OF C, INVERT ADJUSTED

X1	28434.000	32.000	1200.000	1255.000	49.000	49.000	49.000	0.000	2.800	0.000
X3	10.000	0.000	0.000	1078.000	0.000	1378.000	0.000	0.000	0.000	0.000
GR	606.100	0.000	604.600	100.000	603.900	200.000	604.200	300.000	602.300	400.000
GR	602.800	500.000	602.500	600.000	603.300	700.000	601.400	800.000	598.600	900.000
GR	598.200	1000.000	599.000	1100.000	598.400	1200.000	592.100	1206.000	590.300	1210.000
GR	589.100	1215.000	588.600	1220.000	588.400	1225.000	588.900	1230.000	589.800	1235.000
GR	591.400	1240.000	591.400	1242.000	599.200	1255.000	598.700	1300.000	598.400	1400.000
GR	598.800	1500.000	602.000	1600.000	602.700	1700.000	603.700	1800.000	604.300	1860.000
GR	604.200	1900.000	604.200	2000.000	0.000	0.000	0.000	0.000	0.000	0.000

REPEAT OF I, INVERT ADJUSTED

X1	29407.000	26.000	1006.000	1040.000	1500.000	500.000	967.000	0.000	-.700	0.000
X3	10.000	0.000	0.000	850.000	0.000	1350.000	0.000	0.000	0.000	0.000
GR	605.800	0.000	605.400	100.000	605.200	200.000	605.900	300.000	605.600	400.000
GR	604.800	500.000	603.900	600.000	602.000	700.000	600.900	800.000	601.000	900.000
GR	597.500	1000.000	593.700	1006.000	592.600	1020.000	593.800	1034.000	593.800	1034.000
GR	599.800	1040.000	599.200	1100.000	598.300	1200.000	599.600	1300.000	601.900	1400.000
GR	604.700	1500.000	606.000	1600.000	607.700	1700.000	607.100	1800.000	605.300	1900.000
GR	605.800	2000.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
OT	4.000	1430.000	2120.000	2420.000	3370.000	0.000	0.000	0.000	0.000	0.000

I VALLEY SECTION I

X1	30375.000	0.000	0.000	0.000	500.000	1500.000	968.000	0.000	.700	0.000
X3	10.000	0.000	0.000	750.000	0.000	1350.000	0.000	0.000	0.000	0.000

REPEAT OF I, INVERT ADJUSTED

X1	31425.000	0.000	0.000	0.000	600.000	1400.000	1050.000	0.000	.350	0.000
X3	10.000	0.000	0.000	0.000	0.000	1150.000	0.000	0.000	0.000	0.000

J VALLEY SECTION J

X1	32475.000	23.000	808.000	852.000	1400.000	600.000	1050.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	606.400	0.000	605.800	100.000	601.600	200.000	601.800	300.000	602.000	400.000
GR	601.600	500.000	602.400	600.000	602.100	700.000	602.500	800.000	601.500	808.000
GR	595.400	818.000	593.300	829.000	595.400	840.000	603.200	852.000	602.300	900.000
GR	603.800	1000.000	604.300	1100.000	604.900	1200.000	607.100	1300.000	607.500	1400.000
GR	607.300	1500.000	606.600	1600.000	605.700	1700.000	0.000	0.000	0.000	0.000
NH	5.000	.046	1200.000	.100	1241.000	.024	1264.000	.120	1300.000	.050
NH	2100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

REPEAT OF K, INVERT ADJUSTED

X1	33389.000	38.000	1200.000	1269.000	1300.000	500.000	914.000	0.000	-.250	0.000
X3	10.000	0.000	0.000	847.000	0.000	1622.000	0.000	0.000	0.000	0.000
GR	612.200	0.000	610.600	100.000	603.700	200.000	608.700	300.000	608.700	300.000
GR	608.400	400.000	608.400	400.000	607.200	500.000	607.200	500.000	605.100	600.000
GR	605.100	600.000	604.400	700.000	604.400	700.000	604.100	800.000	603.700	900.000
GR	603.100	1000.000	602.300	1100.000	603.600	1200.000	600.600	1230.000	597.900	1237.000
GR	595.700	1239.000	595.500	1241.000	594.400	1249.000	593.600	1252.000	594.200	1256.000
GR	595.300	1260.000	597.000	1264.000	602.700	1269.000	603.000	1300.000	603.500	1400.000
GR	608.500	1500.000	606.400	1526.000	607.900	1600.000	606.800	1700.000	608.500	1800.000
GR	608.300	1900.000	611.500	2000.000	610.900	2100.000	0.000	0.000	0.000	0.000

K VALLEY SECTION K

X1	54505.000	0.000	0.000	0.000	500.000	1500.000	914.000	0.000	.250	0.000
X3	10.000	0.000	0.000	1188.000	0.000	1282.000	0.000	0.000	0.000	0.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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*PROF 1

CCHV=     .300 CEHV=     .500
*SECNO 16771.000
     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA     LEFT/RIGHT
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN        SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID       ENDST


3470 ENCROACHMENT STATIONS=     1185.0     1230.0  TYPE=      1  TARGET=       45.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       587.50 ELREA=     99996.10


                                REPEAT OF A, INVERT ADJUSTED

  16771.00      13.64     594.44       0.00     594.44     594.76        .32       0.00       0.00     587.50
     2340.         0.      2340.         0.         0.       517.         0.         0.         0.   99996.10
      0.00       0.00       4.53       0.00       .065       .038       .045      0.000     580.30    1185.00
   .000795         0.         0.         0.          0          0          0       0.00      45.00    1230.00


*SECNO 18100.000

3470 ENCROACHMENT STATIONS=     1050.0     1360.0  TYPE=      1  TARGET=      310.000

                     A          VALLEY SECTION A

  18100.00      10.53     595.23       0.00       0.00     595.26        .03        .42        .09     591.40
     2340.       528.       675.      1137.       515.       377.       802.        34.         6.     591.20
       .26       1.03       1.79       1.42       .045       .042       .045       .042     584.70    1050.00
   .000164      1400.      1350.      1300.          2          0          0       0.00     310.00    1360.00


1490 NH CARD USED
*SECNO 19150.000

3470 ENCROACHMENT STATIONS=         .0     1350.0  TYPE=      1  TARGET=     1349.999

                                REPEAT OF B, INVERT ADJUSTED

  19150.00       9.01     595.41       0.00       0.00     595.45        .04        .19        .01     589.90
     2340.        56.       837.      1447.       108.       394.      1021.        73.        15.     590.80
       .44        .52       2.12       1.42       .088       .038       .045       .042     586.40     892.20
   .000195      1050.      1050.      1050.          2          0          0       0.00     457.80    1350.00


*SECNO 20200.000

3470 ENCROACHMENT STATIONS=         .0     1350.0  TYPE=      1  TARGET=     1349.999

                     B          VALLEY SECTION B

  20200.00       7.58     595.68       0.00       0.00     595.74        .06        .28        .01     591.60
     2340.        37.       845.      1458.        56.       323.       968.       107.        25.     592.50
       .59        .66       2.62       1.51       .083       .038       .045       .041     588.10     937.44
   .000386      1050.      1050.      1050.          2          0          0       0.00     362.15    1299.57


*SECNO 21421.000
     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
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TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3470 ENCROACHMENT STATIONS= 1090.0 1740.0 TYPE= 1 TARGET= 650.000

REPEAT OF C, INVERT ADJUSTED

21421.00	8.98	596.38	0.00	0.00	596.44	.06	.70	.00	594.00
2340.	664.	643.	1034.	655.	201.	694.	152.	40.	591.70
.79	1.01	3.21	1.49	.066	.042	.048	.040	587.40	1090.00
.000749	1000.	1221.	1500.	2	0	0	0.00	650.00	1740.00

*SECNO 22642.000

3470 ENCROACHMENT STATIONS= 1125.0 1775.0 TYPE= 1 TARGET= 650.000

C VALLEY SECTION C

22642.00	10.21	596.81	0.00	0.00	596.83	.02	.37	.01	593.20
2340.	834.	385.	1120.	919.	237.	1192.	208.	59.	590.90
1.14	.91	1.62	.94	.045	.042	.045	.040	586.60	1125.00
.000153	1000.	1221.	1500.	2	0	0	0.00	650.00	1775.00

*SECNO 22692.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 1250.0 1850.0 TYPE= 1 TARGET= 600.000

D/S FACE OF 21 MILE RD. BRIDGE

BRIDGE BARRICADED AND NOT IN USE

22692.00	10.00	596.80	0.00	0.00	596.86	.06	.01	.02	590.30
2340.	735.	1463.	142.	571.	639.	176.	210.	59.	594.00
1.14	1.29	2.29	.81	.045	.042	.045	.040	586.80	1250.00
.000368	50.	50.	50.	2	0	0	0.00	530.64	1850.00

SPECIAL BRIDGE

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
0.00	1.20	3.00	0.00	100.00	0.00	553.60	0.00	586.80	586.80

*SECNO 22708.000

3265 DIVIDED FLOW

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
597.13	596.86	0.00	662.	1697.	554.	920.	596.00	596.50

3470 ENCROACHMENT STATIONS= 1250.0 1850.0 TYPE= 1 TARGET= 600.000

U/S FACE OF 21 MILE RD. BRIDGE

22708.00	10.05	596.85	0.00	0.00	596.98	.13	.12	0.00	595.80
2340.	314.	1976.	50.	309.	644.	86.	211.	60.	596.00
1.14	1.02	3.07	.58	.045	.042	.045	.040	586.80	1250.00
.000719	16.	16.	16.	2	0	2	0.00	565.34	1850.00

*SECNO 22758.000

3470 ENCROACHMENT STATIONS= 1050.0 1750.0 TYPE= 1 TARGET= 700.000

REPEAT OF C, INVERT ADJUSTED

22758.00	10.21	597.01	0.00	0.00	597.02	.02	.01	.03	593.40
2340.	976.	399.	966.	1163.	237.	1109.	213.	60.	591.10
1.16	.84	1.68	.87	.048	.040	.048	.040	586.80	1050.00
.000149	50.	50.	50.	2	0	0	0.00	700.00	1750.00

1490 NH CARD USED
*SECNO 23829.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3470 ENCROACHMENT STATIONS= 650.0 1200.0 TYPE= 1 TARGET= 550.000

REPEAT OF E, INVERT ADJUSTED

23829.00	10.41	597.26	0.00	0.00	597.45	.19	.34	.09	595.45
2340.	292.	1509.	538.	196.	358.	469.	255.	74.	595.75
1.25	1.49	4.22	1.15	.045	.040	.075	.040	586.85	751.19
.001144	1200.	1071.	900.	2	0	0	0.00	407.83	1159.02

1490 NH CARD USED
*SECNO 24900.000

3470 ENCROACHMENT STATIONS= 770.0 1170.0 TYPE= 1 TARGET= 400.000

E VALLEY SECTION E

24900.00	11.24	598.14	0.00	0.00	598.20	.06	.71	.04	595.50
2340.	353.	1033.	954.	279.	403.	656.	283.	83.	595.80
1.40	1.27	2.56	1.45	.045	.045	.045	.040	586.90	770.00
.000456	1150.	1071.	950.	2	0	0	0.00	400.00	1170.00

*SECNO 25800.000

3470 ENCROACHMENT STATIONS= 500.0 1100.0 TYPE= 1 TARGET= 600.000

REPEAT OF E, INVERT ADJUSTED

25800.00	9.77	598.77	0.00	0.00	599.06	.29	.75	.12	597.60
2340.	148.	1633.	559.	112.	322.	278.	305.	91.	597.90
1.46	1.33	5.06	2.01	.047	.040	.047	.040	589.00	756.45
.001893	850.	900.	950.	2	0	0	0.00	343.55	1100.00

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*SECNO 26700.000

3470 ENCROACHMENT STATIONS=      420.0      950.0   TYPE=       1   TARGET=      530.000

                    F          VALLEY SECTION F

  26700.00      8.53    599.73      0.00      0.00    599.77       .04       .63       .08    596.30
     2340.      705.      657.      978.      593.      266.      808.      329.      100.    596.80
      1.62      1.19      2.47      1.21      .047      .040      .047      .040    591.20    420.00
   .000362      900.      900.      900.         2         0         0      0.00    530.00    950.00

*SECNO 27508.000
3280 CROSS SECTION  27508.00 EXTENDED        .00 FEET


3470 ENCROACHMENT STATIONS=      390.0      914.0   TYPE=       1   TARGET=      524.000

                               REPEAT OF F, INVERT ADJUSTED

  27508.00     10.10    599.90      0.00      0.00    599.92       .02       .15       .01    594.90
     2340.      898.      497.      944.     1043.      326.     1081.      367.      110.    595.40
      1.85       .86      1.54       .87      .047      .040      .047      .040    589.80    390.00
   .000107      700.      808.      900.         2         0         0      0.00    524.00    914.00

*SECNO 28316.000
     SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS  BANK ELEV
         Q      QLOB       QCH      QROB      ALOB       ACH      AROB       VOL       TWA LEFT/RIGHT
      TIME      VLOB       VCH      VROB       XNL      XNCH       XNR       WTN     ELMIN      SSTA
     SLOPE     XLOBL      XLCH     XLOBR    ITRIAL       IDC     ICONT     CORAR    TOPWID      ENDST


3470 ENCROACHMENT STATIONS=     1168.0     1288.0   TYPE=       1   TARGET=      120.000

                    G          VALLEY SECTION G

  28316.00     11.54    599.94      0.00      0.00    600.29       .36       .20       .17    598.40
     2340.       62.     2248.       30.       46.      460.       30.      395.      115.    599.20
      1.89      1.34      4.88      1.00      .047      .040      .047      .040    588.40   1168.00
   .001161      808.      808.      808.         2         0         0      0.00    120.00   1288.00

*SECNO 28365.000

3470 ENCROACHMENT STATIONS=     1500.0     1593.6   TYPE=       1   TARGET=       93.600

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       597.20 ELREA=    100000.00

                               REPEAT OF H, NO BRIDGE TABLE

  28365.00      9.02    600.22      0.00      0.00    600.39       .17       .04       .06    597.20
     2340.        0.     2340.        0.        0.      709.        0.      396.      116. 100000.00
      1.90      0.00      3.30      0.00      .047      .040      .047      .040    591.20   1500.00
   .000691       49.       49.       49.         2         0         0      0.00     93.60   1593.60

*SECNO 28366.000

3370 NORMAL BRIDGE,NRD= 44 MIN ELTRD=   601.10 MAX ELLC=   601.40
```

```
3470 ENCROACHMENT STATIONS=    1500.0     1593.6  TYPE=      1  TARGET=       93.600

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       597.20 ELREA=   100000.00


                           D/S FACE OF 22 MILE RD. BRIDGE


                           ONE CONCRETE PIER, 4.4" WIDE

  28366.00       9.00    600.20      0.00      0.00    600.42       .22       .00       .02    597.20
    2340.          0.     2340.        0.        0.      624.        0.      396.      116. 100000.00
     1.90        0.00      3.75      0.00      .024      .028      .024      .040    591.20   1500.00
  .000660          1.        1.        1.         2         0         0    -83.09     93.60   1593.60

*SECNO 28384.000

3370 NORMAL BRIDGE,NRD= 44 MIN ELTRD=  601.10 MAX ELLC=  601.40

3470 ENCROACHMENT STATIONS=    1500.0     1593.6  TYPE=      1  TARGET=       93.600

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       597.20 ELREA=   100000.00


                 H         BRIDGE SECTION H

  28384.00       9.01    600.21      0.00      0.00    600.43       .22       .01       .00    597.20
    2340.          0.     2340.        0.        0.      624.        0.      396.      116. 100000.00
     1.90        0.00      3.75      0.00      .024      .028      .024      .040    591.20   1500.00
  .000657         18.       18.       18.         0         0         0    -83.42     93.60   1593.60

*SECNO 28385.000

3470 ENCROACHMENT STATIONS=    1500.0     1593.6  TYPE=      1  TARGET=       93.600

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       597.20 ELREA=   100000.00


                           REPEAT OF H, NO BRIDGE TABLE

  28385.00       9.08    600.28      0.00      0.00    600.45       .17       .00       .02    597.20
    2340.          0.     2340.        0.        0.      714.        0.      396.      116. 100000.00
     1.90        0.00      3.28      0.00      .048      .032      .050      .040    591.20   1500.00
  .000432          1.        1.        1.         2         0         0      0.00     93.60   1593.60

*SECNO 28434.000

3301 HV CHANGED MORE THAN HVINS

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST


3470 ENCROACHMENT STATIONS=    1076.0     1378.0  TYPE=      1  TARGET=      300.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       601.20 ELREA=      602.00


                           REPEAT OF G, INVERT ADJUSTED
```

```
  28434.00      8.77    599.97      0.00      0.00    600.84       .87       .04       .35    601.20
     2340.        0.     2340.        0.        0.      312.        0.      397.      116.    602.00
     1.90       0.00      7.49      0.00      .048      .032      .050      .040    591.20   1201.17
  .002576        49.       49.       49.         2         0         0      0.00     50.45   1251.62

 *SECNO 29407.000

 3301 HV CHANGED MORE THAN HVINS

 3470 ENCROACHMENT STATIONS=      850.0     1350.0  TYPE=      1  TARGET=      500.000

                                      REPEAT OF I, INVERT ADJUSTED

  29407.00      9.69    601.59      0.00      0.00    601.66       .07       .57       .24    593.00
     2340.      435.      880.     1025.      410.      284.      962.      416.      121.    599.10
     2.04       1.06      3.05      1.07      .048      .032      .050      .040    591.90    850.00
  .000277      1500.      967.      500.         2         0         0      0.00    500.00   1350.00

 *SECNO 30375.000

 3470 ENCROACHMENT STATIONS=      750.0     1350.0  TYPE=      1  TARGET=      600.000

                       I             VALLEY SECTION I

  30375.00      9.34    601.94      0.00      0.00    602.03       .09       .36       .01    593.70
     2420.      464.      965.      991.      444.      276.      853.      458.      135.    599.80
     2.19       1.05      3.49      1.16      .048      .032      .050      .039    592.60    750.00
  .000383       500.      968.     1500.         3         0         0      0.00    600.00   1350.00

 *SECNO 31425.000

 3470 ENCROACHMENT STATIONS=         .0     1150.0  TYPE=      1  TARGET=     1149.999

                                      REPEAT OF I, INVERT ADJUSTED

  31425.00      9.46    602.41      0.00      0.00    602.60       .19       .52       .05    594.05
     2420.      667.     1296.      457.      490.      280.      307.      490.      147.    600.15
     2.28       1.36      4.62      1.49      .048      .032      .050      .036    592.95    697.08
  .000659       600.     1050.     1400.         2         0         0      0.00    452.92   1150.00

 *SECNO 32475.000

                       J             VALLEY SECTION J      J+A   Oct 17, 1979 letter
                               603.0 SE. - according to
  32475.00      9.99    ~~603.29~~      0.00      0.00    603.51       .22       .90       .02    601.50
     2420.      960.     1425.       35.      822.      293.       58.      521.      164.    603.20
     2.38       1.17      4.86       .60      .048      .032      .050      .038    593.30    159.79
  .000996      1400.     1050.      600.         3         0         0      0.00    806.11    965.91

 1490 NH CARD USED
 *SECNO 33389.000
    SECNO     DEPTH     CWSEL     CRIWS     WSELK      EG        HV        HL       OLOSS   BANK ELEV
    Q         QLOB      QCH       QROB      ALOB       ACH       AROB      VOL      TWA    LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL        XNCH      XNR       WTN      ELMIN      SSTA
    SLOPE   . XLOBL     XLCH      XLOBR     ITRIAL     IDC       ICONT     CORAR    TOPWID     ENDST

 3470 ENCROACHMENT STATIONS=      947.0     1422.0  TYPE=      1  TARGET=      775.000
```

REPEAT OF K, INVERT ADJUSTED

33389.00	10.61	604.16	0.00	0.00	604.42	.26	.89	.02	603.35
2420.	481.	1807.	133.	450.	381.	172.	548.	182.	602.45
2.45	1.07	4.74	.77	.048	.113	.062	.037	593.55	847.00
.000780	1300.	914.	500.	2	0	0	0.00	571.18	1418.18

*SECNO 34303.000

3470 ENCROACHMENT STATIONS= 1188.0 1282.0 TYPE= 1 TARGET= 94.000

K VALLEY SECTION K

34303.00	11.06	604.86	0.00	0.00	605.37	.51	.83	.12	603.60
2420.	19.	2384.	17.	16.	412.	27.	562.	188.	602.70
2.49	1.18	5.79	.62	.048	.112	.120	.037	593.80	1188.00
.001141	500.	914.	1300.	2	0	0	0.00	94.00	1282.00

```
*********************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
*********************************************
```

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

MIDDLE BRANCH CLINTON R.

SUMMARY PRINTOUT

SECNO	ELTRD	ELLC	ELMIN	Q	CHSEL	DEPTH	HV	OLOSS	EG	K*CHSL	TOPWID	AREA
16771.000	0.00	0.00	580.80	2340.00	594.44	13.64	.32	0.00	594.76	0.00	45.00	517.09
18100.000	0.00	0.00	584.70	2340.00	595.23	10.53	.03	.09	595.26	2.89	310.00	1694.09
19150.000	0.00	0.00	586.40	2340.00	595.41	9.01	.04	.01	595.45	1.62	457.80	1523.19
20200.000	0.00	0.00	568.10	2340.00	595.68	7.58	.06	.01	595.74	1.62	362.13	1347.15
21421.000	0.00	0.00	587.40	2340.00	596.38	8.98	.06	.00	596.44	-.57	650.00	1549.25
22642.000	0.00	0.00	586.60	2340.00	596.81	10.21	.02	.01	596.83	-.66	650.00	2347.85
22692.000	0.00	0.00	586.80	2340.00	596.30	10.00	.06	.02	596.36	4.00	530.64	1386.43
22708.000	596.50	596.00	586.80	2340.00	596.85	10.05	.13	0.00	596.98	0.00	565.34	1038.60
22758.000	0.00	0.00	586.80	2340.00	597.01	10.21	.02	.03	597.02	-.00	700.00	2509.33
23829.000	0.00	0.00	586.85	2340.00	597.26	10.41	.19	.09	597.45	.05	407.83	1023.67
24900.000	0.00	0.00	586.90	2340.00	598.14	11.24	.06	.04	598.20	.05	400.00	1337.96
25800.000	0.00	0.00	589.00	2340.00	598.77	9.77	.29	.12	599.06	2.33	343.55	712.16
26700.000	0.00	0.00	591.20	2340.00	599.73	8.53	.04	.08	599.77	2.44	530.00	1566.34
27508.000	0.00	0.00	589.80	2340.00	599.90	10.10	.02	.01	599.92	-1.73	524.00	2448.79
28316.000	0.00	0.00	588.40	2340.00	599.94	11.54	.36	.17	600.29	-1.73	120.00	536.90
28365.000	0.00	0.00	591.20	2340.00	600.22	9.02	.17	.06	600.39	57.14	93.60	708.89
28366.000	601.10	601.40	591.20	2340.00	600.20	9.00	.22	.02	600.42	0.00	93.60	623.51
28384.000	601.10	601.40	591.20	2340.00	600.21	9.01	.22	.00	600.43	0.00	93.60	624.32
28385.000	0.00	0.00	591.20	2340.00	600.28	9.08	.17	.02	600.45	0.00	93.60	714.08
28434.000	0.00	0.00	591.20	2340.00	599.97	8.77	.87	.35	600.34	0.00	50.45	312.39

REWIND=	47111	36
GOTOER=	47147	14
ALOG	47163	77
EXP	47262	102
ITOJ*	47364	52
SORT	47436	46
SYSAID=	47504	1
SYS=1ST	47505	62
XTOY*	47567	55
//	47644	15045

S C O P E   2   L O A D   M A P   LOADER VERSION 1.0   01/08/79   08.47.54   PAGE   1

PROGRAM WILL BE ENTERED AT MAIN   (355)   SCM LENGTH   64711   LCM LENGTH   0

BLOCK	ADDRESS	LENGTH
/CONTRL/	100	17
MAIN	117	253
/DOUBLE/	372	10
/NAMES/	402	202
H2MAIN	604	15337
ADDPTS	16143	321
BLFLO	16464	1021
BLOCK	17505	261
BWEIR	17766	1427
CARD	21415	2463
CHIMP	24100	1650
DC	25750	706
DONE	26656	60
FLDHAZ	26736	2220
FLODIS	31156	453
BLKDAT.	31631	0
NEAR	31631	16
PRIAH	31647	251
PROF	32120	1142
SCALE	33262	236
SLARA	33520	243
SUMPO	33763	2744
XSEC	36727	1256
YCRIT	40205	122
MAPIT	40327	50
QVAR	40377	24
SAVEIT	40423	24
/STP.END/	40447	1
/FCL.C./	40450	23
/Q8.IO./	40473	140
Q8NTRY=	40633	1
COMIO=	40634	44
ENDFIL=	40700	45
EOF	40745	20
FECMSK=	40765	41
FLTIN=	41026	156
FLTOUT=	41204	315
FMTAP=	41521	372
FORSYS=	42113	561
FORUTL=	42674	16
GETFIT=	42712	43
INCOM=	42755	256
/IO.BUF./	43233	227
INPB=	43462	324
INPC=	44006	173
KODER=	44201	467
KRAKER=	44670	454
OUTB=	45344	246
/HEADING/	45612	16
/LIN.CNT/	45630	1
OUTC=	45631	1054
OUTCOM=	46705	204

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**** 7000 SCOPE 2.1 LVL  221  12/14/78  20.52.16  01/08/79      79008

SYS DEVICES 819/ 4/PF FLS=200K FLL=764K MXS=160K MXL=453K MX8=4538

HH.MM.SS CPU SECOND ORIGIN
         08.52.59.MFA. JO    LV461 NOSBE B+W LYNRELEASE447 02/04/78
08.47.52 00000.008 MFZ.     -MACJ001,T20,STMFZ.    MACOMB TWP FIS
08.47.52 00000.024 USR.      CHARGE.810-0037-45-78-5801,JANDA,001,D,JANDA.
08.47.53 00000.060 JOB.     -ATTACH,LGO,HEC2N76V2,ID=HEC.
08.47.53 00000.065 MFZ.        PF254 - CYCLE     1 ATTACHED FROM SN=SYSTEM
08.47.53 00000.065 LOD.     -LGO(PL=999999).
08.47.54 00000.888 MFZ.        LD610 - FLS REQUIRED TO LOAD - 0027777 OU.COG
08.47.54 00000.892 MFZ.        LD603 - EXECUTION INITIATED OS.EXP
08.47.54 00000.892 USR.       FORTRAN LIBRARY 439            08/20/78
08.47.55 00001.484 USR.            STOP
08.47.55 00001.484 USR.               .591 CP SECONDS EXECUTION TIME
08.47.55 00001.489 MFZ.        RM770 - MAXIMUM ACTIVE FILES                  7
08.47.55 00001.489 MFZ.        RM771 - OPEN/CLOSE CALLS                     24
08.47.55 00001.489 MFZ.        RM772 - DATA TRANSFER CALLS               1,792
08.47.55 00001.489 MFZ.        RM773 - CONTROL/POSITIONING CALLS            48
08.47.55 00001.489 MFZ.        RM774 - BM DATA TRANSFER CALLS              395
08.47.55 00001.490 MFZ.        RM775 - BM CONTROL/POSITIONING CALLS         61
08.47.55 00001.490 MFZ.        RM776 - QUEUE MANAGER CALLS                  80
08.47.55 00001.490 MFZ.        RM777 - RECALL CALLS                         66
08.47.55 00001.490 MFZ.        BWMSG - NUMBER OF TAPES MOUNTED
08.47.55 00001.491 MFZ.        SRU                     1.582  SEC
08.47.55 00001.491 MFZ.        SCM                    26.047  KWS
08.47.55 00001.491 MFZ.        I/O                     0.029  KW
08.47.55 00001.491 MFZ.        RMS                     0.022  MWS
08.47.55 00001.492 MFZ.        USER                    0.423  SEC
08.47.55 00001.492 MFZ.        JOB                     1.493  SEC
08.47.55 00001.492 MFZ.        SC050 - 000000 SC/LC SWAPS
08.47.55 00001.492 MFZ.     MACJOAU   MACJOAU
08.47.55.EJ  END OF JOB
MACJOAU  JANDA                 01/08/79  08.47.52  7600   JO
```

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Macomb Twp

3) WATERCOURSE: Middle Branch Clinton River

4) DOCUMENT TYPE: Hydraulic Analysis

00BREAK00

Telex: 23-5793
Phone: (313) 334-9901

Johnson&Anderson,Inc.
CONSULTING ENGINEERS
P. O. Box 1166 • 2300 Dixie Highway • Pontiac, Mich. 48056

November 2, 1978

RECEIVED
NOV 7 1978
WATER MANAGEMENT

Water Management Division
Michigan Dept. of Natural Resources
P. O. Box 30028
Lansing, Michigan 48909

Attention Mr. Daniel H. Morgan

Re: Macomb Township FIS
Middle Branch Clinton River

Gentlemen:

Enclosed for your review are the hydraulic calculations used to determine the profiles for the 10-, 50-, 100- and 500-year floods on the Middle Branch of the Clinton River from Hall Road north to Hayes Road at Shelby Township.

The following items are enclosed:

Profile Sheet
Hydraulic Analysis Booklet
HEC-2 Input/Output, Natural Floodway
HEC-2 Input/Output, 0.1' Floodway
IPLOT of the Cross Sections
200' Scale, 2' Contour Work Map
800' Scale, 5' Contour Work Map

If you have questions or comments, please contact me.

Sincerely,

Ole Anderson

Bob Waters

Ole Anderson, P.E.
Project Manager

OA/dp
enc.
cc: File No. 5850-03

HYDRAULIG ANALYSIS

MACOMB TOWNSHIP FIS

J & A File #5850-03-1

TABLE OF CONTENTS

MACOMB TOWNSHIP FIS
MACOMB COUNTY, MICHIGAN
HYDRAULIC ANALYSIS

INTRODUCTION

The river being studied is the Middle Branch Clinton River in Macomb Township, Macomb County, Michigan. The study limits for this river are from the southern corporate limit of Macomb Township at Hall Road (Highway M-59) in section 33 of the Township, upstream to the western corporate limit in section 6 at Hayes Road. Flows at the upstream and downstream ends of this study were those used in the Flood Insurance Studies for Shelby Township and Clinton Township, respectively. Flows for the intermediate locations were taken from the TR-20 model used in the Clinton Township study. These flows have been approved by the Michigan Department of Natural Resources. The date of the field survey was November and December, 1977. The project manager for this analysis was Ole Anderson.

METHOD OF ANALYSIS

Water-surface profiles were computed through use of the COE HEC-2 step-backwater computer program. Bridges which were under low flow conditions for all four flows were coded according to the "normal bridge" routine requirements. For those bridges which experienced pressure or weir flow for any of the four flows, the "special bridge" routine and hand calculations were used to determine the upstream water-surface elevation.

The hydraulic model was developed for the 100-year flow. Valley sections upstream and downstream of bridges were located where full cross-section flow would be developed out of the influence of the bridge constriction. The criteria for placement of these sections was that outlined on pages 18-21 of the HEC Training Document No. 6, Application of the HEC-2 Bridge Routines. Accordingly, the downstream section was placed at a distance of about four times the average length of the side constriction caused by the bridge abutment. The upstream section was placed at a distance about equal to the bridge constriction. If additional sections were found necessary within this distance or if the actual field-surveyed cross section fell within this distance, the intermediate sections were encroached as appropriate.

MACOMB TOWNSHIP FIS
MACOMB COUNTY, MICHIGAN
HYDRAULIC ANALYSIS

SPECIAL SITUATION

For the study area of the Middle Branch Clinton River downstream of 25 Mile Road, maps with a scale of 1 in. = 200 ft. and a contour interval of 2 ft. were available. For the areas upstream of 25 Mile Road, these maps were not available and the floodway and the flooded outline are plotted on maps with a scale of 1 in. = 800 ft. and a contour interval of 5 ft.

An initial HEC-2 computer run was made to define the water-surface elevations of the natural floodway. Several other runs were made with the floodway encroached where possible to produce a rise in the water surface no greater than 0.1 ft. at any point. A HEC-2 computer run using the natural floodway and a HEC-2 run using the encroached floodway (100-year flood profile only) are included with this submittal.

VARIABLES AND COEFFICIENTS

The basis for Manning's "n" value selection came from field inspection and comparison with the photographs and descriptions found on pages 101 to 123 in Open-Channel Hydraulics by Ven Ten Chow, as well as with photographs and descriptions found in the Geological Survey Water-Supply Paper 1849, Roughness Characteristics of Natural Channels.

The roughness factors (Manning's "n") were then adjusted to reconstitute the stage-discharge curve for the Middle Branch Clinton River gage at Macomb. The USGS rating curve along with a curve generated using four simulated flows is included with this submittal. The output summary of the computer run using the four simulated flows is also included. In general, the following ranges of Manning's "n" values were used:

DESCRIPTION	MANNING'S "n"
1. Channel	
a. Sand or silt bottom, no debris, good alignment	0.024 - 0.026
b. Sand bottom, moderate debris or brush	0.035 - 0.038
c. Sand and gravel bottom, heavy debris or brush	0.040 - 0.046
2. Overbank	
a. Farmland, low grass, light brush	0.040 - 0.048
b. Farmland, grass, moderate weeds or brush	0.050 - 0.055
c. High grass, moderate weeds, brush or debris	0.060 - 0.066
d. Heavy weeds, brush or debris	0.070 - 0.080
e. Dense brush and weeds, much debris	0.090 - 0.120

VARIABLES AND COEFFICIENTS (Cont'd)

The contraction and expansion coefficients used ranged from .1 - .5 and .3 - 1.0, respectively. References used in the selection of these values were the HEC-2 Users Manual, Exhibit 2, page 2, and Open-Channel Hydraulics, Ven Te Chow, pages 311 and 468.

The loss coefficients used in the HEC-2 "special bridge" routine were determined as outlined in Exhibit 2 of the HEC-2 Users Manual. Calculations are included in the appendix.

SYNTHETIC CROSS SECTIONS

Synthetic cross sections used in the hydraulic analysis were developed in two ways. The two methods used were repetition of a field-surveyed cross section with appropriate invert adjustment or interpolating between two field-surveyed cross sections using the Johnson & Anderson, Inc., AVSEC computer program. The AVSEC program develops an average cross section by averaging the overbanks and channel of the two known cross sections. All cross sections and their origins are indicated by the comment cards in the HEC-2 computer program.

Since inverts are known only at field-surveyed cross sections, a straight line is assumed between these known points, with the inverts of the synthetic cross sections adjusted accordingly.

STARTING POINT

Profile computations for the Middle Branch Clinton River were begun at the upstream face of Hall Road (Hwy. M-59) at the corresponding flood elevations determined for the Clinton Township Flood Insurance Study.

APPENDIX

Johnson & Anderson, Inc.
Consulting Engineers
P. O. Box 1166 2300 Dixie Highway Pontiac, Michigan 48056

HYDRAULIC STRUCTURAL DATA

Code No. 5850-03- BS#4

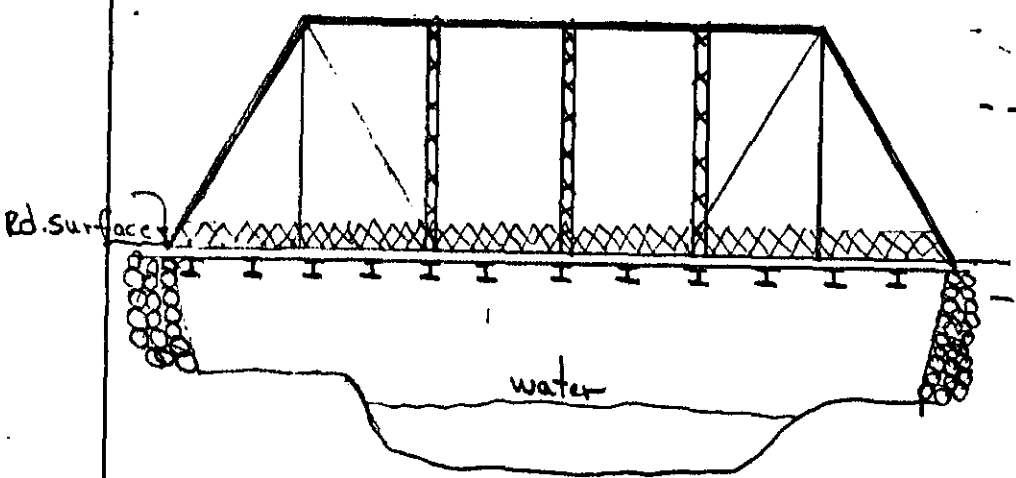
Job Name: Macomb Twp FIS		By: Mapley
Date: Drawn 11-16-77	Feature: Stl. Bridge	Water Course: Middle Branch Clinton River

Remarks: Bridge is barricaded @ both ends w/ stl. guard rails & is not in use @ this time

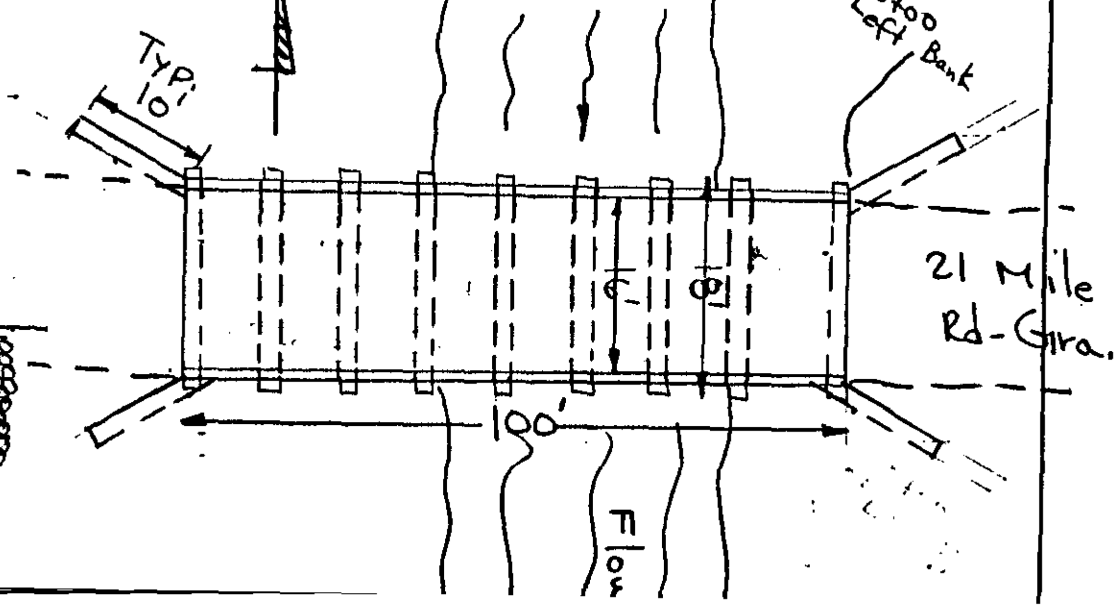
Width of Piers: —	Pier Shape: —	No. of Piers: —	Area:
Water Elevation:	Length: 100.0	Width of Deck: 16.0	Skew: None

FIELD SKETCH N

Profile View



Plan View



Johnson & Anderson, Inc.
Consulting Engineers
P.O. Box 1166 2300 Dixie Highway Pontiac, Michigan 48056

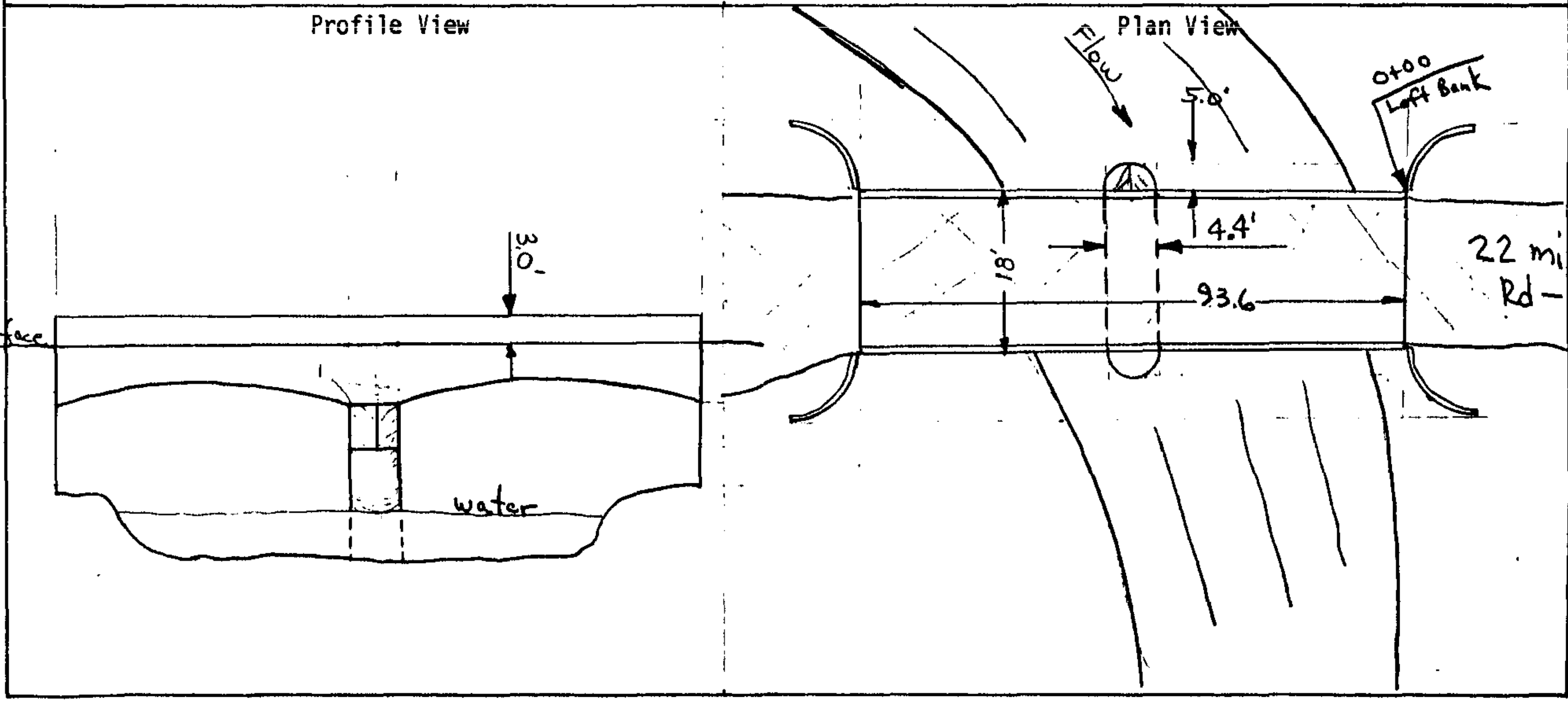
HYDRAULIC STRUCTURAL DATA

Code No. 5850-03- BS# 8

Job Name: Macomb Twp FIS		By: Mapley
Date: Drawn 11-16-77	Feature: Conc. bridge	Water Course: Middle Branch Clinton River
Remarks: 22 mile Rd bridge		

Width of Piers:	Pier Shape: Lower Upper	No. of Piers: 1	Area:
Water Elevation: 592.80	Length: 93.6'	Width of Deck: 18'	Skew:

FIELD SKETCH



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Consulting Engineers
P.O. Box 1166 2300 Dixie Highway Pontiac, Michigan 48056

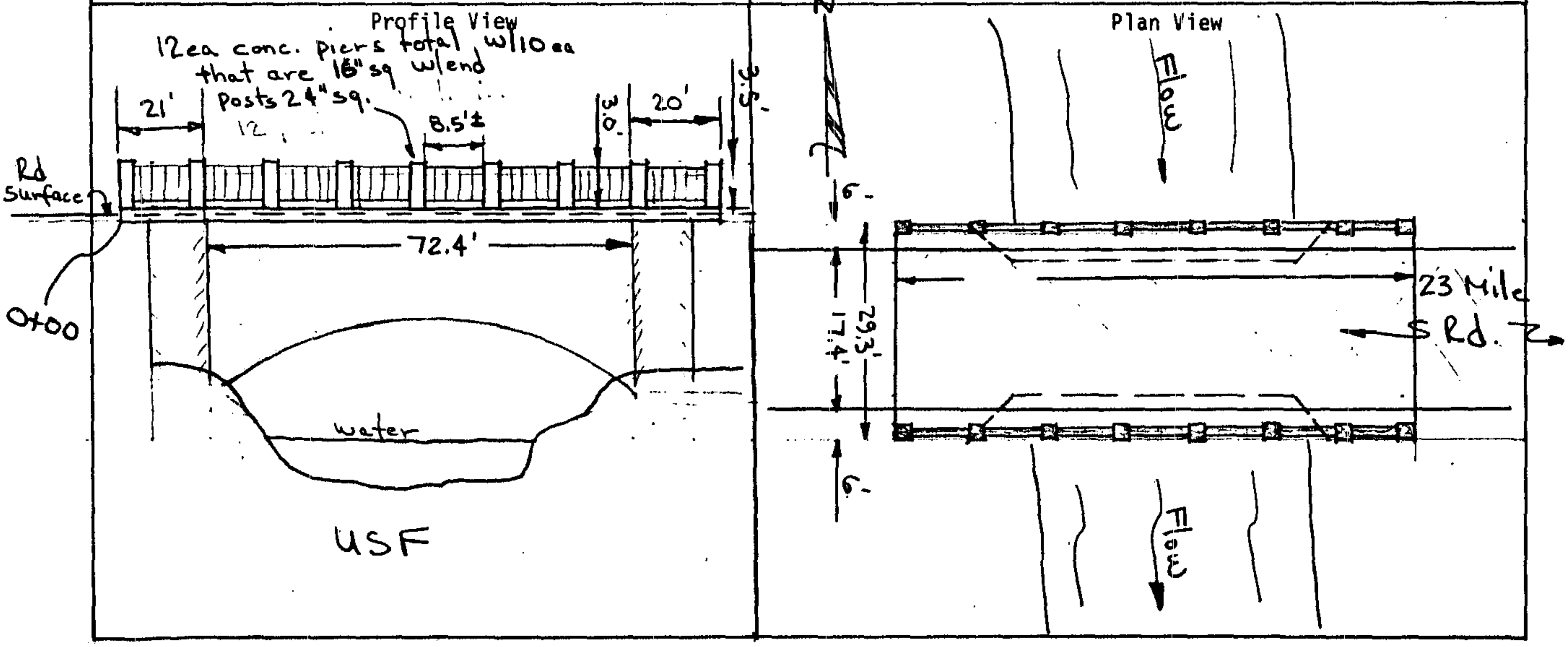
HYDRAULIC STRUCTURAL DATA

Code No. 5850-03-BS#12

Job Name: Macomb Twp FIS	By: Mapley Ruotsala Lehmoine Shunck Janette
Date: 11-17-77 12-15-77 — Feature: 23 MILE Rd. Conc. Arch Bridge	Water Course: Middle Branch Clinton River
Remarks: Arch (inside top) partially buried on each end.	

Width of Piers: —	Pier Shape: —	No. of Piers: —	Area:
Water Elevation: 597.8	Length: 72.4	Width of Deck: See drwg.	Skew: 90°

FIELD SKETCH



Johnson & Anderson, Inc.
Consulting Engineers
P. O. Box 1166 2300 Dixie Highway Pontiac, Michigan 48056

HYDRAULIC STRUCTURAL DATA

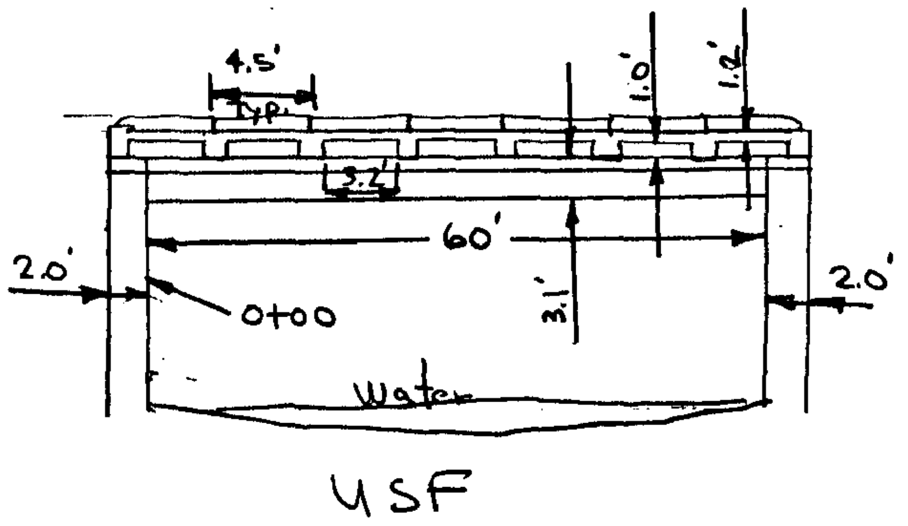
Code No. 5850-03-BS17

Job Name: Macomb Twp FIS		By: Shunck Ruotsala Mapley
Date: 11-17-77	Feature: 24 Mile Rd conc. bridge	Water Course: Middle Branch Clinton River
Remarks:		

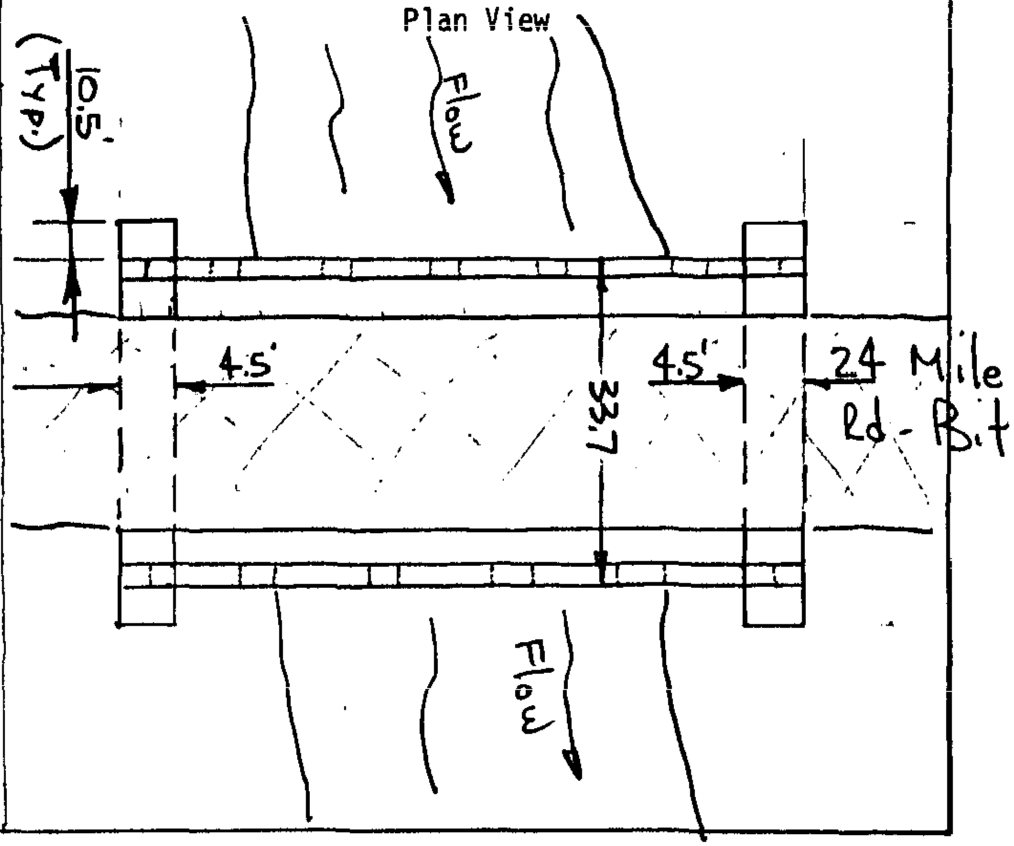
Width of Piers: —	Pier Shape: —	No. of Piers: —	Area:
Water Elevation:	Length: 60.0	Width of Deck: 33.7	Skew:

FIELD SKETCH

Profile View



Plan View



Johnson & Anderson, Inc.
Consulting Engineers
P. O. Box 1166 2300 Dixie Highway Pontiac, Michigan 48056

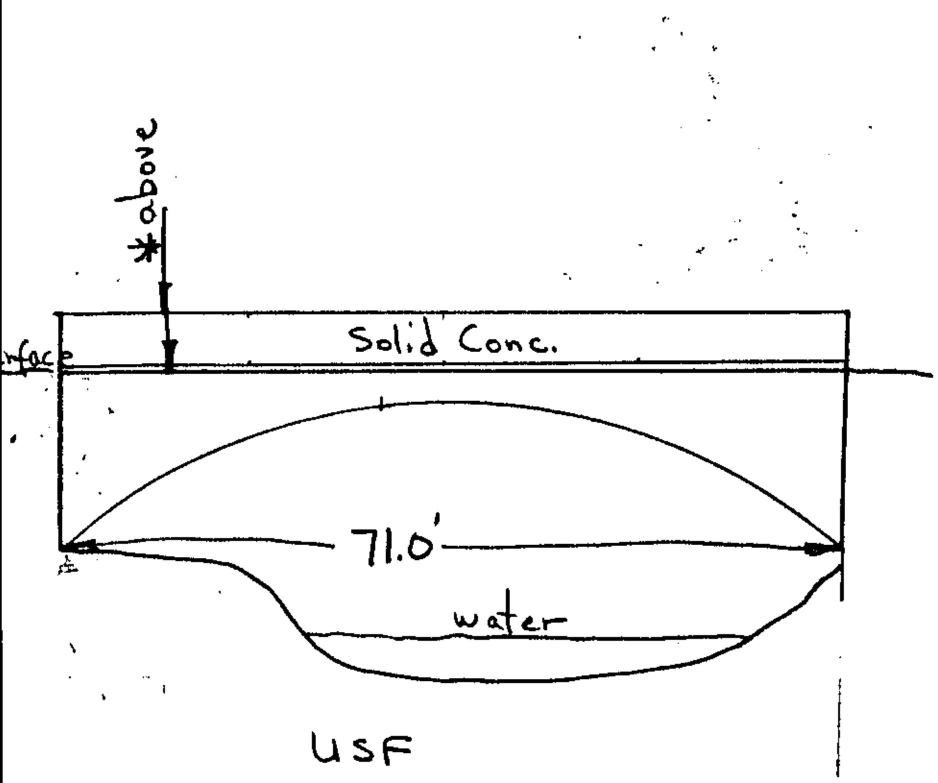
HYDRAULIC STRUCTURAL DATA

Code No. 5850-03-BS#21

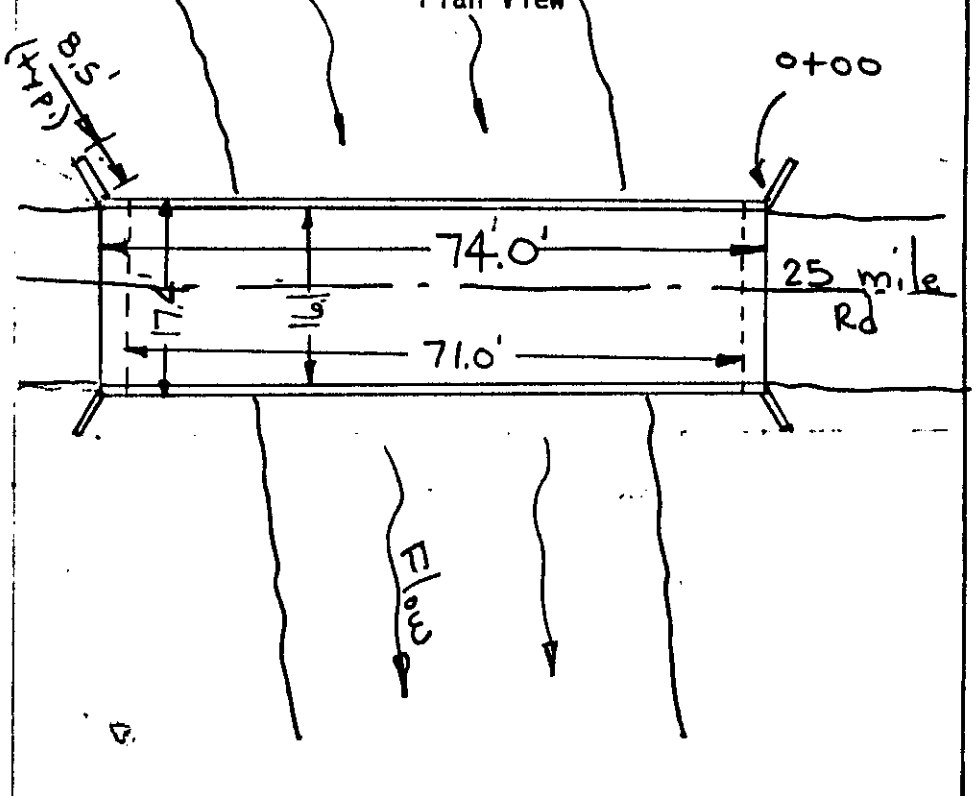
Job Name: Macomb Twp FIS			By: Mapley Janette Lehmoine
Date: 12-15-77	Feature: Arch Bridge		Water Course: Middle Branch Clinton River
Remarks: *See field notes for height of conc. rail as it is arched.			
Width of Piers: —	Pier Shape: —	No. of Piers: —	Area:
Water Elevation: 606.02	Length: 74'	Width of Deck: 17.4	Skew: —

FIELD SKETCH

Profile View



Plan View



JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS

BY RGW DATE 2-1-78 JOB DESCRIPTION Macomb Twp. FIS SHEET 1 OF 2
SUBJECT M.E. Clinton River JOB NO. 5850-03

Conversion to S.B. @ B.S. #4 (21 Mile Rd.)

1.) Determination of XKOR value

Composite 'n' value

$$n = \frac{(P_1 n_1^2 + \ldots + P_N n_N^2)^{1/2}}{(P_1 + \ldots + P_N)^{1/2}} = \frac{[2(5.5)(0.04)^2 + (100)(0.03)^2 + (100)(0.025)^2]^{1/2}}{[2(5.5) + 100 + 100]^{1/2}} = 0.028$$

$L = 16$ ft

$A = 553.6$ ft.^{2} $P = 210.6$ ft.

$$R = A/P = \frac{553.6}{210.6} = 2.63$$

$$K_f = \frac{29.1 n^2 L}{R^{4/3}} = \frac{29.1(0.028)^2 16}{(2.63)^{4/3}}$$

$K_f = 0.10$

XKOR = 1.0 + K_f + Entrance Loss
= 1.0 + 0.10 + 0.10

XKOR = 1.2

2.) Determination of COFQ value

Weir flow occurs on both sides of the bridge, but not over the bridge itself.

Percent submergence ~ 66 % COFQ = 3.0

JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS

BY RGW DATE 4-13-78 JOB DESCRIPTION Macomb Twp. FIS SHEET 2 OF 2
SUBJECT M.B. Clinton River JOB NO. 5850-3

Conversion to S.B. @ B.S. # 17 (24 Mile Rd.)

1.) Determination of XKOR value

Composite 'n' value

$$n = \frac{(P_1 n_1^2 + \ldots + P_N n_N^2)^{1/2}}{(P_1 + \ldots + P_N)^{1/2}}$$

$$= \frac{\left[2(9.4)(0.02)^2 + 60(0.02)^2 + 60(0.03)^2\right]^{1/2}}{\left[2(9.4) + 60 + 60\right]^{1/2}} = 0.025$$

$L = 34\ ft.$

$A = 612.4\ ft^2$ $\qquad P = 138.6\ ft.$

$R = A/P = \frac{612.4}{138.6} = 4.42\ ft.$

$$k_f = \frac{29.1\, n^2 L}{R^{4/3}} = \frac{29.1\,(0.025)^2\, 34}{(4.42)^{4/3}} = 0.0852$$

$k_f = 0.09$

XKOR = 1.0 + k_f + Entrance Loss

= 1.0 + 0.09 + 0.5

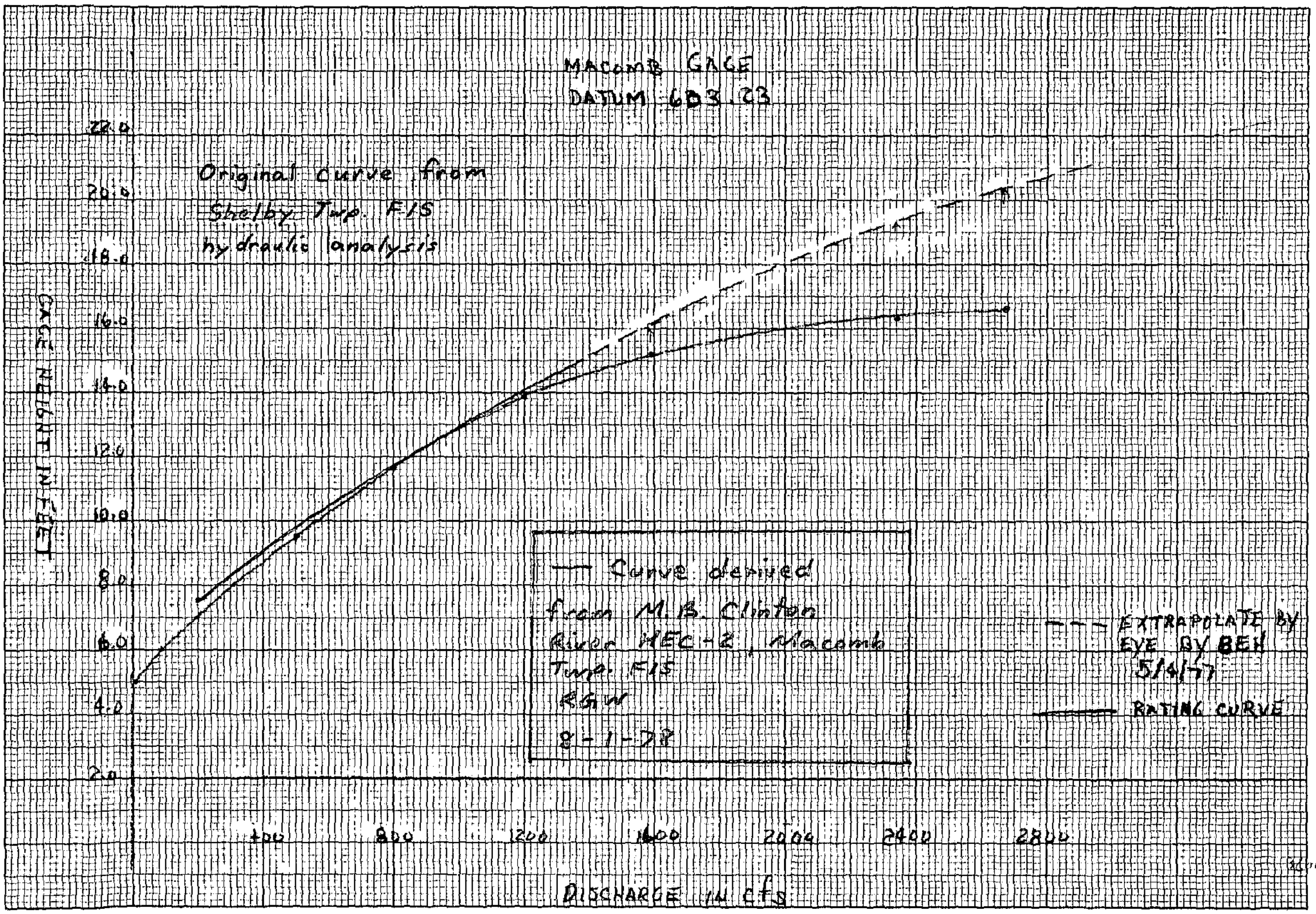
XKOR = 1.59 ~ 1.6

2.) Determination of COFQ value

Weir flow occurs on the right side of the bridge, but not over the bridge itself.

Percent submergence ~ negligible $\qquad$ COFQ = 3.0

K•E 20 X 20 TO THE INCH • 7 X 10 INCHES KEUFFEL & ESSER CO. MADE IN U.S.A.   46 1242



00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Macomb Twp

3) WATERCOURSE: Middle Branch Clinton River

4) DOCUMENT TYPE: Natural Floodway 10, 50, 100, 500 year

00BREAK00

MACJ091

Macomb Twp. FIS 5850-03

Middle Branch Clinton River

10-, 50-, 100-, 500-Year Flows

Natural Floodway

Rec. 1-11-79

✓ok

```
**** 7000 SCOPE 2.1 LVL  221  12/14/78  20.52.16  01/08/79       79008

SYS DEVICES 819/ 4/PF FLS=200K FLL=764K MXS=160K MXL=453K MXB=453B

HH.MM.SS CPU SECOND ORIGIN
         08.39.12.MFA. JO    LV461 NOSBE B+W LYNRELEASE447 02/04/78
08.34.04 00000.016 MFZ.     -MACJ001,T20,STMFZ.   MACOMB TWP FIS
08.34.05 00000.030 USR.      CHARGE,810-0037-45-78-5801,JANDA,001,D,JANDA.
08.34.06 00000.066 JOB.     -ATTACH,LGO,HEC2N76V2,ID=HEC.
08.34.06 00000.071 MFZ.       PF254 - CYCLE    1 ATTACHED FROM SN=SYSTEM
08.34.06 00000.072 LOD.     -LGO(PL=999999).
08.34.08 00000.894 MFZ.       LD610 - FLS REQUIRED TO LOAD - 0027777 OU.COG
08.34.08 00000.898 MFZ.       LD603 - EXECUTION INITIATED OS.EXP
08.34.08 00000.899 USR.      FORTRAN LIBRARY 439          08/20/78
08.34.13 00004.487 USR.         STOP
08.34.13 00004.488 USR.          3.588 CP SECONDS EXECUTION TIME
08.34.13 00004.492 MFZ.       RM770 - MAXIMUM ACTIVE FILES                 7
08.34.13 00004.492 MFZ.       RM771 - OPEN/CLOSE CALLS                    30
08.34.13 00004.492 MFZ.       RM772 - DATA TRANSFER CALLS             10,068
08.34.13 00004.493 MFZ.       RM773 - CONTROL/POSITIONING CALLS           66
08.34.13 00004.493 MFZ.       RM774 - BM DATA TRANSFER CALLS             656
08.34.13 00004.493 MFZ.       RM775 - BM CONTROL/POSITIONING CALLS        69
08.34.13 00004.493 MFZ.       RM776 - QUEUE MANAGER CALLS                131
08.34.13 00004.493 MFZ.       RM777 - RECALL CALLS                        84
08.34.13 00004.494 MFZ.       BWMSG - NUMBER OF TAPES MOUNTED
08.34.13 00004.494 MFZ.       SRU                    4.847  SEC
08.34.13 00004.494 MFZ.       SCM                  109.488  KWS
08.34.13 00004.495 MFZ.       I/O                    0.127  MW
08.34.13 00004.495 MFZ.       RMS                    0.197  MWS
08.34.13 00004.495 MFZ.       USER                   2.788  SEC
08.34.13 00004.495 MFZ.       JOB                    4.497  SEC
08.34.13 00004.495 MFZ.       SC050 - 000140 SC/LC SWAPS
08.34.13 00004.496 MFZ.      MACJ091   MACJ091
08.34.13.EJ  END OF JOB
MACJC91  JANDA               01/08/79  08.34.05  7600   JO
```

SCOPE 2 LOAD MAP   LOADER VERSION 1.0   01/08/79   08.34.08   PAGE 1

PROGRAM WILL BE ENTERED AT MAIN (355)   SCM LENGTH 64711   LCM LENGTH 0

BLOCK	ADDRESS	LENGTH
/CONTRL/	100	17
MAIN	117	253
/DOUBLE/	372	10
/NAMES/	402	202
H2MAIN	604	15337
ADDPTS	16143	321
BLFLO	16464	1021
BLOCK	17505	261
BWEIR	17766	1427
CARD	21415	2463
CHIMP	24100	1650
DC	25750	706
DONE	26656	60
FLDHAZ	26736	2220
FLODIS	31156	453
BLKDAT.	31631	0
NEAR	31631	16
PRIAH	31647	251
PROF	32120	1142
SCALE	33262	236
SLARA	33520	243
SUMPO	33763	2744
XSEC	36727	1256
YCRIT	40205	122
MAPIT	40327	50
OVAR	40377	24
SAVEIT	40423	24
/STP.END/	40447	1
/FCL.C./	40450	23
/Q8.IO./	40473	140
Q8NTRY=	40633	1
COMIO=	40634	44
ENDFIL=	40700	45
EOF	40745	20
FECMSK=	40765	41
FLTIN=	41026	156
FLTOUT=	41204	315
FMTAP=	41521	372
FORSYS=	42113	561
FORUTL=	42674	16
GETFIT=	42712	43
INCOM=	42755	256
/IO.BUF./	43233	227
INPB=	43462	324
INPC=	44006	173
KODER=	44201	467
KRAKER=	44670	454
OUTB=	45344	246
/HEADING/	45612	16
/LIN.CNT/	45630	1
OUTC=	45631	1054
OUTCOM=	46705	204

REWIND=	47111	36
GOTOER=	47147	14
ALOG	47163	77
EXP	47262	102
ITOJ*	47364	52
SORT	47436	46
SYSAID=	47504	1
SYS=1ST	47505	62
XTOY*	47567	55
//	47644	15045

```
 *************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -   01,02
  MODIFICATION -  50,51,52,53
 *************************************************


 C
 T1       MACOMB TOWNSHIP FIS     5850-03         P.M. = OLE ANDERSON
 T2       10 YEAR FLOOD
 T3       MIDDLE BRANCH CLINTON R.

 J1  ICHECK     ING       NINV      IDIR      STRT     METRIC    HVINS      Q         WSEL      FQ

         0.         2.         0.         0.  0.000000    0.00       0.0        0.    591.870    0.000

 J2  NPROF      IPLOT     PRFVS     XSECV     XSECH      FN       ALLDC      IBW      CHNIM     ITRACE

       1.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

 J3  VARIABLE CODES FOR SUMMARY PRINTOUT

      38.000    40.000    41.000    42.000    43.000     1.000     8.000    10.000    12.000     3.000


      33.000     4.000    25.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

 NC        .066        .045        .038        .300        .500       0.000       0.000       0.000       0.000       0.000
 QT       4.000    1380.000    2040.000    2340.000    3250.000       0.000       0.000       0.000       0.000       0.000


                                REPEAT OF A, INVERT ADJUSTED

 X1   16771.000      28.000    1165.000    1230.000       0.000       0.000       0.000       0.000      -3.900       0.000
 X3      10.000       0.000       0.000    1185.000       0.000    1230.000       0.000       0.000       0.000       0.000
 GR     598.100       0.000     597.900     100.000     597.700     200.000     597.900     300.000     597.600     400.000
 GR     597.100     500.000     597.600     600.000     597.900     700.000     597.300     800.000     597.300     900.000
 GR     594.100    1000.000     591.000    1100.000     591.400    1185.000     584.700    1195.000     584.900    1206.000
 GR     586.000    1216.000     591.200    1230.000     588.000    1300.000     588.800    1353.000     595.900    1400.000
 GR     596.900    1500.000     593.700    1600.000     592.800    1700.000     595.400    1800.000     596.300    1900.000
 GR     596.600    2000.000     597.400    2100.000     596.800    2200.000       0.000       0.000       0.000       0.000
 NC        .045        .045        .042       0.000       0.000       0.000       0.000       0.000       0.000       0.000


                    A           VALLEY SECTION A

 X1   18100.000       0.000       0.000       0.000    1400.000    1300.000    1350.000       0.000       3.900       0.000
 X3      10.000       0.000       0.000       0.000       0.000       0.000       0.000       0.000       0.000       0.000
 NH       4.000        .048     700.000        .088     960.000        .033    1010.000        .045    1200.000       0.000


                                REPEAT OF B, INVERT ADJUSTED

 X1   19150.000      29.000     960.000    1010.000    1050.000    1050.000    1050.000       0.000      -1.700       0.000
 X3      10.000       0.000       0.000       0.000       0.000       0.000       0.000       0.000       0.000       0.000
 GR     599.300       0.000     599.300     100.000     598.500     200.000     598.300     300.000     598.000     400.000
 GR     598.400     500.000     597.700     600.000     598.400     700.000     598.400     800.000     597.000     900.000
 GR     596.300     935.000     592.500     950.000     591.600     960.000     588.600     970.000     588.600     985.000
 GR     588.100    1000.000     592.500    1010.000     591.600    1100.000     591.300    1200.000     595.700    1300.000
 GR     597.500    1400.000     598.100    1500.000     598.700    1600.000     599.000    1700.000     599.000    1800.000
 GR     598.600    1900.000     598.300    2000.000     598.000    2100.000     599.300    2200.000       0.000       0.000
```

B VALLEY SECTION B

X1	20200.000	0.000	0.000	0.000	1050.000	1050.000	1050.000	0.000	1.700	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.066	.048	.042	0.000	0.000	0.000	0.000	0.000	0.000	0.000

REPEAT OF C, INVERT ADJUSTED

X1	21421.000	36.000	1400.000	1430.000	1000.000	1500.000	1221.000	0.000	.800	0.000
X3	10.000	0.000	0.000	1090.000	0.000	1740.000	0.000	0.000	0.000	0.000
GR	596.200	0.000	594.900	100.000	594.500	200.000	597.100	300.000	598.500	400.000
GR	598.200	500.000	598.400	600.000	598.500	700.000	598.500	800.000	598.500	900.000
GR	594.100	1000.000	593.400	1100.000	593.800	1200.000	593.300	1300.000	593.200	1400.000
GR	593.200	1400.000	587.500	1407.000	586.600	1409.000	587.200	1412.000	587.400	1415.000
GR	588.500	1416.000	589.100	1420.000	583.900	1425.000	590.900	1430.000	593.900	1500.000
GR	593.800	1600.000	593.200	1700.000	593.700	1800.000	593.500	1900.000	594.900	2000.000
GR	598.600	2100.000	598.700	2200.000	600.100	2237.000	599.400	2300.000	599.200	2400.000
GR	599.000	2500.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.045	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

C VALLEY SECTION C

X1	22642.000	0.000	0.000	0.000	1000.000	1500.000	1221.000	0.000	-.800	0.000
X3	10.000	0.000	0.000	990.000	0.000	1840.000	0.000	0.000	0.000	0.000

D/S FACE OF 21 MILE RD. BRIDGE

BRIDGE BARRICADED AND NOT IN USE

X1	22692.000	47.000	1500.000	1600.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	597.200	0.000	597.300	100.000	597.400	200.000	597.400	300.000	597.800	400.000
GR	598.200	500.000	598.300	600.000	598.400	700.000	598.500	800.000	598.600	900.000
GR	597.900	1000.000	597.000	1100.000	595.800	1200.000	595.500	1300.000	595.600	1400.000
GR	590.300	1500.000	590.100	1510.000	590.000	1520.000	591.600	1530.000	591.300	1535.000
GR	588.000	1539.000	587.700	1540.000	587.000	1545.000	586.800	1550.000	586.800	1555.000
GR	587.400	1560.000	587.800	1563.000	588.500	1565.000	592.400	1570.000	593.500	1580.000
GR	592.800	1590.000	594.000	1600.000	596.400	1700.000	596.900	1800.000	596.700	1900.000
GR	596.400	2000.000	597.000	2100.000	598.000	2200.000	598.300	2300.000	600.100	2386.000
GR	599.300	2400.000	599.200	2500.000	599.400	2600.000	599.300	2700.000	599.400	2800.000
GR	599.500	2900.000	599.600	3000.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	1.200	3.000	0.000	100.000	0.000	553.600	0.000	586.800	585.300

D BRIDGE SECTION D

U/S FACE OF 21 MILE RD. BRIDGE

X1	22708.000	49.000	1500.000	1600.000	16.000	16.000	16.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	596.000	596.500	0.000	0.000	0.000	0.000	0.000
BT	33.000	0.000	597.200	0.000	100.000	597.300	0.000	200.000	597.400	0.000
BT	300.000	597.400	0.000	400.000	597.600	0.000	500.000	598.300	0.000	600.000
BT	598.300	0.000	700.000	598.400	0.000	800.000	598.500	0.000	900.000	598.600
BT	0.000	1000.000	597.900	0.000	1100.000	597.000	0.000	1200.000	595.800	0.000
BT	1300.000	595.500	0.000	1400.000	595.600	0.000	1500.000	598.600	595.800	1550.000
BT	598.800	596.000	1600.000	596.800	596.000	1700.000	596.400	0.000	1800.000	596.900
BT	0.000	1900.000	596.700	0.000	2000.000	596.400	0.000	2100.000	597.000	0.000
BT	2200.000	598.000	0.000	2300.000	598.300	0.000	2386.000	600.100	0.000	2400.000
BT	599.800	0.000	2500.000	599.200	0.000	2600.000	599.400	0.000	2700.000	599.300
BT	0.000	2800.000	599.400	0.000	2900.000	599.500	0.000	3000.000	599.600	0.000
GR	597.200	0.000	597.300	100.000	597.400	200.000	597.400	300.000	597.800	400.000
GR	598.200	500.000	598.300	600.000	598.400	700.000	598.500	800.000	598.600	900.000

GR	597.900	1000.000	597.000	1100.000	595.800	1200.000	595.500	1300.000	595.600	1400.000
GR	595.800	1500.000	590.300	1500.000	590.100	1510.000	590.000	1520.000	591.600	1530.000
GR	591.300	1535.000	568.000	1539.000	587.700	1540.000	587.000	1545.000	586.800	1550.000
GR	586.800	1555.000	587.400	1560.000	587.800	1563.000	588.500	1565.000	592.400	1570.000
GR	593.500	1560.000	592.800	1590.000	594.000	1600.000	596.000	1600.000	596.400	1700.000
GR	596.900	1800.000	596.700	1900.000	596.400	2000.000	597.000	2100.000	598.000	2200.000
GR	598.300	2300.000	600.100	2386.000	599.800	2400.000	599.200	2500.000	599.400	2600.000
GR	599.300	2700.000	599.600	2800.000	599.500	2900.000	599.600	3000.000	0.000	0.000
NC	.048	.048	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000

REPEAT OF C, INVERT ADJUSTED

X1	22756.000	36.000	1400.000	1430.000	50.000	50.000	50.000	0.000	.200	0.000
X3	10.000	0.000	0.000	1040.000	0.000	1790.000	0.000	0.000	0.000	0.000
GR	596.200	0.000	594.900	100.000	594.500	200.000	597.100	300.000	598.500	400.000
GR	598.200	500.000	598.400	600.000	598.500	700.000	598.500	800.000	598.500	900.000
GR	594.100	1000.000	593.400	1100.000	593.600	1200.000	593.300	1300.000	593.200	1400.000
GR	593.200	1400.000	587.500	1407.000	586.600	1409.000	587.200	1412.000	587.400	1415.000
GR	588.500	1416.000	589.100	1420.000	588.900	1425.000	590.900	1430.000	593.900	1500.000
GR	593.800	1600.000	593.200	1700.000	593.700	1800.000	593.500	1900.000	594.900	2000.000
GR	598.600	2100.000	598.700	2200.000	600.100	2237.000	599.400	2300.000	599.200	2400.000
GR	599.000	2500.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	4.000	.045	885.000	.040	940.000	.075	1300.000	.046	2200.000	0.000

REPEAT OF E, INVERT ADJUSTED

X1	23829.000	29.000	885.000	940.000	1200.000	900.000	1071.000	0.000	-.050	0.000
X3	10.000	0.000	0.000	650.000	0.000	1200.000	0.000	0.000	0.000	0.000
GR	599.800	0.000	600.200	100.000	599.900	200.000	600.000	300.000	600.100	400.000
GR	601.600	500.000	601.200	600.000	601.600	700.000	600.700	730.000	596.700	755.000
GR	595.700	800.000	595.500	885.000	591.400	900.000	586.900	920.000	589.600	930.000
GR	595.300	940.000	595.000	1000.000	594.300	1100.000	599.400	1200.000	600.300	1300.000
GR	601.500	1400.000	600.000	1500.000	599.500	1600.000	599.000	1700.000	599.700	1600.000
GR	600.200	1900.000	600.200	2000.000	600.400	2100.000	601.700	2200.000	0.000	0.000
NH	5.000	.045	533.000	.075	633.000	.040	670.000	.075	770.000	.045
NH	1600.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

E VALLEY SECTION E

X1	24900.000	0.000	0.000	0.000	1150.000	950.000	1071.000	0.000	.050	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.047	.047	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000

REPEAT OF E, INVERT ADJUSTED

X1	25800.000	0.000	0.000	0.000	850.000	950.000	900.000	0.000	2.100	0.000

F VALLEY SECTION F

X1	26700.000	22.000	633.000	670.000	900.000	900.000	900.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	420.000	0.000	950.000	0.000	0.000	0.000	0.000
GR	600.900	0.000	600.100	100.000	597.500	200.000	597.500	300.000	597.500	400.000
GR	597.100	500.000	596.600	600.000	596.300	633.000	592.700	635.000	591.200	655.000
GR	593.100	665.000	596.800	670.000	596.700	700.000	597.100	800.000	596.700	900.000
GR	596.500	1000.000	596.400	1100.000	596.700	1200.000	600.100	1300.000	600.300	1400.000
GR	600.000	1500.000	601.300	1600.000	0.000	0.000	0.000	0.000	0.000	0.000

G VALLEY SECTION G

X1	28316.000	32.000	1200.000	1255.000	0.000	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	1168.000	0.000	1288.000	0.000	0.000	0.000	0.000
GR	606.100	0.000	604.600	100.000	603.900	200.000	604.200	300.000	602.300	400.000
GR	602.800	500.000	602.500	600.000	603.300	700.000	601.400	800.000	598.600	900.000
GR	598.200	1000.000	599.000	1100.000	598.400	1200.000	592.100	1206.000	590.300	1210.000
GR	589.100	1215.000	588.600	1220.000	588.400	1225.000	588.900	1230.000	589.800	1235.000
GR	591.400	1240.000	591.400	1242.000	599.200	1255.000	598.700	1300.000	598.400	1400.000
GR	598.800	1500.000	602.000	1600.000	602.700	1700.000	603.700	1800.000	604.300	1860.000
GR	604.200	1900.000	604.200	2000.000	0.000	0.000	0.000	0.000	0.000	0.000

REPEAT OF H, NO BRIDGE TABLE

X1	28365.000	46.000	1500.000	1593.600	49.000	49.000	49.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	1500.000	0.000	1593.600	0.000	0.000	0.000	0.000
GR	605.900	0.000	604.800	100.000	606.000	200.000	605.300	300.000	603.800	400.000
GR	603.100	500.000	603.200	600.000	603.000	700.000	603.300	800.000	602.800	900.000
GR	602.600	1000.000	601.800	1100.000	601.200	1200.000	601.100	1300.000	601.100	1400.000
GR	597.200	1500.000	595.900	1500.000	593.900	1511.300	591.800	1522.500	591.200	1533.700
GR	592.100	1545.000	597.100	1545.000	597.100	1546.800	597.100	1549.400	592.100	1549.400
GR	591.600	1560.400	591.400	1571.400	591.900	1582.400	595.100	1593.600	597.000	1593.600
GR	602.200	1600.000	601.900	1700.000	602.100	1800.000	602.400	1900.000	602.900	2000.000
GR	603.900	2100.000	604.300	2185.000	604.400	2200.000	604.500	2300.000	604.400	2400.000
GR	604.600	2500.000	604.400	2600.000	604.400	2700.000	604.900	2800.000	604.600	2900.000
GR	605.200	3000.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.024	.024	.028	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D/S FACE OF 32 MILE RD. BRIDGE

D/S FACE OF 22 MILE RD. BRIDGE

ONE CONCRETE PIER, 4.4" WIDE

X1	28366.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	1500.000	0.000	1593.600	0.000	0.000	0.000	0.000
BT	44.000	0.000	605.900	0.000	100.000	604.800	0.000	200.000	606.000	0.000
BT	300.000	605.300	0.000	400.000	603.800	0.000	500.000	603.100	0.000	600.000
BT	603.200	0.000	700.000	603.000	0.000	800.000	603.300	0.000	900.000	602.800
BT	0.000	1000.000	602.600	0.000	1100.000	601.800	0.000	1200.000	601.200	0.000
BT	1300.000	601.100	0.000	1400.000	601.100	0.000	1500.000	603.200	597.200	1500.000
BT	605.700	597.200	1511.300	605.700	601.000	1522.500	605.700	601.400	1533.700	605.600
BT	600.400	1545.000	605.600	597.100	1546.800	605.600	597.100	1549.400	605.600	597.100
BT	1560.400	605.500	600.300	1571.400	605.400	601.000	1582.400	605.300	600.300	1593.600
BT	605.300	597.000	1593.600	602.300	597.000	1600.000	602.200	0.000	1700.000	601.900
BT	0.000	1800.000	602.100	0.000	1900.000	602.400	0.000	2000.000	602.900	0.000
BT	2100.000	603.900	0.000	2185.000	604.300	0.000	2200.000	604.400	0.000	2300.000
BT	604.500	0.000	2400.000	604.400	0.000	2500.000	604.600	0.000	2600.000	604.400
BT	0.000	2700.000	604.400	0.000	2800.000	604.900	0.000	2900.000	604.600	0.000
BT	3000.000	605.200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

H BRIDGE SECTION H

X1	28384.000	0.000	0.000	0.000	18.000	18.000	18.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	1500.000	0.000	1593.600	0.000	0.000	0.000	0.000
NC	.048	.050	.032	0.000	0.000	0.000	0.000	0.000	0.000	0.000

REPEAT OF H, NO BRIDGE TABLE

X1	28385.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	1500.000	0.000	1593.600	0.000	0.000	0.000	0.000

REPEAT OF G, INVERT ADJUSTED

X1	28434.000	32.000	1200.000	1255.000	49.000	49.000	49.000	0.000	2.800	0.000
X3	10.000	0.000	0.000	1078.000	0.000	1378.000	0.000	0.000	0.000	0.000
GR	606.100	0.000	604.600	100.000	603.900	200.000	604.200	300.000	602.300	400.000
GR	602.800	500.000	602.500	600.000	603.300	700.000	601.400	800.000	598.600	900.000
GR	598.200	1000.000	599.000	1100.000	598.400	1200.000	592.100	1206.000	590.300	1210.000
GR	589.100	1215.000	588.600	1220.000	588.400	1225.000	588.900	1230.000	589.800	1235.000
GR	591.400	1240.000	591.400	1242.000	599.200	1255.000	598.700	1300.000	598.400	1400.000
GR	598.800	1500.000	602.000	1600.000	602.700	1700.000	603.700	1800.000	604.300	1860.000
GR	604.200	1900.000	604.200	2000.000	0.000	0.000	0.000	0.000	0.000	0.000

REPEAT OF I, INVERT ADJUSTED

X1	29407.000	26.000	1006.000	1040.000	1500.000	500.000	967.000	0.000	-.700	0.000
X3	10.000	0.000	0.000	850.000	0.000	1350.000	0.000	0.000	0.000	0.000
GR	605.800	0.000	605.400	100.000	605.200	200.000	605.900	300.000	605.600	400.000
GR	604.800	500.000	603.900	600.000	602.000	700.000	600.900	800.000	601.000	900.000
GR	597.500	1000.000	593.700	1006.000	592.600	1020.000	593.800	1034.000	593.800	1034.000
GR	599.800	1040.000	599.200	1100.000	598.300	1200.000	599.600	1300.000	601.900	1400.000
GR	604.700	1500.000	606.000	1600.000	607.700	1700.000	607.100	1800.000	605.300	1900.000
GR	605.800	2000.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	4.000	1430.000	2120.000	2420.000	3370.000	0.000	0.000	0.000	0.000	0.000

I VALLEY SECTION I

X1	30375.000	0.000	0.000	0.000	500.000	1500.000	968.000	0.000	.700	0.000
X3	10.000	0.000	0.000	750.000	0.000	1350.000	0.000	0.000	0.000	0.000

REPEAT OF I, INVERT ADJUSTED

X1	31425.000	0.000	0.000	0.000	600.000	1400.000	1050.000	0.000	.350	0.000
X3	10.000	0.000	0.000	0.000	0.000	1280.000	0.000	0.000	0.000	0.000

J VALLEY SECTION J

X1	32475.000	23.000	808.000	852.000	1400.000	600.000	1050.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	606.400	0.000	605.800	100.000	601.600	200.000	601.800	300.000	602.080	400.000
GR	601.600	500.000	602.400	600.000	602.100	700.000	602.500	800.000	601.500	808.000
GR	595.400	818.000	593.300	829.000	595.400	840.000	603.200	852.000	602.300	900.000
GR	603.800	1000.000	604.300	1100.000	604.900	1200.000	607.100	1300.000	607.500	1400.000
GR	607.300	1500.000	606.600	1600.000	605.700	1700.000	0.000	0.000	0.000	0.000
NH	5.000	.048	1200.000	.100	1241.000	.024	1264.000	.120	1300.000	.050
NH	2100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

REPEAT OF K, INVERT ADJUSTED

X1	33389.000	38.000	1200.000	1269.000	1300.000	500.000	914.000	0.000	-.250	0.000
X3	10.000	0.000	0.000	847.000	0.000	1622.000	0.000	0.000	0.000	0.000
GR	612.200	0.000	610.600	100.000	608.700	200.000	608.700	300.000	608.700	300.000
GR	608.400	400.000	608.400	400.000	607.200	500.000	607.200	500.000	605.100	600.000
GR	605.100	600.000	604.400	700.000	604.400	700.000	604.100	800.000	603.700	900.000
GR	603.100	1000.000	602.300	1100.000	603.600	1200.000	600.600	1230.000	597.900	1237.000
GR	595.700	1239.000	595.500	1241.000	594.400	1249.000	593.800	1252.000	594.200	1256.000
GR	595.300	1260.000	597.000	1264.000	602.700	1269.000	603.000	1300.000	603.500	1400.000
GR	608.500	1500.000	608.400	1526.000	607.900	1600.000	608.800	1700.000	608.500	1800.000
GR	608.300	1900.000	611.500	2000.000	610.900	2100.000	0.000	0.000	0.000	0.000

K VALLEY SECTION K

X1	34303.000	0.000	0.000	0.000	500.000	1300.000	914.000	0.000	.250	0.000
X3	10.000	0.000	0.000	1188.000	0.000	1282.000	0.000	0.000	0.000	0.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

K VALLEY SECTION K

X1	34303.000	0.000	0.000	0.000	500.000	1300.000	914.000	0.000	.250	0.000
X3	10.000	0.000	0.000	1188.000	0.000	1262.000	0.000	0.000	0.000	0.000

REPEAT OF L, NO BRIDGE TABLE

X1	34352.000	28.000	1223.000	1289.000	49.000	49.000	49.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	1223.000	0.000	1289.000	0.000	0.000	0.000	0.000
GR	611.600	0.000	611.700	100.000	611.200	200.000	610.600	300.000	610.000	400.000
GR	609.200	500.000	608.600	600.000	608.400	700.000	608.200	800.000	607.900	900.000
GR	608.000	1000.000	608.600	1100.000	609.300	1200.000	603.800	1223.000	597.200	1239.100
GR	595.000	1257.200	595.600	1275.300	602.200	1289.000	609.500	1300.000	609.000	1400.000
GR	608.900	1500.000	608.900	1523.000	608.900	1600.000	609.000	1700.000	609.500	1800.000
GR	610.000	1900.000	610.500	2000.000	610.700	2100.000	0.000	0.000	0.000	0.000
NC	.026	.026	.024	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D/S FACE OF 23 MILE RD. BRIDGE

CONCRETE ARCH BRIDGE, NO PIERS

X1	34353.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	1223.000	0.000	1289.000	0.000	0.000	0.000	0.000
BT	28.000	0.000	611.600	0.000	100.000	611.700	0.000	200.000	611.200	0.000
BT	300.000	610.600	0.000	400.000	610.000	0.000	500.000	609.200	0.000	600.000
BT	608.600	0.000	700.000	608.400	0.000	800.000	608.200	0.000	900.000	607.900
BT	0.000	1000.000	608.000	0.000	1100.000	608.600	0.000	1200.000	609.300	0.000
BT	1223.000	609.300	599.300	1239.100	609.300	604.300	1257.200	609.400	605.600	1275.300
BT	609.500	603.700	1289.000	609.500	598.600	1300.000	609.500	0.000	1400.000	609.000
BT	0.000	1500.000	608.900	0.000	1523.000	605.900	0.000	1600.000	608.900	0.000
BT	1700.000	609.000	0.000	1800.000	609.500	0.000	1900.000	610.000	0.000	2000.000
BT	610.500	0.000	2100.000	610.700	0.000	0.000	0.000	0.000	0.000	0.000

L BRIDGE SECTION L

X1	34363.000	0.000	0.000	0.000	30.000	30.000	30.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	1223.000	0.000	1289.000	0.000	0.000	0.000	0.000
NC	.048	.050	.024	0.000	0.000	0.000	0.000	0.000	0.000	0.000

REPEAT OF L, NO BRIDEE TABLE

X1	34384.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	1223.000	0.000	1289.000	0.000	0.000	0.000	0.000
NH	5.000	.048	1200.000	.100	1241.000	.024	1264.000	.120	1300.000	.050
NH	2100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

REPEAT OF K, INVERT ADJUSTED

X1	34433.000	38.000	1200.000	1269.000	49.000	49.000	49.000	0.000	1.200	0.000
X3	10.000	0.000	0.000	1151.000	0.000	1318.000	0.000	0.000	0.000	0.000
GR	612.200	0.000	610.600	100.000	608.700	200.000	608.700	300.000	608.700	300.000
GR	605.400	400.000	608.400	400.000	607.200	500.000	607.200	500.000	605.100	600.000
GR	605.100	600.000	604.400	700.000	604.400	700.000	604.100	800.000	603.700	900.000
GR	605.100	1000.000	602.300	1100.000	603.600	1200.000	600.600	1230.000	597.900	1237.000
GR	595.700	1239.000	595.500	1241.000	594.400	1249.000	593.600	1252.000	594.200	1256.000
GR	595.300	1260.000	597.000	1264.000	602.700	1269.000	603.000	1300.000	603.500	1400.000
GR	608.500	1500.000	608.400	1526.000	607.900	1600.000	608.800	1700.000	608.500	1800.000
GR	608.300	1900.000	611.500	2000.000	610.900	2100.000	0.000	0.000	0.000	0.000

NH	2000.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

REPEAT OF M, INVERT ADJUSTED

X1	35180.000	27.000	1000.000	1040.000	747.000	747.000	747.000	0.000	.350	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	609.300	0.000	609.800	100.000	610.300	200.000	609.200	300.000	609.400	400.000
GR	610.000	500.000	610.600	520.000	607.100	600.000	604.200	700.000	603.300	800.000
GR	604.000	900.000	605.100	1000.000	597.000	1010.000	594.300	1015.000	597.000	1015.000
GR	597.000	1025.000	604.100	1040.000	605.500	1100.000	606.200	1200.000	607.700	1300.000
GR	608.700	1400.000	610.600	1500.000	611.800	1600.000	612.200	1700.000	611.500	1800.000
GR	611.800	1900.000	612.200	2000.000	0.000	0.000	0.000	0.000	0.000	0.000

M VALLEY SECTION M

X1	35928.000	0.000	0.000	0.000	748.000	748.000	748.000	0.000	-.350	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	5.000	.065	665.000	.075	676.000	.024	692.000	.075	700.000	.050
NH	1800.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

REPEAT OF N, INVERT ADJUSTED

X1	36628.000	24.000	665.000	700.000	900.000	500.000	700.000	0.000	-1.150	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	614.300	0.000	613.600	100.000	610.400	200.000	606.300	300.000	607.200	400.000
GR	606.400	500.000	607.400	600.000	607.000	665.000	598.600	676.000	596.600	684.000
GR	598.700	684.000	598.700	692.000	605.800	700.000	608.200	800.000	610.500	900.000
GR	610.400	1000.000	612.300	1100.000	611.200	1200.000	611.600	1300.000	611.600	1400.000
GR	612.200	1500.000	612.900	1600.000	614.400	1700.000	614.000	1800.000	0.000	0.000

N VALLEY SECTION N

X1	37328.000	0.000	0.000	0.000	900.000	500.000	700.000	0.000	1.150	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.054	.054	.026	0.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	4.000	1470.000	2180.000	2500.000	3460.000	0.000	0.000	0.000	0.000	0.000

O VALLEY SECTION O

X1	38928.000	29.000	850.000	900.000	800.000	2400.000	1600.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	1150.000	0.000	0.000	0.000	0.000
GR	611.500	0.000	611.500	100.000	610.900	200.000	611.100	300.000	610.300	400.000
GR	610.700	500.000	611.100	600.000	609.900	700.000	606.400	800.000	608.400	850.000
GR	601.500	862.000	601.100	875.000	600.500	875.000	601.300	888.000	608.800	900.000
GR	607.000	1000.000	606.600	1100.000	607.300	1109.000	602.300	1119.000	607.000	1124.000
GR	607.200	1200.000	607.800	1300.000	613.300	1400.000	612.900	1500.000	611.800	1600.000
GR	611.800	1700.000	612.300	1800.000	611.800	1900.000	610.900	2000.000	0.000	0.000

REPEAT OF P, INVERT ADJUSTED

X1	39724.000	33.000	800.000	869.000	1100.000	500.000	796.000	0.000	.550	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	611.800	0.000	611.700	100.000	611.700	200.000	612.800	300.000	614.000	400.000
GR	614.700	500.000	611.500	600.000	609.700	700.000	607.200	800.000	607.200	800.000
GR	601.200	816.000	600.000	820.000	599.800	823.000	599.700	827.000	599.800	831.000
GR	599.400	834.000	599.400	838.000	601.700	841.000	602.600	842.000	608.200	869.000
GR	608.100	900.000	608.800	1000.000	608.200	1100.000	609.000	1200.000	611.000	1300.000
GR	611.400	1400.000	612.100	1500.000	612.700	1600.000	612.900	1700.000	613.300	1800.000
GR	612.300	1900.000	612.600	2000.000	612.900	2032.000	0.000	0.000	0.000	0.000

P VALLEY SECTION P

X1	40521.000	0.000	0.000	0.000	500.000	1100.000	797.000	0.000	-.550	0.000
X3	10.000	0.000	0.000	732.000	0.000	937.000	0.000	0.000	0.000	0.000

D/S FACE OF 24 MILE RD. BRIDGE

CONCRETE BRIDGE, NO PIERS

X1	40571.000	29.000	800.000	860.000	50.000	50.000	50.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	800.000	0.000	1300.000	0.000	0.000	0.000	0.000
GR	612.400	0.000	612.200	100.000	611.900	200.000	612.500	300.000	613.000	400.000
GR	612.100	500.000	611.500	600.000	612.000	700.000	610.700	800.000	601.500	800.000
GR	600.500	810.000	599.500	820.000	600.400	830.000	600.400	840.000	601.000	850.000
GR	601.400	860.000	610.700	860.000	613.400	900.000	609.600	1000.000	611.400	1100.000
GR	611.300	1200.000	611.600	1300.000	612.200	1400.000	612.200	1500.000	611.700	1600.000
GR	611.400	1700.000	611.700	1800.000	612.100	1900.000	613.300	1995.000	0.000	0.000
SB	0.000	1.590	3.000	0.000	60.000	0.000	612.400	0.000	599.500	599.500

O BRIDGE SECTION O

U/S FACE OF 24 MILE RD. BRIDGE

X1	40605.000	0.000	0.000	0.000	34.000	34.000	34.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	610.800	611.000	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	800.000	0.000	1300.000	0.000	0.000	0.000	0.000
BT	23.000	0.000	612.400	0.000	100.000	612.200	0.000	200.000	611.900	0.000
BT	300.000	612.500	0.000	400.000	613.000	0.000	500.000	612.100	0.000	600.000
BT	611.500	0.000	700.000	612.000	0.000	800.000	613.300	610.700	830.000	613.400
BT	610.800	860.000	613.600	610.700	900.000	613.400	0.000	1000.000	609.600	0.000
BT	1100.000	611.400	0.000	1200.000	611.300	0.000	1300.000	611.600	0.000	1400.000
BT	612.200	0.000	1500.000	612.200	0.000	1600.000	611.700	0.000	1700.000	611.400
BT	0.000	1800.000	611.700	0.000	1900.000	612.100	0.000	1995.000	613.300	0.000
NC	.054	.054	.026	0.000	0.000	0.000	0.000	0.000	0.000	0.000

REPEAT OF P, INVERT ADJUSTED

X1	40655.000	33.000	800.000	869.000	50.000	50.000	50.000	0.000	.100	0.000
X3	10.000	0.000	0.000	690.000	0.000	980.000	0.000	0.000	0.000	0.000
GR	611.800	0.000	611.700	100.000	611.700	200.000	612.800	300.000	614.000	400.000
GR	614.700	500.000	611.500	600.000	609.700	700.000	607.200	800.000	607.200	800.000
GR	601.200	816.000	600.000	820.000	599.800	823.000	599.700	827.000	599.800	831.000
GR	599.400	834.000	599.400	838.000	601.700	841.000	602.600	842.000	608.200	869.000
GR	608.100	900.000	608.800	1000.000	608.200	1100.000	609.000	1200.000	611.000	1300.000
GR	611.400	1400.000	612.100	1500.000	612.700	1600.000	612.900	1700.000	613.300	1800.000
GR	612.300	1900.000	612.600	2000.000	612.900	2032.000	0.000	0.000	0.000	0.000
NH	4.000	.120	874.000	.026	900.000	.120	1300.000	.048	2000.000	0.000

REPEAT OF R, INVERT ADJUSTED

X1	41521.000	28.000	866.000	912.000	906.000	766.000	856.000	0.000	-.250	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	614.200	0.000	614.700	100.000	615.700	200.000	614.500	250.000	612.900	260.000
GR	611.200	300.000	609.300	400.000	610.100	500.000	610.400	600.000	611.000	700.000
GR	610.800	800.000	609.500	866.000	601.500	874.000	600.000	887.000	601.200	900.000
GR	601.200	900.000	612.000	912.000	609.600	1000.000	609.600	1100.000	610.900	1200.000
GR	612.500	1300.000	613.300	1400.000	618.200	1500.000	618.400	1600.000	618.100	1700.000
GR	616.900	1800.000	614.400	1900.000	614.200	2000.000	0.000	0.000	0.000	0.000

Y SECTION R

X1	42388.000	0.000	0.000	0.000	767.000	967.000	867.000	0.000	.250	0.000
X3	10.000	0.000	0.000	350.000	0.000	1100.000	0.000	0.000	0.000	0.000
NH	5.000	.046	1240.000	.075	1254.000	.026	1274.000	.075	1289.000	.052
NH	2000.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

REPEAT OF S, INVERT ADJUSTED

X1	43488.000	27.000	1240.000	1289.000	1300.000	900.000	1100.000	0.000	-.950	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	617.300	0.000	616.900	100.000	616.900	200.000	616.500	300.000	616.700	400.000
GR	615.900	500.000	617.100	600.000	618.300	700.000	617.800	800.000	617.800	900.000
GR	617.200	1000.000	613.500	1100.000	611.100	1200.000	610.700	1240.000	603.900	1254.000
GR	601.900	1264.000	603.700	1264.000	603.400	1274.000	612.300	1289.000	612.100	1300.000
GR	611.900	1400.000	613.500	1500.000	616.000	1600.000	618.300	1700.000	619.200	1800.000
GR	620.200	1900.000	620.500	2000.000	0.000	0.000	0.000	0.000	0.000	0.000
GT	4.000	1590.000	2340.000	2670.000	3680.000	0.000	0.000	0.000	0.000	0.000

S VALLEY SECTION S

X1	44538.000	0.000	0.000	0.000	900.000	1300.000	1100.000	0.000	.950	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.042	.042	.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000

REPEAT OF T, INVERT ADJUSTED

X1	45371.000	19.000	700.000	770.000	783.000	783.000	783.000	0.000	-.650	0.000
X3	10.000	0.000	0.000	490.000	0.000	980.000	0.000	0.000	0.000	0.000
GR	619.900	0.000	613.600	100.000	614.100	200.000	614.200	300.000	613.900	400.000
GR	614.400	500.000	614.000	600.000	613.800	700.000	605.400	714.000	604.600	715.000
GR	603.500	720.000	603.200	725.000	605.500	730.000	606.000	735.000	607.300	750.000
GR	612.700	770.000	613.700	800.000	615.300	900.000	623.000	1000.000	0.000	0.000

T VALLEY SECTION T

X1	46154.000	0.000	0.000	0.000	783.000	783.000	783.000	0.000	.650	0.000
X3	10.000	0.000	0.000	636.000	0.000	784.000	0.000	0.000	0.000	0.000

REPEAT OF U, NO BRIDGE TABLE

X1	46203.000	25.000	1201.000	1272.000	49.000	49.000	49.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	1201.000	0.000	1272.000	0.000	0.000	0.000	0.000
GR	620.400	0.000	620.800	100.000	621.100	200.000	621.200	300.000	621.900	400.000
GR	619.500	500.000	618.200	600.000	617.600	700.000	617.500	800.000	617.700	900.000
GR	617.600	1000.000	617.600	1100.000	610.700	1200.000	610.700	1201.000	608.400	1218.800
GR	605.100	1235.500	604.600	1255.300	607.100	1272.000	611.000	1272.000	619.000	1274.000
GR	618.400	1300.000	618.200	1400.000	619.600	1500.000	622.200	1600.000	623.700	1646.000
NC	.024	.024	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D/S FACE OF 25 MILE RD. BRIDGE

CONCRETE ARCH BRIDGE

X1	46204.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	1201.000	0.000	1272.000	0.000	0.000	0.000	0.000
BT	26.000	0.000	620.400	0.000	100.000	620.800	0.000	200.000	621.100	0.000
BT	300.000	621.200	0.000	400.000	621.900	0.000	500.000	619.500	0.000	600.000
BT	618.200	0.000	700.000	617.600	0.000	800.000	617.500	0.000	900.000	617.700
BT	0.000	1000.000	617.600	0.000	1100.000	617.600	0.000	1200.000	619.200	0.000
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	610.700	1218.800	622.800	616.700	[illegible]

BT	622.800	618.200	1255.500	622.500	616.300	1272.000	622.800	611.000	1274.000	622.800
BT	0.000	1274.000	619.000	0.000	1300.000	618.400	0.000	1400.000	618.200	0.000
BT	1500.000	619.600	0.000	1600.000	622.200	0.000	1646.000	623.700	0.000	0.000

U BRIDGE SECTION U

U/S FACE OF 25 MILE RD. BRIDGE

X1	46221.000	0.000	0.000	0.000	17.000	17.000	17.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	1201.000	0.000	1272.000	0.000	0.000	0.000	0.000
NC	.042	.042	.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000

REPEAT OF U, NO BRIDGE TABLE

X1	46222.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	1201.000	0.000	1272.000	0.000	0.000	0.000	0.000

REPEAT OF T, INVERT ADJUSTED

X1	46271.000	19.000	700.000	770.000	49.000	49.000	49.000	0.000	1.400	0.000
X3	10.000	0.000	0.000	650.000	0.000	1308.000	0.000	0.000	0.000	0.000
GR	619.900	0.000	613.600	100.000	614.100	200.000	614.200	300.000	613.900	400.000
GR	614.400	500.000	614.000	600.000	613.800	700.000	605.400	714.000	604.600	715.000
GR	603.500	720.000	603.200	725.000	605.500	730.000	606.000	735.000	607.300	750.000
GR	612.700	770.000	613.700	800.000	615.300	900.000	623.000	1000.000	0.000	0.000
NC	.042	.046	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NV	6.000	.026	610.000	.028	611.500	.048	613.000	.065	615.500	.074
NV	619.500	.074	630.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

REPEAT OF V, INVERT ADJUSTED

X1	47092.000	30.000	1143.000	1200.000	1600.000	10.000	821.000	0.000	-.350	0.000
X3	10.000	0.000	0.000	772.000	0.000	1570.000	0.000	0.000	0.000	0.000
GR	623.100	0.000	623.300	100.000	622.000	200.000	622.900	300.000	623.700	400.000
GR	623.200	500.000	619.800	558.000	623.100	563.000	622.500	600.000	615.900	700.000
GR	615.700	800.000	615.900	900.000	616.600	1000.000	615.400	1100.000	616.600	1143.000
GR	608.700	1165.000	605.300	1179.000	608.500	1179.000	608.600	1195.000	617.100	1200.000
GR	615.100	1300.000	616.200	1400.000	616.600	1500.000	615.700	1600.000	616.100	1700.000
GR	614.900	1800.000	613.700	1900.000	616.200	1960.000	624.300	2000.000	624.700	2100.000
NV	6.000	.026	611.000	.028	612.500	.048	614.500	.066	617.500	.074
NV	619.500	.074	630.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

V VALLEY SECTION V

X1	47913.000	0.000	0.000	0.000	821.000	821.000	821.000	0.000	.350	0.000
X3	10.000	0.000	0.000	978.000	0.000	1365.000	0.000	0.000	0.000	0.000
NC	.050	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NV	6.000	.025	611.000	.028	613.000	.048	615.500	.066	618.500	.074
NV	619.500	.074	630.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

REPEAT OF W, INVERT ADJUSTED

X1	48475.000	20.000	491.000	555.000	562.000	562.000	562.000	0.000	-.800	0.000
X3	10.000	0.000	0.000	470.000	622.700	576.000	0.000	0.000	0.000	0.000
GR	630.400	0.000	621.600	35.000	620.500	55.000	618.400	155.000	619.100	255.000
GR	618.600	355.000	618.400	455.000	618.700	491.000	608.900	506.000	607.100	509.000
GR	606.900	510.000	607.200	515.000	607.300	520.000	607.500	525.000	608.900	528.000
GR	610.800	529.000	619.000	555.000	623.800	655.000	627.200	755.000	629.000	855.000
	[illegible]	.035	[illegible]	[illegible]	[illegible]	.046	616.000	.058	618.500	.076

NV	619.500	.076	630.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

REPEAT OF W, INVERT ADJUSTED

X1	48756.000	0.000	0.000	0.000	480.000	75.000	281.000	0.000	.400	0.000
X3	10.000	0.000	0.000	470.000	622.700	576.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
NV	6.000	.025	611.000	.026	613.500	.046	616.500	.058	618.500	.076
NV	619.500	.076	630.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

W VALLEY SECTION W

GAGING STATION

X1	49038.000	0.000	0.000	0.000	480.000	75.000	282.000	0.000	.400	0.000
X3	0.000	0.000	0.000	470.000	622.700	576.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
NH	5.000	.050	531.800	.070	548.000	.040	595.000	.070	600.000	.045
NH	1000.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D/S FACE OF ROMEO PLANK RD. BRIDGE

X1	49123.000	34.000	531.800	600.000	85.000	85.000	85.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	531.800	623.000	600.000	0.000	0.000	0.000	0.000
GR	630.900	0.000	629.200	45.000	621.600	75.000	620.500	95.000	613.400	195.000
GR	619.100	295.000	618.600	395.000	618.400	495.000	618.700	531.800	614.000	531.800
GR	615.400	548.000	611.100	549.000	610.400	552.200	621.200	552.200	621.200	553.400
GR	610.400	553.400	608.100	556.000	608.600	560.000	608.300	565.000	608.200	570.000
GR	608.200	576.200	621.100	576.200	621.100	577.400	608.200	577.400	608.800	580.000
GR	610.800	585.000	610.300	590.000	609.000	595.000	609.200	600.000	619.000	600.000
GR	623.800	695.000	627.500	795.000	628.600	900.000	630.000	1000.000	0.000	0.000
SB	0.000	1.870	3.020	0.000	68.200	0.000	696.300	0.000	608.100	608.100
NH	5.000	.050	531.800	.070	548.000	.040	595.000	.070	600.000	.045
NH	1000.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X BRIDGE SECTION X

U/S FACE OF ROMEO PLANK RD. BRIDGE

X1	49153.000	0.000	0.000	0.000	30.000	30.000	30.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	621.200	623.300	0.000	0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	531.800	623.000	600.000	0.000	0.000	0.000	0.000
BT	19.000	0.000	630.900	0.000	45.000	629.200	0.000	95.000	627.100	0.000
BT	195.000	624.600	0.000	295.000	623.500	0.000	395.000	623.300	0.000	495.000
BT	623.900	0.000	531.800	624.100	618.700	531.800	627.600	621.200	552.200	627.600
BT	621.200	553.400	627.600	621.200	576.200	627.500	621.100	577.400	627.500	621.100
BT	600.000	627.500	621.100	600.000	624.300	619.000	695.000	626.000	0.000	795.000
BT	627.500	0.000	900.000	628.600	0.000	1000.000	630.000	0.000	0.000	0.000
NH	6.000	.050	100.000	.090	136.000	.070	148.000	.040	178.000	.070
NH	193.000	.045	500.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Y VALLEY SECTION Y

X1	50308.000	21.000	136.000	193.000	984.000	984.000	1155.000	0.000	0.000	0.000
GR	635.000	0.000	629.900	100.000	620.700	125.000	619.900	136.000	614.700	146.000
GR	610.800	148.000	610.200	150.000	610.200	160.000	610.200	170.000	610.200	176.000
GR	611.400	178.000	616.100	181.000	620.000	193.000	618.700	200.000	618.500	300.000
GR	618.500	400.000	624.300	500.000	631.100	540.000	631.200	600.000	633.500	700.000
GR	634.400	800.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
						.045				

NH	560.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Z VALLEY SECTION Z

X1	51428.000	21.000	380.000	438.000	1020.000	1090.000	1120.000	0.000	0.000	0.000
GR	631.300	0.000	631.000	60.000	626.600	160.000	620.700	210.000	619.700	260.000
GR	620.500	360.000	620.500	380.000	614.300	387.000	613.100	389.000	611.600	391.000
GR	610.900	400.000	611.400	413.000	611.600	421.000	613.100	423.000	61 ,400	425.000
GR	619.600	438.000	618.800	460.000	617.400	480.000	623.900	497.000	632.000	517.000
GR	635.200	560.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CT	4.000	1340.000	2150.000	2540.000	3570.000	0.000	0.000	0.000	0.000	0.000
NH	6.000	.070	204.000	.090	212.000	.040	236.000	.090	255.000	.070
NH	490.000	.060	635.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

AA VALLEY SECTION AA

X1	52958.000	21.000	204.000	255.000	1400.000	1400.000	1530.000	0.000	0.000	0.000
GR	633.600	0.000	632.900	35.000	622.900	95.000	622.400	135.000	620.800	163.000
GR	624.500	184.000	617.100	197.000	618.100	204.000	617.100	210.000	614.800	212.000
GR	614.000	213.000	614.000	225.000	613.600	232.000	613.900	235.000	614.800	236.000
GR	622.900	255.000	622.400	335.000	621.800	435.000	630.900	490.000	632.500	535.000
GR	634.700	635.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	6.000	.030	240.000	.080	407.000	.060	414.000	.040	435.000	.060
NH	454.000	.090	540.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

AB VALLEY SECTION AB

X1	54038.000	14.000	407.000	454.000	1080.000	980.000	1080.000	0.000	0.000	0.000
GR	630.800	0.000	624.200	100.000	621.600	240.000	621.000	300.000	622.700	407.000
GR	617.800	414.000	616.000	415.000	615.700	425.000	616.400	433.000	618.200	434.000
GR	618.700	444.000	621.100	454.000	625.600	502.000	634.100	540.000	0.000	0.000
NC	0.000	0.000	0.000	.300	.700	0.000	0.000	0.000	0.000	0.000
NH	5.000	.060	470.000	.070	480.000	.037	495.000	.070	508.000	.075
NH	595.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTIONS AB) AC AVERAGED USING AVSEC PROGRAM

X1	54368.000	13.000	470.000	508.000	330.000	330.000	330.000	0.000	-.200	0.000
X3	0.000	0.000	0.000	320.000	0.000	578.000	0.000	0.000	0.000	0.000
GR	631.300	0.000	624.400	90.000	622.800	336.000	623.600	391.000	622.700	470.000
GR	616.500	480.000	616.400	488.000	616.900	494.000	618.600	495.000	619.800	502.000
GR	622.500	508.000	626.100	570.000	634.200	595.000	0.000	0.000	0.000	0.000
NH	5.000	.050	470.000	.080	480.000	.037	495.000	.075	508.000	.080
NH	595.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

REPEAT OF PREVIOUS SECTION, INVERT ADJUSTED

X1	54468.000	0.000	0.000	0.000	100.000	100.000	100.000	0.000	.150	0.000
X3	0.000	0.000	0.000	370.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	5.000	.040	538.000	.085	543.000	.035	561.000	.080	565.000	.060
NH	650.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

AC VALLEY SECTION AC

X1	54568.000	16.000	538.000	565.000	80.000	100.000	100.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	494.000	0.000	590.000	0.000	0.000	0.000	0.000
GR	631.900	0.000	626.000	50.000	624.100	70.000	623.700	150.000	623.800	250.000
GR	624.200	350.000	624.500	450.000	622.200	538.000	618.400	543.000	615.500	546.000
GR	616.900	553.000	617.000	559.000	618.400	561.000	623.600	565.000	626.700	640.000
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.000	0.000

NH	5.000	.040	600.000	.035	604.000	.035	663.000	.030	667.000	.080
NH	900.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

REPEAT OF AD, NO BRIDGE TABLE

X1	54637.000	28.000	600.000	668.800	89.000	59.000	69.000	.864	0.000	0.000
GR	637.400	0.000	636.100	50.000	633.800	100.000	629.800	200.000	628.200	300.000
GR	628.700	400.000	630.000	500.000	631.100	550.000	631.100	550.000	632.400	600.000
GR	620.300	600.000	618.900	604.000	618.700	611.000	619.400	623.000	619.500	629.000
GR	618.400	638.000	618.100	640.000	618.000	645.000	617.600	650.000	617.800	655.000
GR	617.400	662.000	620.000	663.000	621.000	668.800	633.100	666.800	632.900	695.000
GR	632.900	695.000	635.000	800.000	637.000	900.000	0.000	0.000	0.000	0.000

D/S FACE OF HAYES RD.

CONCRETE BRIDGE, NO PIERS

X1	54635.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.864	0.000
BT	17.000	0.000	637.400	0.000	50.000	636.100	0.000	100.000	633.800	0.000
BT	200.000	629.800	0.000	300.000	628.200	0.000	400.000	628.700	0.000	500.000
BT	630.000	0.000	550.000	631.100	0.000	550.000	631.100	0.000	600.000	632.400
BT	620.300	600.000	634.700	628.000	668.800	635.400	628.700	668.800	633.100	621.000
BT	695.000	632.900	0.000	695.000	632.900	0.000	800.000	635.000	0.000	900.000
BT	637.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

AD BRIDGE SECTION AD

U/S FACE OF HAYES RD.

X1	54675.000	0.000	0.000	0.000	40.000	40.000	40.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NH	5.000	.050	600.000	.070	604.000	.035	663.000	.070	667.000	.055
NH	900.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

REPEAT OF AD, NO BRIDGE TABLE

X1	54679.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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*************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
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T1      MACOMB TOWNSHIP FIS     5850-03       P.M. = OLE ANDERSON
T2      100 YEAR FLOOD
T3      MIDDLE BRANCH CLINTON R.

J1  ICHECK      INQ       NINV      IDIR      STRT      METRIC      HVINS      Q       WSEL      FQ

       0.         4.        0.        0.  0.000000     0.00        0.0       0.   594.440    0.000

J2  NPROF      IPLOT     PREVS     XSECV     XSECH      FN       ALLDC      IBW      CHNIM     ITRACE

     3.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
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*PROF 3

CCHV=     .300 CEHV=     .500
*SECNO 16771.000
   SECNO      DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
   Q          QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME       VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE      XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


3470 ENCROACHMENT STATIONS=     1185.0     1230.0  TYPE=      1   TARGET=       45.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       587.50 ELREA=    99996.10

                                 REPEAT OF A, INVERT ADJUSTED

  16771.00     13.64    594.44      0.00    594.44    594.76       .32      0.00      0.00    587.50
    2340.        0.     2340.        0.        0.      517.        0.        0.        0.  99996.10
     0.00      0.00      4.53      0.00      .056      .038      .045     0.000    580.60   1185.00
  .000795        0.        0.        0.         0         0         0      0.00     45.00   1230.00

*SECNO 18100.000

3265 DIVIDED FLOW


                  A         VALLEY SECTION A

  18100.00     10.48    595.18      0.00      0.00    595.20       .02       .35       .09    591.40
    2340.      507.      589.     1245.      619.      375.     1238.       42.       11.    591.20
      .34       .82      1.57      1.01      .045      .042      .045      .042    534.70    966.43
  .000128     1400.     1350.     1300.         2         0         0      0.00    666.68   1791.32

1490 NH CARD USED
*SECNO 19150.000

                                 REPEAT OF B, INVERT ADJUSTED

  19150.00      8.93    595.33      0.00      0.00    595.38       .05       .17       .01    589.90
    2340.       54.      842.     1444.      103.      390.     1006.       87.       25.    590.80
      .51       .53      2.16      1.43      .086      .058      .045      .042    586.40    897.85
  .000204     1050.     1050.     1050.         2         0         0      0.00    476.05   1373.90

*SECNO 20200.000

                  B         VALLEY SECTION B

  20200.00      7.52    595.62      0.00      0.00    595.68       .06       .29       .01    591.60
    2340.       37.      852.     1451.       55.      320.      949.      121.       35.    592.50
      .66       .67      2.67      1.53      .086      .038      .045      .041    588.10    937.70
  .000406     1050.     1050.     1050.         2         0         0      0.00    360.37   1298.07

*SECNO 21421.000
   SECNO      DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
   Q          QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME       VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE      XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST
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3470 ENCROACHMENT STATIONS=     1090.0     1740.0  TYPE=      1  TARGET=      650.000

                              REPEAT OF C, INVERT ADJUSTED

  21421.00      8.95    596.35      0.00      0.00    596.41       .07       .73       .00    594.00
    2340.       660.      651.     1030.      644.      200.      684.      165.       50.    591.70
      .86       1.02      3.26      1.51      .066      .042      .048      .040    587.40   1090.00
  .000780      1000.     1221.     1500.         2         0         0      0.00    650.00   1740.00

*SECNO 22642.000

3470 ENCROACHMENT STATIONS=      990.0     1840.0  TYPE=      1  TARGET=      850.000

                C            VALLEY SECTION C

  22642.00     10.11    596.71      0.00      0.00    596.72       .01       .30       .02    593.20
    2340.       966.      321.     1053.     1293.      234.     1356.      228.       72.    590.90
     1.25        .75      1.37       .78      .045      .042      .045      .040    586.60    990.00
  .000111      1000.     1221.     1500.         2         0         0      0.00    850.00   1840.00

*SECNO 22692.000

3265 DIVIDED FLOW


                              D/S FACE OF 21 MILE RD. BRIDGE


                              BRIDGE BARRICADED AND NOT IN USE

  22692.00      9.90    596.70      0.00      0.00    596.76       .06       .01       .02    590.30
    2340.       750.     1457.      133.      628.      629.      181.      231.       72.    594.00
     1.29       1.19      2.32       .73      .045      .042      .045      .040    586.80   1125.12
  .000385        50.       50.       50.         2         0         0      0.00    783.87   2049.76


SPECIAL BRIDGE

SB   XK          XKOR        COFO        RDLEN       BWC         BWP         BAREA        SS          ELCHU       ELCHD
     0.00        1.20        3.00        0.00      100.00        0.00      553.60        0.00      586.80      586.80

*SECNO 22708.000

3265 DIVIDED FLOW

PRESSURE AND WEIR FLOW


  EGPRS       EGLWC        H3        QWEIR       QPP        BAREA    TRAPEZOID      ELLC       ELTRD
                                                                     AREA
   597.03     596.76       0.00       604.      1544.       554.      920.       596.00     596.50


                D            BRIDGE SECTION D


                             U/S FACE OF 21 MILE RD. BRIDGE

  22708.00      9.91    596.71      0.00      0.00    596.84       .13       .09      0.00    595.80
  [illegible] [illegible] [illegible] 40.     359.      630.       86.      231.       73.    596.00
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   .000766       16.       16.       16.         2         0         3      0.00    798.74   2052.41

*SECNO 22758.000

3470 ENCROACHMENT STATIONS=     1040.0     1790.0  TYPE=       1  TARGET=      750.000

                         REPEAT OF C, INVERT ADJUSTED

  22758.00     10.05    596.88      0.00      0.00    596.89       .02       .01       .03    593.40
     2340.      939.      369.     1012.     1147.      233.     1192.      233.       74.    591.10
      1.30       .82      1.67       .85      .048      .040      .048      .040    586.80   1040.00
   .000150       50.       50.       50.         2         0         0      0.00    750.00   1790.00

1490 NH CARD USED
*SECNO 23829.000
    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST


3470 ENCROACHMENT STATIONS=      650.0     1200.0  TYPE=       1  TARGET=      550.000

                         REPEAT OF E, INVERT ADJUSTED

  23829.00     10.28    597.13      0.00      0.00    597.34       .21       .35       .10    595.45
     2340.      268.     1551.      520.      179.      351.      441.      275.       87.    595.75
      1.39      1.50      4.42      1.18      .045      .040      .075      .040    586.85    752.00
   .001293     1200.     1071.      900.         2         0         0      0.00    404.47   1156.47

1490 NH CARD USED
*SECNO 24900.000

                 E          VALLEY SECTION E

  24900.00     11.18    598.08      0.00      0.00    598.15       .06       .76       .04    595.50
     2340.      371.     1035.      934.      302.      400.      644.      303.       97.    595.80
      1.54      1.23      2.59      1.45      .045      .045      .045      .040    586.90    746.36
   .000469     1150.     1071.      950.         2         0         0      0.00    427.81   1174.17

*SECNO 25800.000

                         REPEAT OF E, INVERT ADJUSTED

  25800.00      9.73    598.73      0.00      0.00    599.00       .27       .75       .11    597.60
     2340.      137.     1587.      616.      107.      320.      325.      325.      106.    597.90
      1.60      1.28      4.95      1.90      .047      .040      .047      .040    589.00    756.11
   .001826      850.      900.      950.         2         0         0      0.00    387.59   1145.70

*SECNO 26700.000

3470 ENCROACHMENT STATIONS=      420.0      950.0  TYPE=       1  TARGET=      530.000

                 F          VALLEY SECTION F

  26700.00      8.47    599.67      0.00      0.00    599.72       .04       .65       .07    596.30
     2340.      701.      665.      973.      582.      264.      794.      350.      115.    596.80
      1.76      1.21      2.52      1.23      .047      .040      .047      .040    591.20    420.00
   .000380      900.      900.      900.         2         0         0      0.00    530.00    950.00
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*SECNO 27508.000

3470 ENCROACHMENT STATIONS= 390.0 914.0 TYPE= 1 TARGET= 524.000

REPEAT OF F, INVERT ADJUSTED

27508.00	10.06	599.86	0.00	0.00	599.88	.02	.15	.01	594.90
2340.	897.	501.	943.	1033.	322.	1071.	387.	125.	595.40
1.98	.87	1.55	.88	.047	.040	.047	.040	589.80	390.00
.000110	700.	608.	900.	2	0	0	0.00	524.00	914.00

*SECNO 28316.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

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*PROF 1

CCHV=     .300 CEHV=      .500
*SECNO 28316.000
  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

3470 ENCROACHMENT STATIONS=     1168.0      1288.0  TYPE=      1  TARGET=      120.000

                 6          VALLEY SECTION 6

  28316.00     11.54    599.94      0.00    599.94    600.30       .36      0.00      0.00    593.40
    2340.       62.     2248.       30.       46.      460.       30.        0.        0.     599.20
    0.00      1.34      4.88      1.00      .047      .040      .047     0.000    588.40   1168.00
  .001160        0.        0.        0.        0         0         0      0.00    120.00   1288.00

*SECNO 28365.000

3470 ENCROACHMENT STATIONS=     1500.0      1593.6  TYPE=      1  TARGET=       93.600

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       597.20 ELREA=   100000.00

                          REPEAT OF H, NO BRIDGE TABLE

  28365.00      9.03    600.23      0.00      0.00    600.40       .17       .04       .06    597.20
    2340.        0.     2340.        0.        0.      709.        0.        1.        0. 100000.00
     .00      0.00      3.30      0.00      .047      .040      .047      .039    591.20   1500.00
  .000690       49.       49.       49.        2         0         0      0.00     93.60   1593.60

*SECNO 28366.000

3370 NORMAL BRIDGE,NRD= 44 MIN ELTRD=  601.10 MAX ELLC=  601.40

3470 ENCROACHMENT STATIONS=     1500.0      1593.6  TYPE=      1  TARGET=       93.600

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       597.20 ELREA=   100000.00

                          D/S FACE OF 22 MILE RD. BRIDGE

                          ONE CONCRETE PIER, 4.4" WIDE

  28366.00      9.00    600.20      0.00      0.00    600.42       .22       .00       .02    597.20
    2340.        0.     2340.        0.        0.      624.        0.        1.        0. 100000.00
     .00      0.00      3.75      0.00      .024      .028      .024      .038    591.20   1500.00
  .000659        1.        1.        1.        2         0         0    -83.14     93.60   1593.60

*SECNO 28384.000

3370 NORMAL BRIDGE,NRD= 44 MIN ELTRD=  601.10 MAX ELLC=  601.40

3470 ENCROACHMENT STATIONS=     1500.0      1593.6  TYPE=      1  TARGET=       93.600
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3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      597.20 ELREA=   100000.00

                          BRIDGE SECTION H

 28384.00     9.02   600.22     0.00     0.00   600.43      .22      .01      .00   597.20
    2340.       0.    2340.       0.       0.     624.       0.       1.       0. 100000.00
      .01     0.00     3.75     0.00     .024     .028     .024     .035   591.20  1500.00
  .000657      18.      18.      18.        0        0        0   -83.46    93.60  1593.60

*SECNO 28385.000
    SECNO    DEPTH    CWSEL    CRIWS    WSELK       EG       HV       HL    OLOSS  BANK ELEV
        Q     QLOB      QCH     QROB     ALOB      ACH     AROB      VOL      TWA LEFT/RIGHT
     TIME     VLOB      VCH     VROB      XNL      XNCH      XNR      WTN    ELMIN     SSTA
    SLOPE    XLOBL     XLCH    XLOBR   ITRIAL      IDC    ICONT    CORAR   TOPWID     ENDST

3470 ENCROACHMENT STATIONS=     1500.0     1593.6  TYPE=      1  TARGET=       93.600

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      597.20 ELREA=   100000.00

                          REPEAT OF H, NO BRIDGE TABLE

 28385.00     9.08   600.28     0.00     0.00   600.45      .17      .00      .02   597.20
    2340.       0.    2340.       0.       0.     714.       0.       1.       0. 100000.00
      .01     0.00     3.28     0.00     .048     .032     .050     .035   591.20  1500.00
  .000432       1.       1.       1.        2        0        0     0.00    93.60  1593.60

*SECNO 28434.000

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS=     1078.0     1378.0  TYPE=      1  TARGET=      300.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      601.20 ELREA=      602.00

                          REPEAT OF G, INVERT ADJUSTED

 28434.00     8.77   599.97     0.00     0.00   600.84      .87      .04      .35   601.20
    2340.       0.    2340.       0.       0.     312.       0.       2.       0.   602.00
      .01     0.00     7.49     0.00     .048     .032     .050     .033   591.20  1201.17
  .002574      49.      49.      49.        2        0        0     0.00    50.46  1251.62

*SECNO 29407.000

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS=      850.0     1350.0  TYPE=      1  TARGET=      500.000

                          REPEAT OF I, INVERT ADJUSTED

 29407.00     9.69   601.59     0.00     0.00   601.66      .07      .57      .24   593.00
    2340.     435.     880.    1025.     410.     288.     962.      21.       6.   599.10
      .15     1.06     3.05     1.07     .048     .032     .050     .034   591.90   850.00
  .000277    1500.     967.     500.        2        0        0     0.00   500.00  1350.00
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*SECNO 30375.000

3470 ENCROACHMENT STATIONS=      750.0     1350.0  TYPE=      1  TARGET=      600.000

                          I          VALLEY SECTION I

  30375.00       9.34    601.94      0.00      0.00    602.03       .09       .36       .01    593.70
     2420.       465.      964.      991.      445.      276.      853.       63.       19.    599.80
       .30       1.05      3.49      1.16      .048      .032      .050      .031    592.60    750.00
   .000383       500.      968.     1500.         3         0         0      0.00    600.00   1350.00


*SECNO 31425.000

3470 ENCROACHMENT STATIONS=         .0     1280.0  TYPE=      1  TARGET=     1279.999

                                     REPEAT OF I, INVERT ADJUSTED

  31425.00       9.42    602.37      0.00      0.00    602.46       .10       .43       .00    594.05
     2420.       504.     1001.      916.      478.      279.      733.      102.       33.    600.15
       .44       1.05      3.59      1.25      .048      .032      .050      .031    592.95    699.17
   .000400       600.     1050.     1400.         2         0         0      0.00    580.83   1280.00


*SECNO 32475.000

3265 DIVIDED FLOW

    SECNO      DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q          QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
    TIME       VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
    SLOPE      XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      601.50 ELREA=      603.20


                          J          VALLEY SECTION J
                             602.9 According to Oct 17, 1979 letter from J+A
  32475.00       9.67    602.97      0.00      0.00    603.35       .38       .74       .14    601.50
     2420.       765.     1655.        0.      621.      279.        0.      131.       51.    603.20
       .50       1.23      5.93      0.00      .048      .032      .050      .031    593.30    167.23
   .001558      1400.     1050.      600.         2         0         0      0.00    684.42    852.00

1490 NH CARD USED
*SECNO 33389.000

3470 ENCROACHMENT STATIONS=      847.0     1622.0  TYPE=      1  TARGET=      775.000

                                     REPEAT OF K, INVERT ADJUSTED

  33389.00      10.63    604.18      0.00      0.00    604.44       .25      1.05       .04    603.35
     2420.       493.     1790.      137.      462.      383.      178.      155.       68.    602.45
       .58       1.07      4.67       .77      .048      .113      .062      .031    593.55    847.00
   .000755      1300.      914.      500.         2         0         0      0.00    571.87   1418.87

*SECNO 34303.000

3470 ENCROACHMENT STATIONS=     1188.0     1282.0  TYPE=      1  TARGET=       94.000

                          K          VALLEY SECTION K

  34303.00      11.06    604.86      0.00      0.00    605.38       .51       .81       .13    603.60
```

2420.	19.	2384.	17.	16.	412.	27.	170.	74.	002170
.62	1.18	5.78	.62	.048	.112	.120	.031	593.80	1188.00
.001139	500.	914.	1300.	2	0	0	0.00	94.00	1282.00

*SECNO 34352.000

3470 ENCROACHMENT STATIONS= 1223.0 1289.0 TYPE= 1 TARGET= 66.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 603.80 ELREA= 100000.00

REPEAT OF L, NO BRIDGE TABLE

34352.00	10.14	605.14	0.00	0.00	605.50	.36	.07	.04	603.80
2420.	0.	2420.	0.	0.	502.	0.	591.	215.	100000.00
2.67	0.00	4.82	0.00	.048	.115	.120	.037	595.00	1223.00
.001693	49.	49.	49.	2	0	0	0.00	66.00	1289.00

*SECNO 34353.000

3370 NORMAL BRIDGE,NRD= 28 MIN ELTRD= 607.90 MAX ELLC= 605.60

3470 ENCROACHMENT STATIONS= 1223.0 1289.0 TYPE= 1 TARGET= 66.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 603.80 ELREA= 100000.00

D/S FACE OF 23 MILE RD. BRIDGE

CONCRETE ARCH BRIDGE, NO PIERS

34353.00	10.08	605.08	0.00	0.00	605.57	.49	.00	.06	603.80
2420.	0.	2420.	0.	0.	433.	0.	591.	215.	100000.00
2.67	0.00	5.59	0.00	.026	.024	.026	.037	595.00	1223.00
.001273	1.	1.	1.	2	0	0	-65.39	66.00	1289.00

*SECNO 34383.000

3370 NORMAL BRIDGE,NRD= 28 MIN ELTRD= 607.90 MAX ELLC= 605.60

3470 ENCROACHMENT STATIONS= 1223.0 1289.0 TYPE= 1 TARGET= 66.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 603.80 ELREA= 100000.00

L BRIDGE SECTION L

34383.00	10.12	605.12	0.00	0.00	605.61	.48	.04	.00	603.80
2420.	0.	2420.	0.	0.	433.	0.	591.	215.	100000.00
2.67	0.00	5.58	0.00	.026	.024	.025	.037	595.00	1223.00
.001267	30.	30.	30.	0	0	0	-67.52	66.00	1289.00

*SECNO 34384.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA

3470 ENCROACHMENT STATIONS= 1223.0 1289.0 TYPE= 1 TARGET= 66.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 603.80 ELREA= 100000.00

REPEAT OF L, NO BRIDGE TABLE

34384.00	10.30	605.30	0.00	0.00	605.65	.35	.00	.04	603.80
2420.	0.	2420.	0.	0.	513.	0.	591.	215.	100000.00
2.67	0.00	4.72	0.00	.048	.024	.050	.037	595.00	1223.00
.000437	1.	1.	1.	2	0	0	0.00	66.00	1289.00

1490 NH CARD USED
*SECNO 34433.000

3470 ENCROACHMENT STATIONS= 1151.0 1318.0 TYPE= 1 TARGET= 167.000

REPEAT OF K, INVERT ADJUSTED

34433.00	10.17	605.17	0.00	0.00	605.85	.65	.04	.17	604.80
2420.	32.	2351.	37.	34.	351.	52.	592.	215.	603.90
2.67	.95	6.70	.71	.048	.114	.085	.037	595.00	1151.00
.001573	49.	49.	49.	2	0	0	0.00	167.00	1318.00

1490 NH CARD USED
*SECNO 35180.000

3301 HV CHANGED MORE THAN HVINS

REPEAT OF K, INVERT ADJUSTED

35180.00	12.06	606.71	0.00	0.00	606.83	.12	.81	.17	605.45
2420.	1201.	1085.	133.	794.	287.	146.	606.	221.	604.45
2.76	1.51	3.78	.91	.048	.115	.050	.036	594.65	625.45
.000794	747.	747.	747.	3	0	0	0.00	535.35	1210.80

*SECNO 35928.000

M VALLEY SECTION M

35928.00	12.60	607.18	0.00	0.00	607.23	.05	.38	.02	605.10
2420.	1343.	834.	244.	1112.	320.	308.	632.	232.	604.10
2.88	1.21	2.60	.79	.048	.114	.050	.036	594.30	598.18
.000355	748.	748.	748.	2	0	0	0.00	667.14	1265.32

1490 NH CARD USED
*SECNO 36628.000

REPEAT OF N, INVERT ADJUSTED

36628.00	12.03	607.48	0.00	0.00	607.76	.28	.42	.11	605.85
2420.	707.	1505.	209.	705.	233.	168.	658.	243.	604.65
2.94	1.00	5.32	1.24	.065	.071	.050	.035	595.45	243.05
.000945	900.	700.	500.	2	0	0	0.00	575.87	815.92

*SECNO 37328.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV

```
     Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA     LEFT/RIGHT
     TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN    SSTA
     SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID   ENDST


                    N        VALLEY SECTION N

  37328.00    11.64   608.24     0.00     0.00   608.68      .44      .83      .08   607.00
     2420.     560.    1701.     159.     543.     269.     125.     677.     254.    605.80
      2.98     1.03     6.31     1.28     .065     .071     .050     .035   596.60   252.55
   .001379     900.     700.     500.        2        0        0     0.00   549.43   801.98

*SECNO 38928.000

3470 ENCROACHMENT STATIONS=       .0     1150.0  TYPE=     1  TARGET=    1149.999

                    O        VALLEY SECTION O

  38928.00     9.30   609.80     0.00     0.00   609.97      .17     1.21      .08   608.40
     2500.     271.    1448.     781.     285.     341.     564.     716.     270.    608.80
      3.14      .95     4.24     1.13     .054     .026     .054     .034   600.50   702.81
   .000478     800.    1600.    2400.        2        0        0     0.00   447.19  1150.00

*SECNO 39724.000

                             REPEAT OF P, INVERT ADJUSTED

  39724.00    10.19   610.14     0.00     0.00   610.45      .30      .41      .07   607.75
     2500.      88.    2140.     272.     115.     449.     377.     736.     278.    608.75
      3.19      .77     4.77      .72     .054     .026     .054     .034   599.95   704.27
   .000609    1100.     796.     500.        2        0        0     0.00   525.40  1229.67

*SECNO 40521.000

3470 ENCROACHMENT STATIONS=    732.0      937.0  TYPE=     1  TARGET=     205.000

                    P        VALLEY SECTION P

  40521.00    11.21   610.61     0.00     0.00   610.85      .24      .39      .02   607.20
     2500.     173.    2170.     157.     174.     519.     165.     753.     285.    608.20
      3.25      .99     4.18      .95     .054     .026     .054     .034   599.40   732.00
   .000385     500.     797.    1100.        2        0        0     0.00   205.00   937.00

*SECNO 40571.000

3470 ENCROACHMENT STATIONS=    800.0     1300.0  TYPE=     1  TARGET=     500.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      610.70 ELREA=      610.70

                             D/S FACE OF 24 MILE RD. BRIDGE

                             CONCRETE BRIDGE, NO PIERS

  40571.00    11.12   610.62     0.00     0.00   610.88      .27      .02      .01   610.70
     2500.       0.    2500.       0.       0.     605.       0.     754.     286.    610.70
      3.25     0.00     4.14     0.00     .054     .026     .054     .034   599.50   800.00
   .000344      50.      50.      50.        2        0        0     0.00    60.00   860.00
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SPECIAL BRIDGE

SB  XK         XKOR        COFQ       RDLEN       BWC         BWP        BAREA        SS          ELCHU       ELCHD
    0.00        1.59        3.00       0.00       60.00        0.00      612.40        0.00      599.50      599.50

*SECNO 40605.000

3265 DIVIDED FLOW

      SECNO       DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS     BANK ELEV
      Q           QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA     LEFT/RIGHT
      TIME        VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN        SSTA
      SLOPE       XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID       ENDST

PRESSURE AND WEIR FLOW

  EGPRS       EGLWC         H3         QWEIR       QPR         BAREA     TRAPEZOID      ELLC       ELTRD
                                                                           AREA
    611.03     610.88       0.00        135.       2306.        612.       678.       610.80     611.00

3470 ENCROACHMENT STATIONS=      600.0     1300.0   TYPE=      1   TARGET=      500.000

                          Q          BRIDGE SECTION Q

                                      U/S FACE OF 24 MILE RD. BRIDGE

  40605.00      11.21     610.71      0.00       0.00     610.97       .26        .08       0.00     610.70
     2500.         0.      2483.        17.         0.       610.        51.       754.       286.     610.70
      3.25       0.00       4.07        .34       .054       .026       .054       .034     599.50     800.00
   .000331        34.        34.        34.          2          0          2       0.00     151.29    1061.82

*SECNO 40655.000

3470 ENCROACHMENT STATIONS=      690.0      980.0   TYPE=      1   TARGET=      290.000

                                      REPEAT OF P, INVERT ADJUSTED

  40655.00      11.30     610.80      0.00       0.00     611.00       .20        .02        .02     607.30
     2500.       199.      2065.       236.       234.       525.       265.       755.       286.     608.30
      3.26        .85       3.93        .89       .054       .026       .054       .034     599.50     690.00
   .000336        50.        50.        50.          2          0          0       0.00     290.00     980.00

1490 NH CARD USED
*SECNO 41521.000

3265 DIVIDED FLOW

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       609.25 ELREA=       611.75

                                      REPEAT OF R, INVERT ADJUSTED

  41521.00      11.33     611.08      0.00       0.00     611.59       .51        .43        .15     609.25
     2500.       219.      2281.         0.       568.       381.         0.       776.       296.     611.75
      3.30        .39       5.98       0.00       .120       .118       .054       .033     599.75     296.73
   .000819       966.       866.       766.          0          0          0       0.00     614.54     912.00
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*SECNO 42388.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 350.0 1100.0 TYPE= 1 TARGET= 750.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 609.50 ELREA= 612.00

R VALLEY SECTION R

42388.00	11.86	611.86	0.00	0.00	612.23	.38	.61	.04	609.50
2500.	348.	2152.	0.	805.	405.	0.	796.	306.	612.00
3.35	.43	5.32	0.00	.120	.118	.054	.033	600.00	350.00
.000619	757.	867.	967.	2	0	0	0.00	561.84	912.00

1490 NH CARD USED
*SECNO 43488.000

REPEAT OF S, INVERT ADJUSTED

43488.00	11.90	612.65	0.00	0.00	613.08	.23	.80	.05	609.75
2500.	407.	1754.	340.	268.	392.	311.	825.	319.	611.35
3.44	1.52	4.47	1.09	.046	.070	.052	.033	600.95	1091.75
.000839	1300.	1100.	900.	2	0	0	0.00	420.47	1512.21

*SECNO 44588.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

S VALLEY SECTION S

44588.00	11.92	613.82	0.00	0.00	614.07	.26	.95	.01	610.70
2670.	436.	1868.	365.	270.	393.	313.	850.	330.	612.30
3.52	1.62	4.76	1.17	.046	.070	.052	.033	601.90	1091.47
.000949	900.	1100.	1300.	2	0	0	0.00	421.15	1512.62

*SECNO 45371.000

3470 ENCROACHMENT STATIONS= 490.0 980.0 TYPE= 1 TARGET= 490.000

REPEAT OF T, INVERT ADJUSTED

45371.00	11.84	614.39	0.00	0.00	614.67	.29	.59	.01	613.15
2670.	178.	2382.	110.	205.	526.	111.	866.	338.	612.05
3.57	.87	4.53	.99	.042	.030	.042	.033	602.55	490.00
.000611	783.	783.	783.	2	0	0	0.00	393.73	383.73

*SECNO 46154.000

3470 ENCROACHMENT STATIONS= 686.0 784.0 TYPE= 1 TARGET= 98.000

T VALLEY SECTION T

46154.00	11.68	614.88	0.00	0.00	615.27	.39	.54	.05	613.80
2670.	15.	2616.	39.	15.	515.	27.	879.	342.	612.70

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   3.62       .99      5.08      1.44      .042      .030      .042      .033    503.20    686.00
 .000793      783.      783.      783.        2         0         0      0.00     98.00    784.00

*SECNO 46203.000

3470 ENCROACHMENT STATIONS=     1201.0     1272.0  TYPE=      1   TARGET=        71.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       610.70 ELREA=   100000.00


                          REPEAT OF U, NO BRIDGE TABLE

 46203.00     10.41    615.01      0.00      0.00    615.33       .32       .03       .02    610.70
    2670.        0.     2670.        0.        0.      589.        0.      879.      342. 100000.00
    3.62      0.00      4.53      0.00      .042      .030      .042      .033    604.60   1201.00
 .000623       49.       49.       49.        2         0         0      0.00     71.00   1272.00


*SECNO 46204.000

3370 NORMAL BRIDGE,NRD= 26 MIN ELTRD=  617.50 MAX ELLC=  618.20


3470 ENCROACHMENT STATIONS=     1201.0     1272.0  TYPE=      1   TARGET=        71.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       610.70 ELREA=   100000.00


                          D/S FACE OF 25 MILE RD. BRIDGE


                          CONCRETE ARCH BRIDGE

 46204.00     10.36    614.96      0.00      0.00    615.38       .42       .00       .05    610.70
    2670.        0.     2670.        0.        0.      515.        0.      879.      342. 100000.00
    3.62      0.00      5.19      0.00      .024      .030      .024      .033    604.60   1201.00
 .001243        1.        1.        1.        2         0         0    -70.99     71.00   1272.00


*SECNO 46221.000
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


3370 NORMAL BRIDGE,NRD= 26 MIN ELTRD=  617.50 MAX ELLC=  618.20

3470 ENCROACHMENT STATIONS=     1201.0     1272.0  TYPE=      1   TARGET=        71.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       610.70 ELREA=   100000.00


                 U        BRIDGE SECTION U


                          U/S FACE OF 25 MILE RD. BRIDGE

 46221.00     10.38    614.98      0.00      0.00    615.40       .42       .02       .00    610.70
    2670.        0.     2670.        0.        0.      516.        0.      879.      342. 100000.00
    3.62      0.00      5.18      0.00      .024      .030      .024      .033    604.60   1201.00
 .001237       17.       17.       17.        0         0         0    -71.27     71.00   1272.00
```

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*SECNO 46222.000

3470 ENCROACHMENT STATIONS=     1201.0     1272.0  TYPE=     1  TARGET=       71.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       610.70 ELREA=   100000.00


                                 REPEAT OF U, NO BRIDGE TABLE

  46222.00     10.52    615.12      0.00      0.00    615.43       .31       .00       .03    610.70
     2670.        0.     2670.        0.        0.      597.        0.      879.      342. 100000.00
      3.62      0.00      4.47      0.00      .042      .030      .042      .033    604.60   1201.00
   .000598        1.        1.        1.         2         0         0      0.00     71.00   1272.00

*SECNO 46271.000

3470 ENCROACHMENT STATIONS=      650.0     1306.0  TYPE=     1  TARGET=      658.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       615.20 ELREA=      614.10


                                 REPEAT OF T, INVERT ADJUSTED

  46271.00     10.42    615.02      0.00      0.00    615.62       .60       .04       .14    615.20
     2670.        0.     2660.       10.        0.      427.       13.      880.      342.    614.10
      3.62      0.00      6.23       .62      .042      .030      .042      .033    604.60    700.30
   .001520       49.       49.       49.         2         0         0      0.00     97.36    797.66

1455 NV CARD USED
*SECNO 47092.000

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS=      772.0     1570.0  TYPE=     1  TARGET=      798.000

                                 REPEAT OF V, INVERT ADJUSTED

  47092.00     12.04    616.99      0.00      0.00    617.06       .08      1.30       .15    616.25
     2670.      715.     1220.      735.      430.      411.      463.      896.      350.    616.75
      3.72      1.66      2.97      1.59      .042      .069      .046      .034    604.95    772.00
   .001695     1600.      821.       10.         5         0         0      0.00    798.00   1570.00

1455 NV CARD USED
*SECNO 47913.000

3470 ENCROACHMENT STATIONS=      978.0     1365.0  TYPE=     1  TARGET=      387.000

                     V           VALLEY SECTION V

  47913.00     12.93    616.23      0.00      0.00    618.32       .09      1.24       .00    616.60
     2670.      526.     1318.      826.      284.      461.      392.      919.      362.    617.10
      3.82      1.85      2.86      2.10      .042      .069      .046      .034    605.30    978.00
   .001345      821.      821.      821.         2         0         0      0.00    387.00   1365.00

1455 NV CARD USED
*SECNO 48475.000
     SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS  BANK ELEV
         Q      QLOB       QCH      QROB      ALOB       ACH      AROB       VOL       TWA LEFT/RIGHT
      TIME      VLOB       VCH      VROB       XNL      XNCH       XNR       WTN     ELMIN       SSTA
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3470 ENCROACHMENT STATIONS=     470.0     576.0  TYPE=      1  TARGET=      106.000
 ELENCL=    622.70  ELENCR= 100000.00

                     REPEAT OF W, INVERT ADJUSTED

 48475.00     13.21    619.31      0.00      0.00    619.68       .37      1.22       .14    617.90
    2670.       74.     2577.       19.       31.      519.       13.      930.      365.    618.20
     3.85      2.36      4.96      1.50      .050      .072      .045      .035    606.10    470.00
  .004070      562.      562.      562.         2         0         0      0.00    106.00    576.00

1455 NV CARD USED
*SECNO 48756.000

3470 ENCROACHMENT STATIONS=     470.0     576.0  TYPE=      1  TARGET=      106.000
 ELENCL=    622.70  ELENCR= 100000.00

                     REPEAT OF W, INVERT ADJUSTED

 48756.00     13.93    620.43      0.00      0.00    620.72       .29      1.01       .03    618.30
    2670.      123.     2486.       61.       47.      566.       28.      934.      365.    618.60
     3.87      2.64      4.40      2.17      .050      .076      .045      .035    606.50    470.00
  .003134      480.      281.       75.         2         0         0      0.00    106.00    576.00

CCHV=    .100 CEHV=     .300
1455 NV CARD USED
*SECNO 49038.000

3470 ENCROACHMENT STATIONS=     470.0     576.0  TYPE=      1  TARGET=      106.000
 ELENCL=    622.70  ELENCR= 100000.00

           W         VALLEY SECTION W


                     GAGING STATION

 49038.00     14.38    621.28      0.00      0.00    621.53       .25       .31       .00    616.70
    2670.      149.     2433.       88.       56.      594.       37.      938.      366.    619.00
     3.89      2.66      4.09      2.35      .050      .076      .045      .036    606.90    470.00
  .002544      480.      282.       75.         2         0         0      0.00    106.00    576.00

CCHV=    .300 CEHV=     .500
1490 NH CARD USED
*SECNO 49123.000

3470 ENCROACHMENT STATIONS=     531.8     600.0  TYPE=      1  TARGET=       68.200
 ELENCL=    623.00  ELENCR= 100000.00

                     D/S FACE OF ROMEO PLANK RD, BRIDGE

 49123.00     13.38    621.48      0.00      0.00    621.69       .21       .15       .01    618.70
    2670.        0.     2670.        0.        0.      719.        0.      940.      366. 100000.00
     3.89      0.00      3.71      0.00      .050      .067      .045      .036    608.10    531.80
  .001343       85.       85.       85.         2         0         0      0.00     68.20    600.00


SPECIAL BRIDGE

SB  XK          XKOR        COFQ        RDLEN        BWC         BWP         BAREA      SS          ELCHU       ELCHD
                                                     68.20        0.00       696.30      0.00       608.10      608.10
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1490 NH CARD USED
*SECNO 49153.000
PRESSURE FLOW


   EGPRS       EGLWC        H3        QWEIR        QPR        BAREA   TRAPEZOID    ELLC      ELTRD
                                                                        AREA
   621.90      621.69      0.00          0.       2670.        696.      893.      621.20    623.30


3470 ENCROACHMENT STATIONS=       531.8       600.0  TYPE=       1  TARGET=        68.200
 ELENCL=     623.00  ELENCR= 100000.00

                        X          BRIDGE SECTION X


                                   U/S FACE OF ROMEO PLANK RD. BRIDGE

  49153.00     13.60     621.70      0.00      0.00    621.90       .21       .21      0.00    618.70
     2670.        0.      2670.        0.        0.      734.        0.      940.      366. 100000.00
      3.90      0.00       3.64      0.00      .050      .067      .045      .036    608.10    531.80
   .001259       30.        30.       30.         2         0         0      0.00     68.20    600.00

1490 NH CARD USED
*SECNO 50308.000
   SECNO     DEPTH      CWSEL     CRIWS     WSELK      EG        HV        HL       OLOSS   BANK ELEV
   Q         QLOB       QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB       VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
   SLOPE     XLOBL      XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST


                        Y          VALLEY SECTION Y

  50308.00     12.28     622.48      0.00      0.00    622.55       .07       .60       .04    619.90
     2670.       13.      1390.     1267.       28.      517.      942.      968.      371.    620.00
      4.05       .45       2.69      1.34      .090      .068      .045      .037    610.20    120.19
   .000301      984.      1155.      984.         2         0         0      0.00    348.29    468.47


CCHV=     .100 CEHV=      .300
1490 NH CARD USED
*SECNO 51428.000

                        Z          VALLEY SECTION Z

  51428.00     12.00     622.90      0.00      0.00    623.05       .15       .48       .02    620.50
     2670.      445.      1927.      298.      484.      543.      217.     1002.      379.    619.60
      4.15       .92       3.55      1.37      .080      .069      .070      .039    610.90    191.36
   .000670     1020.      1120.     1090.         2         0         0      0.00    303.03    494.38


1490 NH CARD USED
*SECNO 52958.000

3265 DIVIDED FLOW


                        AA         VALLEY SECTION AA

  52958.00     10.64     624.24      0.00      0.00    624.42       .19      1.37       .01    613.10
     2540.      421.      1689.      430.      268.      406.      359.     1040.      390.    622.90
                                                                                      613.60     86.95
```

.001538	1400.	1550.	1400.	2	0	0	0.00	360.87	449.75

1490 NH CARD USED
*SECNO 54038.000

AB VALLEY SECTION AB

54038.00	9.62	625.32	0.00	0.00	625.39	.08	.96	.01	622.70
2540.	1446.	1029.	64.	958.	343.	95.	1069.	399.	621.10
4.42	1.51	3.00	.68	.054	.059	.090	.041	615.70	83.17
.000635	1080.	1080.	980.	1	0	0	0.00	415.74	498.91

CCHV= .300 CEHV= .700
1490 NH CARD USED
*SECNO 54368.000

3470 ENCROACHMENT STATIONS= 320.0 578.0 TYPE= 1 TARGET= 258.000

VALLEY SECTIONS AB) AC AVERAGED USING AVSEC PROGRAM

54368.00	9.40	625.60	0.00	0.00	625.92	.32	.36	.17	622.50
2540.	893.	1524.	123.	400.	274.	94.	1077.	402.	622.30
4.45	2.23	5.56	1.31	.060	.066	.075	.042	616.20	320.00
.002252	330.	330.	330.	2	0	0	0.00	244.90	564.90

1490 NH CARD USED
*SECNO 54468.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3470 ENCROACHMENT STATIONS= 370.0 595.0 TYPE= 1 TARGET= -370.000

REPEAT OF PREVIOUS SECTION, INVERT ADJUSTED

54468.00	9.48	625.83	0.00	0.00	626.22	.39	.24	.05	622.65
2540.	773.	1634.	133.	266.	277.	98.	1079.	402.	622.45
4.45	2.90	5.91	1.35	.050	.071	.080	.042	616.35	370.00
.002648	100.	100.	100.	2	0	0	0.00	196.14	566.14

1490 NH CARD USED
*SECNO 54568.000

3470 ENCROACHMENT STATIONS= 494.0 590.0 TYPE= 1 TARGET= 96.000

AC VALLEY SECTION AC

54568.00	9.47	625.97	0.00	0.00	626.85	.89	.29	.35	622.20
2540.	653.	1787.	100.	140.	209.	46.	1080.	403.	623.60
4.46	4.65	8.54	2.16	.040	.075	.060	.042	616.50	494.00
.003602	80.	100.	100.	2	0	0	0.00	96.00	590.00

1490 NH CARD USED
*SECNO 54637.000

REPEAT OF AC, NO BRIDGE TABLE

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      2540.        0.     2540.        0.        0.      475.        0.     1081.      403.     633.10
      4.46      0.00      5.33      0.00      .040      .040      .060      .042    617.40    513.40
   .001733       89.       69.       59.         2         0         0      0.00     59.44    577.84

*SECNO 54638.000

3370 NORMAL BRIDGE,NRD= 17 MIN ELTRD=  628.20 MAX ELLC=  628.70

                         D/S FACE OF HAYES RD.

                         CONCRETE BRIDGE, NO PIERS

  54638.00      9.32    626.72      0.00      0.00    627.16       .44       .00       .00    632.40
      2540.       0.     2540.        0.        0.      475.        0.     1081.      403.     633.10
      4.46      0.00      5.33      0.00      .040      .040      .060      .042    617.40    513.40
   .001734        1.        1.        1.         0         0         0      0.00     59.44    577.84

*SECNO 54678.000

3370 NORMAL BRIDGE,NRD= 17 MIN ELTRD=  628.20 MAX ELLC=  628.70

                 AD      BRIDGE SECTION AD

                         U/S FACE OF HAYES RD.

  54678.00      9.40    626.80      0.00      0.00    627.23       .43       .07       .00    632.40
      2540.       0.     2540.        0.        0.      480.        0.     1081.      403.     633.10
      4.46      0.00      5.29      0.00      .040      .040      .060      .042    617.40    513.40
   .001689       40.       40.       40.         0         0         0      0.00     59.44    577.84

1490 NH CARD USED
*SECNO 54679.000
     SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS  BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST

                         REPEAT OF AD, NO BRIDGE TABLE

  54679.00      9.40    626.80      0.00      0.00    627.23       .43       .00       .00    632.40
      2540.       0.     2540.        0.        0.      481.        0.     1081.      403.     633.10
      4.46      0.00      5.28      0.00      .040      .050      .060      .042    617.40    513.40
   .002629        1.        1.        1.         0         0         0      0.00     59.44    577.84
```

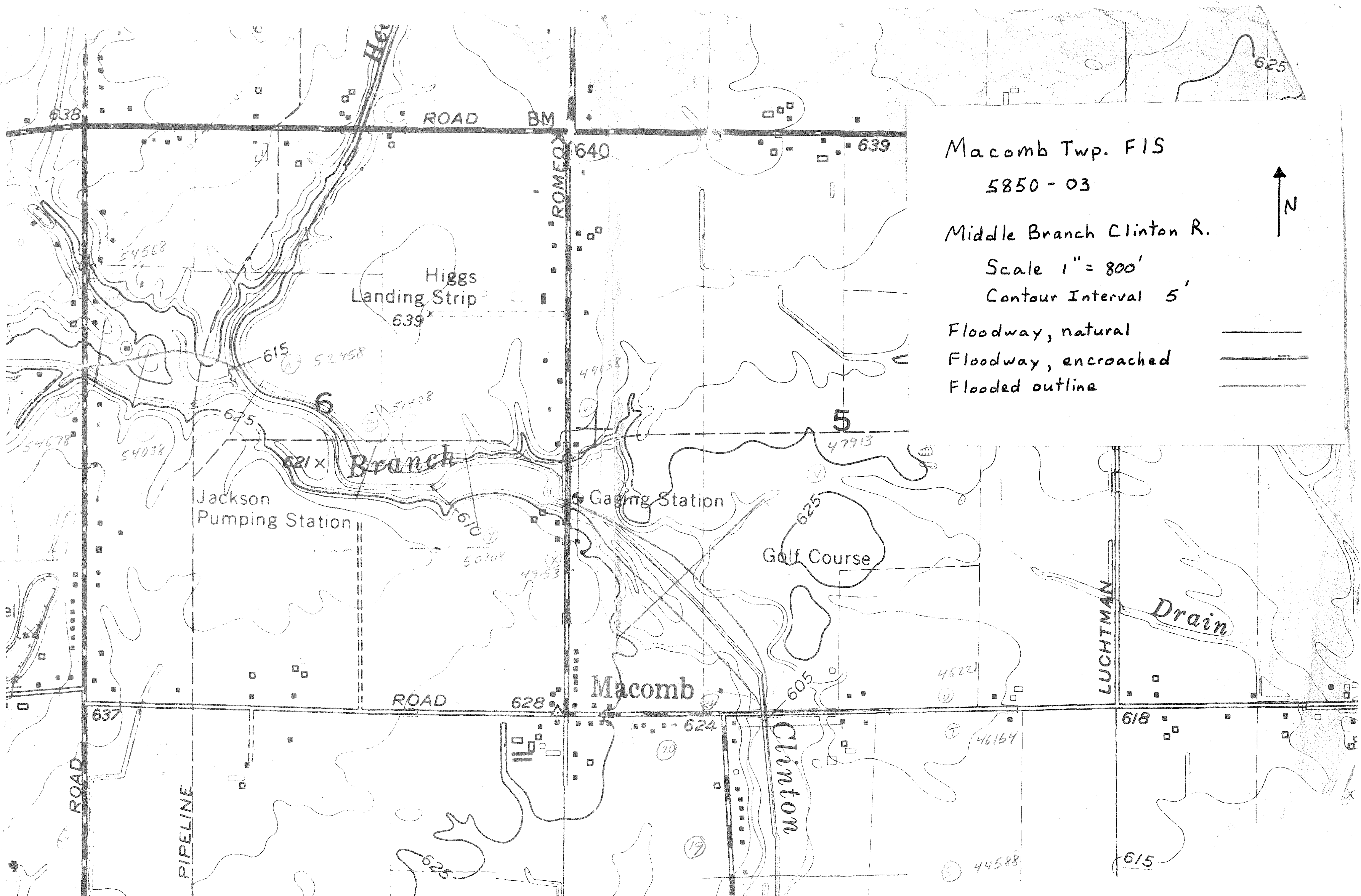

Macomb Twp. FIS
5850 - 03
N
Middle Branch Clinton R.
Scale 1" = 800'
Contour Interval 5'
Floodway, natural
Floodway, encroached
Flooded outline
ROAD
BM
638
640
639
625
ROMEO
Higgs
Landing Strip
639
615
6
5
625
621
Branch
Jackson
Pumping Station
Gaging Station
610
Golf Course
Drain
LUCHTMAN
Macomb
628
ROAD
637
624
605
618
Clinton
ROAD
PIPELINE
625
615
54568
52458
51428
49638
54678
54038
50308
49153
47913
46221
46154
44588

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Macomb Twp

3) WATERCOURSE: Middle Branch Clinton River

4) DOCUMENT TYPE: 100 YR Encroached Fldy

00BREAK00

MACJOAU JANDA 01/08/79 08.47.52 7c00 JO

Macomb Twp. FIS 5850-03

Middle Branch Clinton River

100-Year Flow

Encroached Floodway

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*********************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR - 01,02
  MODIFICATION - 50,51,52,53
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

MIDDLE BRANCH CLINTON R.

SUMMARY PRINTOUT

SECNO	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	HV	OLOSS	EG	K*CHSL	TOPWID	AREA
16771.000	0.00	0.00	580.80	1380.00	591.87	11.07	.18	0.00	592.05	0.00	45.00	401.44
16771.000	0.00	0.00	580.30	2040.00	593.64	12.84	.28	0.00	593.92	0.00	45.00	461.09
16771.000	0.00	0.00	580.80	2340.00	594.44	13.64	.32	0.00	594.76	0.00	45.00	517.09
16771.000	0.00	0.00	580.30	3250.00	596.80	16.00	.42	0.00	597.22	0.00	45.00	623.29
18100.000	0.00	0.00	584.70	1380.00	592.65	7.95	.04	.04	592.69	2.89	533.77	930.01
18100.000	0.00	0.00	584.70	2040.00	594.40	9.70	.03	.08	594.42	2.89	583.36	1743.81
18100.000	0.00	0.00	584.70	2340.00	595.18	10.48	.02	.09	595.20	2.89	666.68	2231.08
18100.000	0.00	0.00	584.70	3250.00	597.51	12.81	.01	.12	597.52	2.89	1599.87	4515.64
19150.000	0.00	0.00	586.40	1380.00	593.02	6.62	.05	.00	593.07	1.62	336.47	878.23
19150.000	0.00	0.00	586.40	2040.00	594.60	8.20	.05	.01	594.65	1.62	398.30	1292.10
19150.000	0.00	0.00	586.40	2340.00	595.33	8.93	.05	.01	595.38	1.62	476.05	1499.08
19150.000	0.00	0.00	586.40	3250.00	597.58	11.18	.03	.01	597.61	1.62	2095.45	3010.29
20200.000	0.00	0.00	588.10	1380.00	593.59	5.49	.11	.03	593.70	1.62	306.31	647.81
20200.000	0.00	0.00	588.10	2040.00	594.95	6.85	.07	.01	595.02	1.62	342.60	1089.11
20200.000	0.00	0.00	588.10	2340.00	595.62	7.52	.06	.01	595.68	1.62	360.37	1323.28
20200.000	0.00	0.00	588.10	3250.00	597.72	9.62	.04	.00	597.76	1.62	595.31	2264.31
21421.000	0.00	0.00	587.40	1380.00	595.21	7.81	.13	.01	595.34	-.57	650.00	737.73
21421.000	0.00	0.00	587.40	2040.00	595.91	8.51	.09	.01	596.00	-.57	650.00	1246.66
21421.000	0.00	0.00	587.40	2340.00	596.35	8.95	.07	.00	596.41	-.57	650.00	1527.68
21421.000	0.00	0.00	587.40	3250.00	598.04	10.64	.03	.00	598.07	-.57	650.00	2631.45
22642.000	0.00	0.00	586.60	1380.00	595.72	9.12	.01	.04	595.73	-.66	850.00	2046.15
22642.000	0.00	0.00	586.60	2040.00	596.35	9.75	.01	.02	596.36	-.66	850.00	2579.40
22642.000	0.00	0.00	586.60	2340.00	596.71	10.11	.01	.02	596.72	-.66	850.00	2683.34
22642.000	0.00	0.00	586.60	3250.00	598.22	11.62	.01	.01	598.23	-.66	850.00	4170.39
22692.000	0.00	0.00	586.80	1380.00	595.71	8.91	.05	.02	595.76	4.00	441.61	590.39
22692.000	0.00	0.00	586.80	2040.00	596.34	9.54	.06	.02	596.40	4.00	542.05	1203.99
22692.000	0.00	0.00	586.80	2340.00	596.70	9.90	.06	.02	596.76	4.00	783.67	1437.82
22692.000	0.00	0.00	586.80	3250.00	598.22	11.42	.02	.01	598.24	4.00	1849.48	3461.31
22708.000	596.50	596.00	586.80	1380.00	595.69	8.89	.11	.03	595.79	0.00	307.54	549.45
22708.000	596.50	596.00	586.80	2040.00	596.35	9.55	.14	0.00	596.49	0.00	532.99	836.06
22708.000	596.50	596.00	586.80	2340.00	596.71	9.91	.13	0.00	596.84	0.00	798.74	1075.40
22708.000	596.50	596.00	586.80	3250.00	598.25	11.45	.03	0.00	598.28	0.00	1677.55	3121.75

SECNO	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	HV	QLOSS	EG	K*CHSL	TOPWID	AREA
22758.000	0.00	0.00	586.80	1380.00	595.82	9.02	.01	.03	595.84	-.00	750.00	1731.82
22758.000	0.00	0.00	586.80	2040.00	596.53	9.73	.02	.04	596.54	-.00	750.00	2310.37
22758.000	0.00	0.00	586.80	2340.00	596.88	10.08	.02	.03	596.89	-.00	750.00	2572.16
22758.000	0.00	0.00	586.80	3250.00	598.28	11.48	.01	.01	598.29	-.00	750.00	3623.91
23829.000	0.00	0.00	586.85	1380.00	596.10	9.25	.20	.09	596.30	.05	356.44	573.42
23829.000	0.00	0.00	586.85	2040.00	596.80	9.95	.22	.10	597.02	.05	395.90	838.18
23829.000	0.00	0.00	586.85	2340.00	597.13	10.28	.21	.10	597.34	.05	404.47	970.94
23829.000	0.00	0.00	586.85	3250.00	598.44	11.59	.14	.07	598.58	.05	438.47	1524.99
24900.000	0.00	0.00	586.90	1380.00	597.04	10.14	.05	.04	597.09	.05	400.77	913.25
24900.000	0.00	0.00	586.90	2040.00	597.78	10.88	.06	.05	597.84	.05	419.97	1217.93
24900.000	0.00	0.00	586.90	2340.00	598.08	11.18	.06	.04	598.15	.05	427.31	1346.46
24900.000	0.00	0.00	586.90	3250.00	599.12	12.22	.05	.02	599.18	.05	495.79	1804.23
25800.000	0.00	0.00	589.00	1380.00	597.68	8.68	.30	.12	597.98	2.33	258.55	386.37
25800.000	0.00	0.00	589.00	2040.00	598.43	9.43	.29	.11	598.72	2.33	368.44	640.73
25800.000	0.00	0.00	589.00	2340.00	598.73	9.73	.27	.11	599.00	2.33	387.59	752.78
25800.000	0.00	0.00	589.00	3250.00	599.65	10.65	.21	.08	599.87	2.33	414.23	1126.23
26700.000	0.00	0.00	591.20	1380.00	598.71	7.51	.04	.06	598.75	2.44	530.00	1129.12
26700.000	0.00	0.00	591.20	2040.00	599.41	8.21	.04	.07	599.45	2.44	530.00	1498.85
26700.000	0.00	0.00	591.20	2340.00	599.67	8.47	.04	.07	599.72	2.44	530.00	1639.41
26700.000	0.00	0.00	591.20	3250.00	600.44	9.24	.05	.05	600.49	2.44	530.00	2046.06
27508.000	0.00	0.00	589.80	1380.00	598.88	9.08	.01	.01	598.89	-1.73	524.00	1908.72
27508.000	0.00	0.00	589.80	2040.00	599.59	9.79	.02	.01	599.60	-1.73	524.00	2282.61
27508.000	0.00	0.00	589.80	2340.00	599.86	10.06	.02	.01	599.88	-1.73	524.00	2425.94
27508.000	0.00	0.00	589.80	3250.00	600.64	10.84	.02	.01	600.67	-1.73	524.00	2836.13
28316.000	0.00	0.00	588.40	1380.00	598.94	10.54	.18	.08	599.11	-1.73	86.56	419.41
28316.000	0.00	0.00	588.40	2040.00	599.63	11.23	.30	.14	599.94	-1.73	120.00	500.37
28316.000	0.00	0.00	588.40	2340.00	599.90	11.50	.36	.17	600.26	-1.73	120.00	532.04
28316.000	0.00	0.00	588.40	3250.00	600.64	12.24	.53	.25	601.17	-1.73	120.00	621.23
28365.000	0.00	0.00	591.20	1380.00	599.09	7.89	.08	.03	599.17	57.14	93.60	602.27
28365.000	0.00	0.00	591.20	2040.00	599.88	8.68	.14	.05	600.02	57.14	93.60	676.86
28365.000	0.00	0.00	591.20	2340.00	600.19	8.99	.17	.06	600.36	57.14	93.60	705.64
28365.000	0.00	0.00	591.20	3250.00	601.05	9.85	.27	.08	601.31	57.14	93.60	786.00
28366.000	601.10	601.40	591.20	1380.00	599.08	7.88	.10	.01	599.18	0.00	93.60	549.09
28366.000	601.10	601.40	591.20	2040.00	599.86	8.66	.18	.02	600.04	0.00	93.60	601.70
28366.000	601.10	601.40	591.20	2340.00	600.17	8.97	.22	.02	600.39	0.00	93.60	621.19
28366.000	601.10	601.40	591.20	3250.00	600.99	9.79	.38	.06	601.37	0.00	93.60	654.37
28384.000	601.10	601.40	591.20	1380.00	599.08	7.88	.10	.00	599.18	0.00	93.60	548.97
28384.000	601.10	601.40	591.20	2040.00	599.87	8.67	.15	.00	600.05	0.00	93.60	601.76
28384.000	601.10	601.40	591.20	2340.00	600.18	8.98	.22	.00	600.40	0.00	93.60	622.01
28384.000	601.10	601.40	591.20	3250.00	601.02	9.82	.38	.00	601.40	0.00	93.60	654.62
28385.000	0.00	0.00	591.20	1380.00	599.11	7.91	.08	.01	599.19	0.00	93.60	604.22
28385.000	0.00	0.00	591.20	2040.00	599.93	8.73	.14	.01	600.07	0.00	93.60	680.88
28385.000	0.00	0.00	591.20	2340.00	600.25	9.05	.17	.02	600.41	0.00	93.60	710.85
28385.000	0.00	0.00	591.20	3250.00	601.18	9.98	.26	.04	601.44	0.00	93.60	798.61

SECNO	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	HV	OLOSS	EG	K*CHSL	TOPWID	AREA
28434.000	0.00	0.00	591.20	1380.00	598.96	7.76	.43	.17	599.39	0.00	47.79	262.54
28434.000	0.00	0.00	591.20	2040.00	599.67	8.47	.73	.30	600.40	0.00	49.66	297.16
28434.000	0.00	0.00	591.20	2340.00	599.93	8.73	.88	.36	600.81	0.00	50.35	310.45
28434.000	0.00	0.00	591.20	3250.00	600.70	9.50	1.34	.54	602.04	0.00	52.38	350.16
29407.000	0.00	0.00	591.90	1380.00	600.05	8.15	.10	.10	600.15	.72	442.75	900.67
29407.000	0.00	0.00	591.90	2040.00	601.13	9.23	.07	.20	601.20	.72	681.07	1536.93
29407.000	0.00	0.00	591.90	2340.00	601.56	9.66	.06	.25	601.62	.72	726.64	1843.58
29407.000	0.00	0.00	591.90	3250.00	602.82	10.92	.04	.39	602.86	.72	838.21	2831.70
30375.000	0.00	0.00	592.60	1430.00	600.55	7.95	.13	.02	600.68	.72	428.12	812.25
30375.000	0.00	0.00	592.60	2120.00	601.51	8.91	.10	.02	601.61	.72	638.72	1328.96
30375.000	0.00	0.00	592.60	2420.00	601.90	9.30	.09	.02	601.99	.72	690.55	1585.33
30375.000	0.00	0.00	592.60	3370.00	603.05	10.45	.06	.01	603.11	.72	796.13	2442.49
31425.000	0.00	0.00	592.95	1430.00	601.12	8.17	.10	.01	601.23	.33	444.59	912.05
31425.000	0.00	0.00	592.95	2120.00	601.99	9.04	.09	.00	602.08	.33	656.45	1414.43
31425.000	0.00	0.00	592.95	2420.00	602.33	9.33	.08	.00	602.41	.33	700.93	1642.20
31425.000	0.00	0.00	592.95	3370.00	603.35	10.40	.06	.00	603.41	.33	791.92	2404.66
32475.000	0.00	0.00	593.30	1430.00	601.71	8.41	.62	.26	602.33	.33	141.95	230.71
32475.000	0.00	0.00	593.30	2120.00	602.53	9.23	.60	.25	603.13	.33	673.16	598.69
32475.000	0.00	0.00	593.30	2420.00	602.87	9.57	.45	.18	603.32	.33	681.92	532.85
32475.000	0.00	0.00	593.30	3370.00	603.79	10.49	.21	.07	604.00	.33	851.87	1592.99
33389.000	0.00	0.00	593.55	1430.00	603.18	9.63	.32	.09	603.50	.27	184.38	350.06
33389.000	0.00	0.00	593.55	2120.00	604.07	10.52	.22	.11	604.30	.27	569.62	958.48
33389.000	0.00	0.00	593.55	2420.00	604.22	10.67	.25	.06	604.47	.27	572.38	1037.51
33389.000	0.00	0.00	593.55	3370.00	604.74	11.19	.27	.03	605.01	.27	582.79	1338.09
34303.000	0.00	0.00	593.80	1430.00	603.85	10.05	.27	.01	604.12	.27	94.00	360.67
34303.000	0.00	0.00	593.80	2120.00	604.66	10.86	.42	.10	605.08	.27	94.00	436.59
34303.000	0.00	0.00	593.80	2420.00	604.88	11.08	.51	.13	605.39	.27	94.00	457.77
34303.000	0.00	0.00	593.80	3370.00	605.53	11.73	.79	.26	606.31	.27	94.00	518.07
34352.000	0.00	0.00	595.00	1430.00	604.01	9.01	.17	.03	604.18	24.49	66.00	427.08
34352.000	0.00	0.00	595.00	2120.00	604.88	9.88	.30	.04	605.18	24.49	66.00	434.80
34352.000	0.00	0.00	595.00	2420.00	605.14	10.14	.36	.04	605.50	24.49	66.00	502.13
34352.000	0.00	0.00	595.00	3370.00	605.90	10.90	.58	.06	606.48	24.49	66.00	551.95
34353.000	607.90	605.60	595.00	1430.00	604.00	9.00	.19	.01	604.19	0.00	66.00	408.20
34353.000	607.90	605.60	595.00	2120.00	604.84	9.84	.33	.04	605.22	0.00	66.00	428.29
34353.000	607.90	605.60	595.00	2420.00	605.03	10.08	.49	.06	605.57	0.00	66.00	432.67
34353.000	607.90	605.60	595.00	3370.00	605.74	10.74	.90	.16	606.64	0.00	66.00	442.06
34383.000	607.90	605.60	595.00	1430.00	604.01	9.01	.19	.00	604.20	0.00	66.00	408.63
34383.000	607.90	605.60	595.00	2120.00	604.87	9.87	.38	.00	605.25	0.00	66.00	428.96
34383.000	607.90	605.60	595.00	2420.00	605.12	10.12	.48	.00	605.61	0.00	66.00	433.48
34383.000	607.90	605.60	595.00	3370.00	605.82	10.82	.90	.00	606.73	0.00	66.00	442.06
34384.000	0.00	0.00	595.00	1430.00	604.03	9.03	.17	.01	604.21	0.00	66.00	428.97
34384.000	0.00	0.00	595.00	2120.00	604.99	9.99	.29	.03	605.28	0.00	66.00	492.04
34384.000	0.00	0.00	595.00	2420.00	605.30	10.30	.35	.04	605.65	0.00	66.00	512.64
34384.000	0.00	0.00	595.00	3370.00	606.32	11.32	.52	.11	606.84	0.00	66.00	579.78

SECNO	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	HV	OLOSS	EG	K*CHSL	TOPWID	AREA
34433.000	0.00	0.00	595.00	1430.00	603.92	8.92	.44	.13	604.36	-.00	62.65	268.49
34433.000	0.00	0.00	595.00	2120.00	604.86	9.86	.62	.16	605.48	-.00	167.00	383.76
34433.000	0.00	0.00	595.00	2420.00	605.17	10.17	.68	.17	605.85	-.00	167.00	436.58
34433.000	0.00	0.00	595.00	3370.00	606.25	11.25	.75	.11	607.00	-.00	167.00	616.08
35180.000	0.00	0.00	594.65	1430.00	604.96	10.31	.66	.11	605.63	-.47	61.50	223.46
35180.000	0.00	0.00	594.65	2120.00	606.32	11.67	.14	.14	606.46	-.47	527.84	1006.78
35180.000	0.00	0.00	594.65	2420.00	606.71	12.06	.12	.17	606.83	-.47	585.35	1227.48
35180.000	0.00	0.00	594.65	3370.00	607.80	13.15	.08	.20	607.87	-.47	690.49	1917.01
35928.000	0.00	0.00	594.30	1430.00	606.28	11.98	.05	.19	606.32	-.47	576.70	1177.77
35928.000	0.00	0.00	594.30	2120.00	606.85	12.55	.05	.03	606.91	-.47	635.07	1527.42
35928.000	0.00	0.00	594.30	2420.00	607.18	12.88	.05	.02	607.23	-.47	667.14	1739.91
35928.000	0.00	0.00	594.30	3370.00	606.13	13.83	.04	.01	608.18	-.47	766.84	2419.22
36628.000	0.00	0.00	595.45	1430.00	606.50	11.05	.30	.13	606.81	1.64	510.37	624.09
36628.000	0.00	0.00	595.45	2120.00	607.16	11.71	.31	.13	607.47	1.64	553.94	973.45
36628.000	0.00	0.00	595.45	2420.00	607.48	12.03	.28	.11	607.76	1.64	575.87	1155.96
36628.000	0.00	0.00	595.45	3370.00	608.41	12.96	.21	.08	608.61	1.64	638.51	1716.39
37328.000	0.00	0.00	596.60	1430.00	607.14	10.54	.50	.10	607.64	1.64	399.08	382.75
37328.000	0.00	0.00	596.60	2120.00	607.93	11.33	.48	.08	608.42	1.64	529.33	773.35
37328.000	0.00	0.00	596.60	2420.00	608.24	11.64	.44	.08	608.68	1.64	549.43	936.78
37328.000	0.00	0.00	596.60	3370.00	609.08	12.48	.33	.06	609.41	1.64	606.09	1419.13
* 38928.000	0.00	0.00	600.50	1470.00	608.80	8.30	.30	3.34	609.10	2.44	168.55	443.59
38928.000	0.00	0.00	600.50	2180.00	609.55	9.05	.16	.10	609.70	2.44	439.81	1176.05
38928.000	0.00	0.00	600.50	2500.00	609.80	9.30	.17	.08	609.97	2.44	447.19	1290.61
38928.000	0.00	0.00	600.50	3460.00	610.47	9.97	.20	.04	610.67	2.44	563.22	1612.58
39724.000	0.00	0.00	599.95	1470.00	609.35	9.41	.19	.03	609.56	-.69	439.59	554.31
39724.000	0.00	0.00	599.95	2180.00	609.87	9.92	.29	.06	610.16	-.69	500.92	800.16
39724.000	0.00	0.00	599.95	2500.00	610.14	10.19	.30	.07	610.45	-.69	525.40	939.74
39724.000	0.00	0.00	599.95	3460.00	610.85	10.90	.33	.06	611.18	-.69	598.37	1336.49
40521.000	0.00	0.00	599.40	1470.00	609.69	10.29	.13	.02	609.81	-.69	205.00	668.39
40521.000	0.00	0.00	599.40	2180.00	610.33	10.93	.20	.02	610.54	-.69	205.00	799.53
40521.000	0.00	0.00	599.40	2500.00	610.61	11.21	.24	.02	610.85	-.69	205.00	657.95
40521.000	0.00	0.00	599.40	3460.00	611.31	11.91	.34	.01	611.65	-.69	205.00	1001.52
40571.000	0.00	0.00	599.50	1470.00	609.72	10.22	.11	.00	609.83	2.00	60.00	550.18
40571.000	0.00	0.00	599.50	2180.00	610.34	10.84	.21	.00	610.56	2.00	60.00	553.37
40571.000	0.00	0.00	599.50	2500.00	610.62	11.12	.27	.01	610.88	2.00	60.00	604.57
40571.000	0.00	0.00	599.50	3460.00	611.29	11.79	.42	.04	611.71	2.00	207.35	764.92
40605.000	611.00	610.80	599.50	1470.00	609.72	10.22	.11	.00	609.83	0.00	60.00	550.58
40605.000	611.00	610.80	599.50	2180.00	610.35	10.35	.21	.00	610.56	0.00	60.00	588.01
40605.000	611.00	610.80	599.50	2500.00	610.71	11.21	.26	0.00	610.97	0.00	151.29	660.95
40605.000	611.00	610.80	599.50	3460.00	611.34	11.84	.42	0.00	611.76	0.00	262.45	775.42
40655.000	0.00	0.00	599.50	1470.00	609.73	10.23	.13	.01	609.85	0.00	277.26	715.56
40655.000	0.00	0.00	599.50	2180.00	610.40	10.90	.19	.01	610.59	0.00	290.00	907.35
40655.000	0.00	0.00	599.50	2500.00	610.80	11.30	.20	.02	611.00	0.00	290.00	1023.91
40655.000	0.00	0.00	599.50	3460.00	611.56	12.06	.26	.05	611.83	0.00	290.00	1244.63

SECNO	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	HV	OLOSS	EG	K*CHSL	TOPWID	AREA
41521.000	0.00	0.00	599.75	1470.00	609.92	10.17	.30	.09	610.22	.29	248.23	408.70
41521.000	0.00	0.00	599.75	2180.00	610.67	10.92	.49	.15	611.16	.29	538.45	694.02
41521.000	0.00	0.00	599.75	2500.00	611.08	11.33	.51	.15	611.59	.29	614.54	949.32
41521.000	0.00	0.00	599.75	3460.00	611.96	12.21	.42	.08	612.38	.29	1005.64	2128.58
42388.000	0.00	0.00	600.00	1470.00	610.36	10.36	.28	.01	610.64	.29	325.58	463.50
42388.000	0.00	0.00	600.00	2180.00	611.40	11.40	.37	.03	611.78	.29	561.34	955.74
42388.000	0.00	0.00	600.00	2500.00	611.86	11.86	.38	.04	612.23	.29	561.84	1209.94
42388.000	0.00	0.00	600.00	3460.00	612.65	12.65	.36	.02	613.01	.29	750.00	2125.56
43488.000	0.00	0.00	600.95	1470.00	611.08	10.13	.32	.02	611.39	.86	127.17	367.92
43488.000	0.00	0.00	600.95	2180.00	612.37	11.42	.26	.03	612.63	.86	381.54	776.10
43488.000	0.00	0.00	600.95	2500.00	612.85	11.90	.23	.05	613.08	.86	420.47	970.61
43488.000	0.00	0.00	600.95	3460.00	613.66	12.71	.21	.04	613.88	.86	474.87	1333.95
44588.000	0.00	0.00	601.90	1590.00	612.23	10.33	.34	.01	612.56	.86	135.93	394.52
44588.000	0.00	0.00	601.90	2340.00	613.42	11.52	.28	.01	613.70	.86	391.54	813.22
44588.000	0.00	0.00	601.90	2670.00	613.82	11.92	.26	.01	614.07	.86	421.15	974.91
44588.000	0.00	0.00	601.90	3680.00	614.64	12.74	.24	.01	614.88	.86	476.51	1345.62
45371.000	0.00	0.00	602.55	1590.00	612.97	10.42	.21	.04	613.18	.83	97.30	439.47
45371.000	0.00	0.00	602.55	2340.00	614.02	11.47	.28	.00	614.30	.83	370.89	702.29
45371.000	0.00	0.00	602.55	2670.00	614.39	11.84	.29	.01	614.67	.83	393.73	842.02
45371.000	0.00	0.00	602.55	3680.00	615.21	12.66	.31	.03	615.52	.83	417.28	1178.40
46154.000	0.00	0.00	603.20	1590.00	613.41	10.21	.23	.01	613.64	.83	83.35	418.71
46154.000	0.00	0.00	603.20	2340.00	614.51	11.31	.34	.03	614.85	.83	98.00	521.34
46154.000	0.00	0.00	603.20	2670.00	614.88	11.68	.39	.05	615.27	.83	98.00	556.97
46154.000	0.00	0.00	603.20	3680.00	615.70	12.50	.58	.14	616.28	.83	98.00	637.36
46203.000	0.00	0.00	604.60	1590.00	613.51	8.91	.17	.02	613.68	28.57	71.00	482.93
46203.000	0.00	0.00	604.60	2340.00	614.64	10.04	.27	.02	614.91	28.57	71.00	562.92
46203.000	0.00	0.00	604.60	2670.00	615.01	10.41	.32	.02	615.33	28.57	71.00	569.24
46203.000	0.00	0.00	604.60	3680.00	615.86	11.26	.50	.03	616.35	28.57	71.00	649.27
46204.000	617.50	618.20	604.60	1590.00	613.49	8.89	.21	.02	613.70	0.00	71.00	436.45
46204.000	617.50	618.20	604.60	2340.00	614.60	10.00	.35	.04	614.95	0.00	71.00	495.42
46204.000	617.50	618.20	604.60	2670.00	614.96	10.36	.42	.05	615.38	0.00	71.00	514.79
46204.000	617.50	618.20	604.60	3680.00	615.77	11.17	.67	.09	616.44	0.00	71.00	558.18
46221.000	617.50	618.20	604.60	1590.00	613.51	8.91	.21	.00	613.71	0.00	71.00	436.46
46221.000	617.50	618.20	604.60	2340.00	614.62	10.02	.35	.00	614.97	0.00	71.00	496.16
46221.000	617.50	618.20	604.60	2670.00	614.98	10.38	.42	.00	615.40	0.00	71.00	515.65
46221.000	617.50	618.20	604.60	3680.00	615.80	11.20	.67	.00	616.48	0.00	71.00	559.74
46222.000	0.00	0.00	604.60	1590.00	613.56	8.96	.17	.01	613.73	0.00	71.00	486.25
46222.000	0.00	0.00	604.60	2340.00	614.73	10.13	.26	.02	614.99	0.00	71.00	569.31
46222.000	0.00	0.00	604.60	2670.00	615.12	10.52	.31	.03	615.43	0.00	71.00	597.27
46222.000	0.00	0.00	604.60	3680.00	616.06	11.46	.48	.06	616.53	0.00	71.00	663.68
46271.000	0.00	0.00	604.60	1590.00	613.49	8.89	.38	.11	613.86	0.00	64.87	322.48
46271.000	0.00	0.00	604.60	2340.00	614.64	10.04	.53	.13	615.17	0.00	85.13	404.43
46271.000	0.00	0.00	604.60	2670.00	615.02	10.42	.60	.14	615.62	0.00	97.36	439.65
46271.000	0.00	0.00	604.60	3680.00	615.96	11.36	.78	.15	616.74	0.00	204.03	592.86

SECNO	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	HV	OLOSS	EG	K*CHSL	TOPWID	AREA
47092.000	0.00	0.00	604.95	1590.00	615.36	10.41	.39	.00	615.74	.43	53.72	519.24
* 47092.000	0.00	0.00	604.95	2340.00	616.75	11.80	.10	2.54	616.85	.43	798.00	1109.51
47092.000	0.00	0.00	604.95	2670.00	616.99	12.04	.08	.15	617.06	.43	798.00	1303.64
47092.000	0.00	0.00	604.95	3680.00	617.89	12.94	.06	.22	617.94	.43	798.00	2014.63
47913.000	0.00	0.00	605.30	1590.00	617.44	12.14	.07	.09	617.52	.43	337.00	832.56
47913.000	0.00	0.00	605.30	2340.00	618.04	12.74	.09	.00	618.12	.43	387.00	1062.78
47913.000	0.00	0.00	605.30	2670.00	618.23	12.93	.09	.00	618.32	.43	387.00	1137.12
47913.000	0.00	0.00	605.30	3680.00	618.81	13.51	.12	.03	618.92	.43	387.00	1362.24
48475.000	0.00	0.00	606.10	1590.00	618.18	12.08	.19	.06	618.37	1.42	84.92	454.54
48475.000	0.00	0.00	606.10	2340.00	619.00	12.90	.32	.12	619.32	1.42	101.77	531.76
48475.000	0.00	0.00	606.10	2670.00	619.31	13.21	.37	.14	619.68	1.42	106.00	563.21
48475.000	0.00	0.00	606.10	3680.00	620.07	13.97	.54	.21	620.61	1.42	106.00	644.19
48756.000	0.00	0.00	606.50	1590.00	618.71	12.21	.19	.00	618.90	1.42	87.31	466.14
48756.000	0.00	0.00	606.50	2340.00	619.99	13.49	.26	.02	620.25	1.42	106.00	593.39
48756.000	0.00	0.00	606.50	2670.00	620.43	13.93	.29	.03	620.72	1.42	106.00	640.15
48756.000	0.00	0.00	606.50	3680.00	621.54	15.04	.38	.05	621.92	1.42	106.00	757.29
49038.000	0.00	0.00	606.90	1590.00	619.27	12.37	.18	.00	619.44	1.42	90.54	479.92
49038.000	0.00	0.00	606.90	2340.00	620.80	13.90	.22	.00	621.02	1.42	106.00	636.68
49038.000	0.00	0.00	606.90	2670.00	621.28	14.38	.25	.00	621.53	1.42	106.00	687.84
49038.000	0.00	0.00	606.90	3680.00	622.52	15.62	.32	.01	622.84	1.42	106.00	817.84
49123.000	0.00	0.00	608.10	1590.00	619.40	11.30	.12	.02	619.52	14.12	65.80	581.49
49123.000	0.00	0.00	608.10	2340.00	620.93	12.83	.18	.01	621.11	14.12	65.80	681.92
49123.000	0.00	0.00	608.10	2670.00	621.48	13.38	.21	.01	621.69	14.12	68.20	718.71
49123.000	0.00	0.00	608.10	3680.00	622.71	14.61	.33	.00	623.03	14.12	66.20	802.60
49153.000	623.30	621.20	608.10	1590.00	619.41	11.31	.12	.00	619.53	0.00	65.80	581.49
49153.000	623.30	621.20	608.10	2340.00	620.94	12.84	.18	.00	621.13	0.00	65.80	682.40
49153.000	623.30	621.20	608.10	2670.00	621.70	13.60	.21	0.00	621.90	0.00	68.20	733.62
49153.000	623.30	621.20	608.10	3680.00	623.29	15.19	.22	0.00	623.51	0.00	526.42	976.85
50308.000	0.00	0.00	610.20	1590.00	619.90	9.70	.16	.02	620.06	1.82	287.36	651.47
50308.000	0.00	0.00	610.20	2340.00	621.56	11.36	.10	.03	621.65	1.82	330.00	1176.32
50308.000	0.00	0.00	610.20	2670.00	622.48	12.28	.07	.04	622.55	1.82	348.29	1487.01
50308.000	0.00	0.00	610.20	3680.00	624.06	13.86	.06	.05	624.12	1.82	380.00	2065.62
51428.000	0.00	0.00	610.90	1590.00	620.71	9.31	.18	.01	620.83	.63	278.70	605.35
51428.000	0.00	0.00	610.90	2340.00	622.12	11.22	.17	.02	622.29	.63	294.37	1010.22
51428.000	0.00	0.00	610.90	2670.00	622.90	12.00	.15	.02	623.05	.63	303.03	1243.40
51428.000	0.00	0.00	610.90	3680.00	624.41	13.51	.14	.02	624.54	.63	319.66	1712.44
52958.000	0.00	0.00	613.60	1340.00	622.28	8.68	.22	.01	622.50	1.76	183.52	408.70
52958.000	0.00	0.00	613.60	2150.00	623.65	10.05	.21	.01	623.86	1.76	349.54	826.56
52958.000	0.00	0.00	613.60	2540.00	624.24	10.64	.19	.01	624.42	1.76	360.87	1033.28
52958.000	0.00	0.00	613.60	3570.00	625.57	11.97	.15	.00	625.72	1.76	378.87	1527.75
54038.000	0.00	0.00	615.70	1340.00	623.65	7.95	.11	.01	623.75	1.94	351.29	745.02
54038.000	0.00	0.00	615.70	2150.00	624.85	9.15	.08	.01	624.93	1.94	403.72	1204.77
54038.000	0.00	0.00	615.70	2540.00	625.32	9.62	.08	.01	625.39	1.94	415.74	1395.51
54038.000	0.00	0.00	615.70	3570.00	626.43	10.73	.07	.01	626.51	1.94	439.57	1376.62

SECNO	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	HV	OLOSS	EG	K*CHSL	TOPWID	AREA
54368.000	0.00	0.00	616.20	1340.00	624.05	7.85	.34	.17	624.39	1.52	217.93	405.70
54368.000	0.00	0.00	616.20	2150.00	625.16	8.96	.32	.17	625.48	1.52	237.24	660.92
54368.000	0.00	0.00	616.20	2540.00	625.60	9.40	.32	.17	625.92	1.52	244.90	768.08
54368.000	0.00	0.00	616.20	3570.00	626.67	10.47	.31	.16	626.98	1.52	252.37	1033.94
54468.000	0.00	0.00	616.35	1340.00	624.29	7.94	.36	.01	624.65	1.50	169.68	360.19
54468.000	0.00	0.00	616.35	2150.00	625.39	9.04	.38	.04	625.77	1.50	188.58	556.62
54468.000	0.00	0.00	616.35	2540.00	625.83	9.48	.39	.05	626.22	1.50	196.14	641.18
54468.000	0.00	0.00	616.35	3570.00	626.87	10.52	.41	.07	627.27	1.50	202.52	850.16
54568.000	0.00	0.00	616.50	1340.00	624.47	7.97	.61	.17	625.08	1.50	92.04	252.53
54568.000	0.00	0.00	616.50	2150.00	625.54	9.04	.80	.30	626.34	1.50	96.00	355.17
54568.000	0.00	0.00	616.50	2540.00	625.97	9.47	.69	.35	626.85	1.50	96.00	395.94
54568.000	0.00	0.00	616.50	3570.00	626.96	10.46	1.09	.48	628.05	1.50	96.00	491.31
54637.000	0.00	0.00	617.40	1340.00	625.11	7.71	.19	.12	625.31	13.04	59.44	381.06
54637.000	0.00	0.00	617.40	2150.00	626.27	8.87	.35	.13	626.63	13.04	59.44	450.05
54637.000	0.00	0.00	617.40	2540.00	626.72	9.32	.44	.13	627.16	13.04	59.44	476.45
54637.000	0.00	0.00	617.40	3570.00	627.70	10.30	.69	.12	628.39	13.04	59.44	535.17
54638.000	628.20	628.70	617.40	1340.00	625.12	7.72	.19	.00	625.31	0.00	59.44	381.08
54638.000	628.20	628.70	617.40	2150.00	626.27	8.87	.35	.00	626.63	0.00	59.44	450.00
54638.000	628.20	628.70	617.40	2540.00	626.72	9.32	.44	.00	627.16	0.00	59.44	476.33
54638.000	628.20	628.70	617.40	3570.00	627.71	10.31	.69	.00	628.40	0.00	59.44	535.07
54678.000	628.20	628.70	617.40	1340.00	625.16	7.76	.19	.00	625.35	0.00	59.44	383.30
54678.000	628.20	628.70	617.40	2150.00	626.34	8.94	.35	.00	626.69	0.00	59.44	453.46
54678.000	628.20	628.70	617.40	2540.00	626.80	9.40	.43	.00	627.23	0.00	59.44	480.44
54678.000	628.20	628.70	617.40	3570.00	627.82	10.42	.67	.01	628.50	0.00	59.44	541.99
54679.000	0.00	0.00	617.40	1340.00	625.16	7.76	.19	.00	625.35	0.00	59.44	383.51
54679.000	0.00	0.00	617.40	2150.00	626.34	8.94	.35	.00	626.69	0.00	59.44	453.92
54679.000	0.00	0.00	617.40	2540.00	626.80	9.40	.43	.00	627.23	0.00	59.44	481.06
54679.000	0.00	0.00	617.40	3570.00	627.83	10.43	.67	.00	628.50	0.00	59.44	542.13

SUMMARY OF ERRORS

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CAUTION  SECNO=38928.000  PROFILE= 1  WSEL ASSUMED BASED ON MIN DIFF
CAUTION  SECNO=38928.000  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION  SECNO=47092.000  PROFILE= 2  WSEL ASSUMED BASED ON MIN DIFF
CAUTION  SECNO=47092.000  PROFILE= 2  20 TRIALS ATTEMPTED TO BALANCE WSEL
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**** 7000 SCOPE 2.1 LVL  221  12/14/78  20.52.16  01/08/79      79008

SYS DEVICES 819/ 4/PF FLS=200K FLL=764K MXS=160K MXL=453K MXB=4533

HH.MM.SS CPU SECOND ORIGIN
         08.39.12.MFA. JO    LV461 NOSBE B+W LYNRELEASE447 02/04/78
08.34.04 00000.014 MFZ.     -MACJ001,T20,STMFZ.   MACOMB TWP FIS
08.34.05 00000.030 USR.      CHARGE.810-0037-45-78-5801,JANDA,001,D,JANDA.
08.34.06 00000.066 JOB.     -ATTACH,LGO,MEC2N76V2,ID=MEC.
08.34.06 00000.071 MFZ.        PF254 - CYCLE    1 ATTACHED FROM SN=SYSTEM
08.34.06 00000.072 LOD.     -LGO(PL=999999).
08.34.08 00000.894 MFZ.        LD610 - FLS REQUIRED TO LOAD - 0027777 OU.COG
08.34.08 00000.898 MFZ.        LD603 - EXECUTION INITIATED OS.EXP
08.34.08 00000.899 USR.       FORTRAN LIBRARY 439           08/20/78
08.34.13 00004.487 USR.          STOP
08.34.13 00004.488 USR.           3.588 CP SECONDS EXECUTION TIME
08.34.13 00004.492 MFZ.        RM770 - MAXIMUM ACTIVE FILES                   7
08.34.13 00004.492 MFZ.        RM771 - OPEN/CLOSE CALLS                      30
08.34.13 00004.492 MFZ.        RM772 - DATA TRANSFER CALLS               10,068
08.34.13 00004.493 MFZ.        RM773 - CONTROL/POSITIONING CALLS             66
08.34.13 00004.493 MFZ.        RM774 - BM DATA TRANSFER CALLS               656
08.34.13 00004.493 MFZ.        RM775 - BM CONTROL/POSITIONING CALLS          69
08.34.13 00004.493 MFZ.        RM776 - QUEUE MANAGER CALLS                  131
08.34.13 00004.493 MFZ.        RM777 - RECALL CALLS                          84
08.34.13 00004.494 MFZ.        BWMSG - NUMBER OF TAPES MOUNTED
08.34.13 00004.494 MFZ.        SRU                  4.647  SEC
08.34.13 00004.494 MFZ.        SCM                109.468  KWS
08.34.13 00004.495 MFZ.        I/O                  0.127  MW
08.34.13 00004.495 MFZ.        RMS                  0.197  MWS
08.34.13 00004.495 MFZ.        USER                 2.788  SEC
08.34.13 00004.495 MFZ.        JOB                  4.497  SEC
08.34.13 00004.495 MFZ.        SC050 - 000140 SC/LC SWAPS
08.34.13 00004.496 MFZ.      MACJ091    MACJ091
08.34.13.EJ  END OF JOB
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  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

MIDDLE BRANCH CLINTON R.

SUMMARY PRINTOUT

SECNO	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	HV	OLOSS	EG	K*CHSL	TOPWID	AREA
28316.000	0.00	0.00	588.40	2340.00	599.94	11.54	.36	0.00	600.30	0.00	120.00	537.13
28365.000	0.00	0.00	591.20	2340.00	600.23	9.03	.17	.06	600.40	57.14	93.60	709.05
28366.000	601.10	601.40	591.20	2340.00	600.20	9.00	.22	.02	600.42	0.00	93.60	623.63
28384.000	601.10	601.40	591.20	2340.00	600.22	9.02	.22	.00	600.43	0.00	93.60	624.44
28385.000	0.00	0.00	591.20	2340.00	600.28	9.08	.17	.02	600.45	0.00	93.60	714.25
28434.000	0.00	0.00	591.20	2340.00	599.97	8.77	.87	.35	600.84	0.00	50.46	312.49
29407.000	0.00	0.00	591.90	2340.00	601.59	9.69	.07	.24	601.66	.72	500.00	1660.66
30375.000	0.00	0.00	592.60	2420.00	601.94	9.34	.09	.01	602.03	.72	600.00	1573.80
31425.000	0.00	0.00	592.95	2420.00	602.37	9.42	.10	.00	602.46	.33	580.83	1490.30
32475.000	0.00	0.00	593.30	2420.00	602.97	9.67	.38	.14	603.35	.33	684.42	900.27
33389.000	0.00	0.00	593.55	2420.00	604.18	10.63	.25	.04	604.44	.27	571.87	1022.80
34303.000	0.00	0.00	593.80	2420.00	604.86	11.06	.51	.13	605.38	.27	94.00	455.86

SUMMARY OF ERRORS

Macomb Twp. EIS 5850-03

Middle Branch Clinton River

SUMMARY PRINTOUT

Summary Printout for HEC-2 run used to match gage rating curve

SECNO	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	HV	OLOSS	EG	XKCHSL	TOPWID	AREA
1425.000	0.00	0.00	592.95	180.00	601.79	8.84	.01	0.00	601.80	0.00	451.18	369.03
31425.000	0.00	0.00	592.95	453.00	602.55	9.60	.02	0.00	602.57	0.00	682.49	848.1
31425.000	0.00	0.00	592.95	725.00	602.89	9.94	.03	0.00	602.92	0.00	801.71	1134.57
31425.000	[illegible]	[illegible]	[illegible]	[illegible]	604.01	11.06	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
32475.000	0.00	0.00	[illegible]	180.00	[illegible]	[illegible]	[illegible]	.00	601.82	.33	281.70	[illegible]
32475.000	0.00	0.00	593.30	453.00	602.60	9.30	.03	.00	602.62	.33	674.64	638.0
32475.000	0.00	0.00	593.30	725.00	~~602.97~~ 602.9	9.67	.04	.00	603.01	.33	684.10	891.64
32475.000	0.00	0.00	593.30	1099.00	604.06	10.76	.03	.00	604.09	.33	910.34	1826.05
33389.000	0.00	0.00	[illegible]	180.00	[illegible]	[illegible]	[illegible]	.00	[illegible]	.27	58.11	131.[illegible]
33389.000	0.00	0.00	593.55	453.00	[illegible]	[illegible]	[illegible]	.00	[illegible]	[illegible]	[illegible]	[illegible]
33389.000	0.00	0.00	593.55	725.00	603.07	9.52	.09	.01	603.15	.27	160.45	330.41
33389.000	0.00	0.00	593.55	1099.00	604.14	10.59	.06	.01	604.19	.27	713.00	1021.33
34303.000	0.00	0.00	[illegible]	180.00	601.[illegible]	[illegible]	.01	.00	601.8[illegible]	.27	58.42	[illegible]
34303.000	0.00	0.00	[illegible]	453.00	602.7[illegible]	[illegible]	[illegible]	.00	602.7[illegible]	.27	73.56	[illegible]
34303.000	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.01	603.36	.27	78.46	302.8
34303.000	0.00	0.00	593.80	1099.00	604.37	10.47	.13	.02	604.40	.27	94.00	400.11
34353.000	0.00	0.00	595.00	180.00	601.85	6.85	.01	.00	601.86	24.49	60.49	289.26
34353.000	0.00	0.00	595.00	453.00	602.77	7.77	[illegible]	.01	602.80	24.[illegible]	63.[illegible]	[illegible]
34353.000	0.00	0.00	595.00	725.00	603.27	8.30	.06	[illegible]	603.36	[illegible]	64.79	380.[illegible]
34353.000	0.00	0.00	595.00	1099.00	604.34	9.34	[illegible]	[illegible]	[illegible]	21.48	66.00	[illegible]
34353.000	607.90	605.60	595.00	180.00	601.85	6.85	.01	.00	601.86	0.00	60.52	289.64
34353.000	607.90	605.60	595.00	453.00	602.77	7.77	.03	.00	602.80	0.00	63.48	342.85
34353.000	607.90	605.60	595.00	725.00	603.30	8.30	.06	.00	603.36	0.00	64.73	373.18
34353.000	607.90	605.60	595.00	1099.00	604.34	9.34	[illegible]	.00	604.44	0.00	66.00	419.50
34383.000	607.90	605.60	595.00	180.00	601.85	6.85	.01	.00	601.86	0.00	60.53	289.69
34383.000	607.90	605.60	595.00	453.00	602.77	7.77	.03	.00	602.80	0.00	63.49	343.01
34383.000	607.90	605.60	595.00	725.00	603.30	8.30	.06	.00	603.36	0.00	64.80	373.46
34383.000	607.90	605.60	595.00	1099.00	604.34	9.34	[illegible]	.00	[illegible]	0.00	66.00	[illegible]
34384.000	0.00	0.00	595.00	180.00	601.85	6.85	[illegible]	.00	601.86	0.00	60.52	288.6
34384.000	0.00	0.00	595.00	453.00	602.77	7.77	.03	.00	602.80	0.00	63.49	346.87
34384.000	0.00	0.00	595.00	725.00	603.31	8.31	.06	.00	603.36	0.00	64.79	381.03
34384.000	0.00	0.00	595.00	1099.00	604.34	9.34	.09	.00	604.4[illegible]	0.00	66.00	449.8[illegible]
34433.000	0.00	0.00	595.00	180.00	601.[illegible]	[illegible]	[illegible]	[illegible]	601.86	.00	[illegible]	[illegible]
34433.000	0.00	0.00	595.00	453.00	602.[illegible]	[illegible]	[illegible]	[illegible]	602.[illegible]	[illegible]	[illegible]	[illegible]
34433.000	0.00	0.00	595.00	725.00	603.05	[illegible]	.15	[illegible]	603.40	.00	[illegible]	[illegible]
34433.000	0.00	0.00	595.00	1099.00	604.28	9.28	.22	.04	604.50	-.00	76.81	294.78
35180.000	0.00	0.00	594.65	180.00	601.91	7.26	.04	.01	601.95	-.47	30.27	110.00
35180.000	0.00	0.00	594.65	453.00	603.00	8.35	.15	.02	603.15	-.47	33.90	144.77
35180.000	0.00	0.00	594.65	725.00	603.74	9.09	.26	.04	604.0[illegible]	-.47	36.40	171.01

35928.000	0.00	0.00	594.30	180.00	602.29	7.99	.03	.00	602.32	-.47	32.70	132.87
[illegible]	[illegible]	0.00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	0.00	594.30	[illegible]	[illegible]	10.80	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	0.00	594.30	[illegible]	[illegible]	[illegible]	[illegible]	.11	[illegible]	[illegible]	[illegible]	[illegible]
36628.000	0.00	0.00	595.45	180.00	602.43	6.98	.04	.00	602.46	1.64	28.01	116.47
36628.000	0.00	0.00	595.45	453.00	604.30	8.85	.11	.01	604.41	1.64	32.57	173.17
36628.000	0.00	0.00	595.45	725.00	605.54	10.09	.17	.01	605.71	1.64	71.47	231.51
36628.000	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.64	[illegible]	454.73
[illegible]	0.00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.01	[illegible]	1.64	25.38	[illegible]
37328.000	0.00	0.00	596.60	453.00	604.53	7.93	.16	.01	604.69	1.64	30.34	144.33
37328.000	0.00	0.00	596.60	725.00	605.86	9.26	.23	.02	606.10	1.64	36.18	186.97
37328.000	0.00	0.00	596.60	997.00	606.64	10.04	.40	.04	607.05	1.64	42.70	238.24
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.08	[illegible]	602.98	2.44	32.50	117.22
[illegible]	0.00	0.00	[illegible]	464.00	[illegible]	[illegible]	.03	[illegible]	605.20	2.44	[illegible]	[illegible]
38128.000	0.00	0.00	598.55	744.00	606.58	8.03	.07	.05	606.66	2.44	160.05	399.93
38128.000	0.00	0.00	598.55	1128.00	607.45	8.90	.01	.12	607.47	2.44	614.97	1141.97
38928.000	0.00	0.00	[illegible]	[illegible]	603.75	[illegible]	[illegible]	.01	603.84	[illegible]	33.83	[illegible]
38928.000	0.00	0.00	[illegible]	[illegible]	605.[illegible]	[illegible]	[illegible]	[illegible]	606.11	[illegible]	[illegible]	[illegible]
38928.000	0.00	0.00	[illegible]	744.00	[illegible]	[illegible]	[illegible]	[illegible]	602.[illegible]	[illegible]	[illegible]	[illegible]
38928.000	0.00	0.00	600.50	1128.00	607.62	7.12	.36	.10	607.98	2.44	46.74	233.88
39724.000	0.00	0.00	[illegible]	184.00	604.66	4.71	.03	.02	604.70	-.69	41.05	123.40
39724.000	0.00	0.00	[illegible]	465.00	606.91	[illegible]	.06	.02	606.97	-.69	[illegible]	234.[illegible]
39724.000	0.00	0.00	[illegible]	7[illegible].00	608.33	8.38	.08	.03	608.41	-.69	[illegible]	[illegible]
39724.000	0.00	0.00	599.95	[illegible]	[illegible]	[illegible]	[illegible]	.07	[illegible]	-.69	373.72	500.[illegible]
40521.000	0.00	0.00	599.40	184.00	605.01	5.61	.02	.00	605.03	-.69	47.75	163.15
40521.000	0.00	0.00	599.40	465.00	607.36	7.96	.04	.01	607.40	-.69	71.1[illegible]	296.39
40521.000	0.00	0.00	599.40	744.00	608.80	9.40	.05	.01	608.86	-.69	87.00	410.81
40521.000	0.00	0.00	599.40	1128.00	609.80	10.40	.08	.01	609.[illegible]	-.69	87.00	500.15
40571.000	0.00	0.00	599.50	184.00	605.04	5.54	.01	.00	605.04	2.00	60.00	269.67
40571.000	0.00	0.00	599.50	465.00	607.39	7.89	.02	.01	607.41	2.00	60.00	410.61
40571.000	0.00	0.00	599.50	744.00	608.84	9.34	.03	.01	608.88	2.00	60.00	497.42
40571.000	0.00	0.00	599.5[illegible]	1128.00	609.85	10.35	.0[illegible]	.0[illegible]	609.91	2.00	60.00	558.[illegible]
40605.000	611.00	610.80	599.50	184.00	605.04	5.54	.0[illegible]	.0[illegible]	605.05	0.00	60.00	[illegible]
40605.000	611.00	610.80	599.50	465.00	607.40	7.90	.02	.00	607.42	0.00	60.00	411.03
40605.000	611.00	610.80	599.50	744.00	608.85	9.35	.03	.00	608.88	0.00	60.00	497.91
40605.000	611.00	610.80	599.50	1128.00	609.86	10.36	.06	.00	609.93	0.00	60.00	558.90

SECNO	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	HV	OLOSS	EG	K*CHSL	TOPWID	AREA
40655.000	0.00	0.00	599.50	184.00	605.06	[illegible]	.02	.00	[illegible]	0.00	[illegible]	[illegible]
40655.000	0.00	0.00	599.50	465.00	607.39	7.89	.0[illegible]	.01	607.43	0.00	68.56	302.65
40655.000	0.00	0.00	599.50	744.00	608.84	9.34	.04	.01	608.90	0.00	87.00	408.38
40655.000	0.00	0.00	599.50	1128.00	609.85	10.35	.09	.01	609.94	0.00	87.00	495.70
41191.000	0.00	0.00	599.75	184.00	605.10	5.35	.03	.00	605.13	.29	34.40	138.26
41191.000	0.00	0.00	599.75	465.00	[illegible]	[illegible]	.07	[illegible]	[illegible]	.29	[illegible]	[illegible]
41191.000	0.00	0.00	599.75	744.00	608.93	[illegible]	.11	[illegible]	609.04	.29	[illegible]	236.06
41191.000	0.00	0.00	599.75	1128.00	610.2[illegible]	[illegible]	.12	.0[illegible]	610.[illegible]	.29	159.46	391.2[illegible]
42388.000	0.00	0.00	600.00	184.00	605.18	5.18	.03	.00	605.21	.29	34.10	132.65
42388.000	0.00	0.00	600.00	465.00	607.60	7.60	.07	.00	607.67	.29	39.20	221.18
42388.000	0.00	0.00	600.00	744.00	609.10	9.10	.11	.00	609.20	.29	42.37	282.45
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	10.[illegible]	.17	.00	610.39	.29	268.86	420.88

43488.000	0.00	0.00	600.95	184.00	605.37	4.42	.09	.02	605.46	.86	29.08	75.00
43488.000	0.00	0.00	600.95	465.00	607.04	6.89	.12	.03	607.91	.86	39.17	160.57
43488.000	0.00	0.00	600.95	744.00	609.41	8.46	.17	.02	609.58	.86	[illegible]	[illegible]
43488.000	0.00	0.00	600.95	1178.00	610.67	[illegible]	.23	.02	610.90	.86	109.92	319.50
44588.000	0.00	0.00	[illegible]	[illegible]	[illegible]	[illegible]	.13	.01	[illegible]	.86	[illegible]	[illegible]
44588.000	0.00	0.00	601.90	500.00	608.54	6.64	.17	.01	608.71	.86	39.21	250.62
44588.000	0.00	0.00	601.90	800.00	610.14	8.24	.21	.01	610.35	.86	44.00	216.63
44588.000	0.00	0.00	601.90	1200.00	611.54	9.64	.27	.01	611.81	.86	106.19	311.46
45371.000	0.00	0.00	602.55	200.00	607.15	[illegible]	.07	.00	[illegible]	.83	41.58	[illegible]
45371.000	0.00	0.00	[illegible]	[illegible]	[illegible]	[illegible]	.10	.03	[illegible]	.83	[illegible]	[illegible]
45371.000	0.00	0.00	602.55	800.00	610.95	8.40	.12	.03	611.07	.83	62.26	291.65
45371.000	0.00	0.00	602.55	1200.00	612.43	9.88	.15	.04	612.58	.83	80.13	391.37
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	608.21	.83	43.76	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	610.27	.83	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.83	[illegible]	[illegible]
46154.000	0.00	0.00	603.20	1200.00	613.17	9.97	.14	.00	613.31	.83	82.94	398.61
[illegible]	0.00	0.00	604.40	200.00	608.20	3.60	.04	.00	608.23	28.57	52.17	122.72
[illegible]	[illegible]	0.00	604.60	500.00	[illegible]	5.64	.06	.01	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	0.00	[illegible]	800.00	[illegible]	[illegible]	.08	.01	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	71.00	[illegible]
46204.000	617.50	618.20	604.60	200.00	608.20	3.60	.04	.00	608.23	0.00	52.17	129.75
[illegible]	[illegible]	[illegible]	[illegible]	500.00	[illegible]	[illegible]	[illegible]	.00	610.31	0.00	67.47	[illegible]
[illegible]	[illegible]	618.20	[illegible]	[illegible]	[illegible]	[illegible]	.08	.00	611.85	0.00	71.00	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	1200.00	[illegible]	8.63	[illegible]	.01	613.36	0.00	71.00	[illegible]
46221.000	617.50	618.20	604.60	200.00	608.20	3.60	.04	.00	608.24	0.00	52.19	129.95
46221.000	617.50	618.20	604.60	500.00	610.25	5.65	.06	.00	610.31	0.00	67.50	251.96
46221.000	617.50	618.20	604.60	800.00	611.77	7.17	.08	.00	611.86	0.00	71.00	343.41
46221.000	[illegible]	618.20	[illegible]	1200.00	613.24	8.64	.13	.00	613.37	0.00	71.00	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	3.60	[illegible]	.00	[illegible]	0.00	52.19	[illegible]
46222.000	0.00	0.00	604.60	500.00	610.25	5.65	.06	.00	610.31	0.00	67.50	251.96
46222.000	0.00	0.00	604.60	800.00	611.78	7.18	.08	.00	611.86	0.00	71.00	359.44
46222.000	0.00	0.00	604.60	1200.00	613.27	8.67	.10	.01	613.37	0.00	71.00	465.71

SECNO	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	HV	OLOSS	FG	K*CHSL	TOPWID	AREA
46271.000	[illegible]	0.00	[illegible]	200.00	608.19	[illegible]	[illegible]	[illegible]	[illegible]	0.00	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	500.00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.00	47.04	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.04	[illegible]	0.00	[illegible]	[illegible]
46271.000	0.00	0.00	604.60	1200.00	613.19	8.59	.24	.04	613.43	0.00	63.27	303.42
47092.000	0.00	0.00	604.95	200.00	609.56	4.61	.15	.02	609.71	.43	34.14	64.23
47092.000	0.00	0.00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
47092.000	0.00	0.00	[illegible]	800.00	[illegible]	[illegible]	.29	.02	612.87	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.35	[illegible]	[illegible]	.43	[illegible]	[illegible]
47913.000	0.00	0.00	605.30	200.00	610.33	5.03	.10	.02	610.43	.43	35.57	79.02
[illegible]	0.00	0.00	605.30	500.00	612.04	6.74	[illegible]	.02	[illegible]	.43	41.33	144.42
[illegible]	[illegible]	[illegible]	605.30	800.00	[illegible]	[illegible]	[illegible]	.03	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	605.30	[illegible]	615.79	[illegible]	[illegible]	.04	[illegible]	[illegible]	[illegible]	[illegible]
48475.000	0.00	0.00	606.10	200.00	610.59	4.49	.07	.02	610.66	1.42	28.69	94.17
48475.000	0.00	0.00	606.10	500.00	612.43	6.33	.16	.01	612.59	1.42	37.32	154.79
48475.000	0.00	0.00	606.10	800.00	614.45	8.35	.17	.01	614.63	1.42	46.85	240.10
48475.000	0.00	0.00	606.10	1200.00	616.48	10.38	.19	.01	616.67	1.42	56.39	344.83

[illegible]	0.00	0.00	606.30	500.00	612.57	6.07	.18	.01	612.75	1.42	36.[illegible]	140.[illegible]
48756.000	0.00	0.00	606.30	800.00	614.67	8.17	.19	.00	614.85	1.42	45.97	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	25.02	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
49038.000	0.00	0.00	606.90	800.00	614.90	8.00	.20	.00	615.10	1.42	45.16	223.51
49038.000	0.00	0.00	606.90	1200.00	617.09	10.19	.20	.00	617.29	1.42	55.46	333.7[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	616.18	[illegible]	[illegible]	[illegible]
49123.000	0.00	0.00	608.10	1200.00	617.26	9.16	.12	.03	617.37	11.12	65.80	440.24
[illegible]	[illegible]	[illegible]	608.10	200.00	[illegible]	2.76	.09	.00	610.95	0.00	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	500.00	[illegible]	[illegible]	[illegible]	.00	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	800.00	[illegible]	6.78	[illegible]	.00	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
50308.000	0.00	0.00	610.20	200.00	612.37	2.17	.15	.03	612.52	1.83	31.42	64.11
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

SUMMARY OF ERRORS

CAUTION SECNO=[illegible] PROFILE- 3 20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=50728.000 PROFILE- 3 20 TRIALS ATTEMPTED TO BALANCE WSEL

****

ERROR CORR - [illegible]

****

COMMAND - LOGOUT

CPA [illegible]

SYS TIME 8.524

CONVERSATION SECND 8.248

CONNECT TIME 0 HRS. [illegible] MIN.

08/[illegible] LOGGED OUT AT [illegible]

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Macomb Twp.

3) WATERCOURSE: Middle Branch Clinton River

4) DOCUMENT TYPE: Encroached

Used for FIS

00BREAK00

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*************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
*************************************************


C
T1       MACOMB TOWNSHIP FIS     5850-03       P.M. = OLE ANDERSON
T2       100 YEAR FLOOD
T3       MIDDLE BRANCH CLINTON R.

J1  ICHECK      INQ        NINV       IDIR       STRT      METRIC     HVINS      Q          WSEL       FQ

        0.        4.         0.         0.   0.000000      0.00        0.0       0.    594.440     0.000

J2  NPROF      IPLOT      PRFVS      XSECV      XSECH        FN      ALLDC       IBW      CHNIM      ITRACE

      -1.000     0.000     -1.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

      38.000     40.000     41.000     42.000     43.000      1.000      8.000     10.000     12.000      3.000


      33.000      4.000     25.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000

NC        .066       .045       .038        .300        .500       0.000       0.000       0.000       0.000       0.000
QT       4.000   1380.000   2040.000    2340.000    3250.000       0.000       0.000       0.000       0.000       0.000


                                 REPEAT OF A, INVERT ADJUSTED

X1   16771.000     28.000   1185.000    1230.000       0.000       0.000       0.000       0.000      -3.900       0.000
X3      10.000      0.000      0.000    1185.000       0.000    1230.000       0.000       0.000       0.000       0.000
GR     595.100      0.000    597.900     100.000     597.700     200.000     597.900     300.000     597.600     400.000
GR     597.100    500.000    597.600     600.000     597.900     700.000     597.500     800.000     597.300     900.000
GR     594.100   1000.000    591.000    1100.000     591.400    1185.000     584.700    1195.000     584.900    1206.000
GR     586.000   1216.000    591.200    1230.000     588.000    1300.000     588.800    1358.000     595.900    1400.000
GR     596.900   1500.000    593.700    1600.000     592.800    1700.000     595.400    1800.000     596.300    1900.000
GR     596.600   2000.000    597.400    2100.000     596.800    2200.000       0.000       0.000       0.000       0.000
NC        .045       .045       .042       0.000       0.000       0.000       0.000       0.000       0.000       0.000


                       A         VALLEY SECTION A

X1   18100.000      0.000      0.000       0.000    1400.000    1300.000    1350.000       0.000       3.900       0.000
X3      10.000      0.000      0.000    1050.000       0.000    1360.000       0.000       0.000       0.000       0.000
NH       4.000       .048    700.000        .083     960.000        .038    1010.000        .045    1200.000       0.000


                                 REPEAT OF B, INVERT ADJUSTED

X1   19150.000     29.000    960.000    1010.000    1050.000    1050.000    1050.000       0.000      -1.700       0.000
X3      10.000      0.000      0.000       0.000       0.000    1350.000       0.000       0.000       0.000       0.000
GR     599.300      0.000    599.300     100.000     593.500     200.000     598.300     300.000     593.000     400.000
GR     598.400    500.000    597.700     600.000     598.400     700.000     598.400     300.000     597.000     900.000
GR     596.300    935.000    592.500     950.000     591.600     960.000     568.600     970.000     588.800     985.000
GR     588.100   1000.000    592.500    1010.000     591.600    1100.000     591.500    1200.000     595.700    1300.000
GR     597.500   1400.000    598.100    1500.000     598.700    1600.000     599.000    1700.000     599.000    1800.000
GR     598.600   1900.000    598.300    2000.000     598.000    2100.000     599.300    2200.000       0.000       0.000
NC        .088       .045       .038       0.000       0.000       0.000       0.000       0.000       0.000       0.000
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Encroached -
used for FIS

B VALLEY SECTION B

X1	20200.000	0.000	0.000	0.000	1050.000	1050.000	1050.000	0.000	1.700	0.000
X3	10.000	0.000	0.000	0.000	0.000	1350.000	0.000	0.000	0.000	0.000
NC	.066	.048	.042	0.000	0.000	0.000	0.000	0.000	0.000	0.000

REPEAT OF C, INVERT ADJUSTED

X1	21421.000	36.000	1400.000	1430.000	1000.000	1500.000	1221.000	0.000	.800	0.000
X3	10.000	0.000	0.000	1090.000	0.000	1740.000	0.000	0.000	0.000	0.000
GR	596.200	0.000	594.900	100.000	594.500	200.000	597.100	300.000	598.500	400.000
GR	598.200	500.000	598.400	600.000	598.500	700.000	598.500	800.000	598.500	900.000
GR	594.100	1000.000	593.400	1100.000	593.300	1200.000	593.300	1300.000	593.200	1400.000
GR	593.200	1400.000	587.500	1407.000	586.600	1409.000	587.200	1412.000	587.400	1415.000
GR	588.500	1416.000	589.100	1420.000	583.900	1425.000	590.900	1430.000	593.900	1500.000
GR	593.800	1600.000	593.200	1700.000	593.700	1800.000	593.500	1900.000	594.900	2000.000
GR	598.600	2100.000	598.700	2200.000	600.100	2237.000	599.400	2300.000	599.200	2400.000
GR	599.000	2500.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.045	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

C VALLEY SECTION C

X1	22642.000	0.000	0.000	0.000	1000.000	1500.000	1221.000	0.000	-.800	0.000
X3	10.000	0.000	0.000	1125.000	0.000	1775.000	0.000	0.000	0.000	0.000

D/S FACE OF 21 MILE RD. BRIDGE

BRIDGE PARRICADED AND NOT IN USE

X1	22692.000	47.000	1500.000	1600.000	50.000	50.000	50.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	1250.000	0.000	1350.000	0.000	0.000	0.000	0.000
GR	597.200	0.000	597.300	100.000	597.400	200.000	597.400	300.000	597.800	400.000
GR	598.200	500.000	598.300	600.000	598.400	700.000	598.500	800.000	598.600	900.000
GR	597.900	1000.000	597.000	1100.000	595.800	1200.000	595.500	1300.000	595.600	1400.000
GR	590.300	1500.000	590.100	1510.000	590.000	1520.000	591.600	1530.000	591.300	1535.000
GR	588.000	1539.000	587.700	1540.000	587.000	1545.000	586.800	1550.000	586.800	1555.000
GR	587.400	1560.000	587.800	1563.000	583.500	1565.000	592.400	1570.000	593.500	1580.000
GR	592.800	1590.000	596.000	1600.000	596.400	1700.000	596.900	1800.000	596.700	1900.000
GR	596.400	2000.000	597.000	2100.000	598.000	2200.000	598.300	2300.000	600.100	2386.000
GR	599.800	2400.000	599.200	2500.000	599.400	2600.000	599.300	2700.000	599.400	2800.000
CR	599.500	2900.000	599.600	3000.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	1.200	3.000	0.000	100.000	0.000	553.000	0.000	586.800	586.800

D BRIDGE SECTION D

U/S FACE OF 21 MILE RD. BRIDGE

X1	22708.000	49.000	1500.000	1600.000	16.000	16.000	16.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	596.000	596.500	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	1250.000	0.000	1850.000	0.000	0.000	0.000	0.000
BT	9.000	1250.000	595.600	0.000	1300.000	595.500	0.000	1400.000	595.600	0.000
BT	1500.000	598.600	595.800	1550.000	598.800	596.000	1600.000	598.800	596.000	1700.000
BT	596.400	0.000	1800.000	596.900	0.000	1850.000	595.800	0.000	0.000	0.000
GR	597.200	0.000	597.300	100.000	597.400	200.000	597.400	300.000	597.800	400.000
GR	598.200	500.000	598.300	600.000	598.400	700.000	598.500	800.000	598.600	900.000
GR	597.900	1000.000	597.000	1100.000	595.800	1200.000	595.500	1300.000	595.600	1400.000
GR	595.800	1500.000	590.300	1500.000	590.100	1510.000	590.000	1520.000	591.600	1530.000
GR	591.300	1535.000	588.000	1539.000	587.700	1540.000	587.000	1545.000	586.800	1550.000
GR	586.800	1555.000	587.400	1560.000	587.800	1563.000	588.500	1565.000	592.400	1570.000
[illegible]	[illegible]	[illegible]	[illegible]	1590.000	596.000	1600.000	596.000	1600.000	596.400	1700.000

GR	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2200.000
GR	598.300	2300.000	600.100	2386.000	599.800	2400.000	599.200	2500.000	599.400	2600.000
GR	599.300	2700.000	599.400	2800.000	599.500	2900.000	599.600	3000.000	0.000	0.000
NC	.048	.048	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000

REPEAT OF C, INVERT ADJUSTED

X1	22758.000	36.000	1400.000	1430.000	50.000	50.000	50.000	0.000	.200	0.000
X3	10.000	0.000	0.000	1050.000	0.000	1750.000	0.000	0.000	0.000	0.000
GR	596.200	0.000	594.900	100.000	594.500	200.000	597.100	300.000	598.500	400.000
GR	598.200	500.000	598.400	600.000	598.500	700.000	598.500	800.000	598.500	900.000
GR	594.100	1000.000	593.400	1100.000	593.800	1200.000	593.300	1300.000	593.200	1400.000
GR	593.200	1400.000	587.500	1407.000	586.600	1409.000	587.200	1412.000	587.400	1415.000
GR	588.500	1416.000	589.100	1420.000	588.900	1425.000	590.900	1430.000	593.900	1500.000
GR	593.800	1600.000	593.200	1700.000	593.700	1800.000	593.500	1900.000	594.900	2000.000
GR	598.600	2100.000	598.700	2200.000	600.100	2237.000	599.400	2300.000	599.200	2400.000
GR	599.000	2500.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	4.000	.045	885.000	.040	940.000	.075	1300.000	.045	2200.000	0.000

REPEAT OF E, INVERT ADJUSTED

X1	23829.000	29.000	885.000	940.000	1200.000	900.000	1071.000	0.000	-.050	0.000
X3	10.000	0.000	0.000	650.000	0.000	1200.000	0.000	0.000	0.000	0.000
GR	599.800	0.000	600.200	100.000	599.900	200.000	600.000	300.000	600.100	400.000
GR	601.600	500.000	601.200	600.000	601.600	700.000	600.700	730.000	596.700	755.000
GR	595.700	800.000	595.500	885.000	591.400	900.000	586.900	920.000	589.600	930.000
GR	595.800	940.000	595.000	1000.000	594.300	1100.000	599.400	1200.000	600.300	1300.000
GR	601.500	1400.000	600.000	1500.000	599.500	1600.000	599.000	1700.000	599.700	1800.000
GR	600.200	1900.000	600.200	2000.000	600.400	2100.000	601.700	2200.000	0.000	0.000
NH	5.000	.045	533.000	.075	633.000	.040	670.000	.075	770.000	.045
NH	1500.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

E VALLEY SECTION E

X1	24900.000	0.000	0.000	0.000	1150.000	950.000	1071.000	0.000	.050	0.000
X3	10.000	0.000	0.000	770.000	0.000	1170.000	0.000	0.000	0.000	0.000
NC	.047	.047	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000

REPEAT OF E, INVERT ADJUSTED

X1	25800.000	0.000	0.000	0.000	850.000	950.000	900.000	0.000	2.100	0.000
X3	10.000	0.000	0.000	500.000	0.000	1100.000	0.000	0.000	0.000	0.000

F VALLEY SECTION F

X1	26700.000	22.000	633.000	670.000	900.000	900.000	900.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	420.000	0.000	950.000	0.000	0.000	0.000	0.000
GR	600.900	0.000	600.100	100.000	597.500	200.000	597.500	300.000	597.500	400.000
GR	597.100	500.000	596.600	600.000	596.300	633.000	592.700	635.000	591.200	655.000
GR	593.100	665.000	596.800	670.000	596.700	700.000	597.100	800.000	596.700	900.000
GR	596.500	1000.000	596.400	1100.000	596.700	1200.000	600.100	1300.000	600.300	1400.000
GR	600.000	1500.000	601.300	1600.000	0.000	0.000	0.000	0.000	0.000	0.000

REPEAT OF F, INVERT ADJUSTED

X1	27508.000	0.000	0.000	0.000	700.000	900.000	808.000	0.000	-1.400	0.000
X3	10.000	0.000	0.000	390.000	0.000	914.000	0.000	0.000	0.000	0.000

VALLEY SECTION [illegible]

X1	28316.000	32.000	1200.000	1255.000	808.000	808.000	808.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	1168.000	0.000	1238.000	0.000	0.000	0.000	0.000
GR	605.100	0.000	604.600	100.000	603.900	200.000	604.200	300.000	602.300	400.000
GR	602.600	500.000	602.500	600.000	603.300	700.000	601.400	800.000	598.600	900.000
GR	598.200	1000.000	599.000	1100.000	598.400	1200.000	592.100	1206.000	590.300	1210.000
GR	589.100	1215.000	588.600	1220.000	588.400	1225.000	588.900	1230.000	589.800	1235.000
GR	591.400	1240.000	591.400	1242.000	599.200	1255.000	598.700	1300.000	598.400	1400.000
GR	598.800	1500.000	602.000	1600.000	602.700	1700.000	603.700	1800.000	604.300	1860.000
GR	604.200	1900.000	604.200	2000.000	0.000	0.000	0.000	0.000	0.000	0.000

REPEAT OF H, NO BRIDGE TABLE

X1	28365.000	46.000	1500.000	1593.600	49.000	49.000	49.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	1500.000	0.000	1593.600	0.000	0.000	0.000	0.000
GR	605.900	0.000	604.800	100.000	606.000	200.000	605.300	300.000	603.800	400.000
GR	603.100	500.000	603.200	600.000	603.000	700.000	603.300	800.000	602.800	900.000
GR	602.600	1000.000	601.300	1100.000	601.200	1200.000	601.100	1300.000	601.100	1400.000
GR	597.200	1500.000	595.900	1500.000	593.900	1511.300	591.800	1522.500	591.200	1533.700
GR	592.100	1545.000	597.100	1545.000	597.100	1546.800	597.100	1549.400	592.100	1549.400
GR	591.600	1560.400	591.400	1571.400	591.900	1582.400	595.100	1593.600	597.000	1593.600
GR	602.200	1600.000	601.900	1700.000	602.100	1800.000	602.400	1900.000	602.900	2000.000
GR	603.900	2100.000	604.300	2185.000	604.400	2200.000	604.500	2300.000	604.400	2400.000
GR	604.600	2500.000	604.400	2600.000	604.400	2700.000	604.900	2800.000	604.600	2900.000
GR	605.200	3000.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.024	.024	.028	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D/S FACE OF 22 MILE RD. BRIDGE

ONE CONCRETE PIER, 4.4" WIDE

X1	28366.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	1500.000	0.000	1593.600	0.000	0.000	0.000	0.000
BT	44.000	0.000	605.900	0.000	100.000	604.800	0.000	200.000	606.000	0.000
BT	300.000	605.300	0.000	400.000	603.800	0.000	500.000	603.100	0.000	600.000
BT	603.200	0.000	700.000	603.000	0.000	800.000	603.300	0.000	900.000	602.800
BT	0.000	1000.000	602.600	0.000	1100.000	601.800	0.000	1200.000	601.200	0.000
BT	1300.000	601.100	0.000	1400.000	601.100	0.000	1500.000	603.200	597.200	1500.000
BT	605.700	597.200	1511.300	605.700	601.000	1522.500	605.700	601.400	1533.700	605.600
BT	600.400	1545.000	605.600	597.100	1546.800	605.600	597.100	1549.400	605.600	597.100
BT	1560.400	605.500	600.300	1571.400	605.400	601.000	1582.400	605.300	600.300	1593.600
BT	605.300	597.000	1593.600	602.300	597.000	1600.000	602.200	0.000	1700.000	601.900
BT	0.000	1800.000	602.100	0.000	1900.000	602.400	0.000	2000.000	602.900	0.000
BT	2100.000	603.900	0.000	2185.000	604.300	0.000	2200.000	604.400	0.000	2300.000
BT	604.500	0.000	2400.000	604.400	0.000	2500.000	604.600	0.000	2600.000	604.400
BT	0.000	2700.000	604.400	0.000	2800.000	604.900	0.000	2900.000	604.600	0.000
BT	3000.000	605.200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

H BRIDGE SECTION H

X1	28384.000	0.000	0.000	0.000	18.000	18.000	18.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	1500.000	0.000	1593.600	0.000	0.000	0.000	0.000
NC	.048	.050	.032	0.000	0.000	0.000	0.000	0.000	0.000	0.000

REPEAT OF H, NO BRIDGE TABLE

X1	28385.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	1500.000	0.000	1593.600	0.000	0.000	0.000	0.000

X1	28434.000	32.000	1200.000	1255.000	49.000	49.000	49.000	0.000	2.800	0.000
X3	10.000	0.000	0.000	1078.000	0.000	1378.000	0.000	0.000	0.000	0.000
GR	606.100	0.000	604.600	100.000	603.900	200.000	604.200	300.000	602.300	400.000
GR	602.800	500.000	602.500	600.000	603.300	700.000	601.400	800.000	598.600	900.000
GR	598.200	1000.000	599.000	1100.000	598.400	1200.000	592.100	1206.000	590.300	1210.000
GR	589.100	1215.000	588.600	1220.000	588.400	1225.000	588.900	1230.000	589.800	1235.000
GR	591.400	1240.000	591.400	1242.000	599.200	1255.000	598.700	1300.000	598.400	1400.000
GR	598.800	1500.000	602.000	1600.000	602.700	1700.000	603.700	1800.000	604.300	1860.000
GR	604.200	1900.000	604.200	2000.000	0.000	0.000	0.000	0.000	0.000	0.000

REPEAT OF I, INVERT ADJUSTED

X1	29407.000	26.000	1006.000	1040.000	1500.000	500.000	967.000	0.000	-.700	0.000
X3	10.000	0.000	0.000	850.000	0.000	1350.000	0.000	0.000	0.000	0.000
GR	605.800	0.000	605.400	100.000	605.200	200.000	605.900	300.000	605.600	400.000
GR	604.800	500.000	603.900	600.000	602.000	700.000	600.900	800.000	601.000	900.000
GR	597.500	1000.000	593.700	1006.000	592.600	1020.000	593.800	1034.000	593.800	1034.000
GR	599.800	1040.000	599.200	1100.000	598.300	1200.000	599.600	1300.000	601.900	1400.000
GR	604.700	1500.000	606.000	1600.000	607.700	1700.000	607.100	1800.000	605.300	1900.000
GR	605.800	2000.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	4.000	1430.000	2120.000	2420.000	3370.000	0.000	0.000	0.000	0.000	0.000

I VALLEY SECTION I

X1	30375.000	0.000	0.000	0.000	500.000	1500.000	968.000	0.000	.700	0.000
X3	10.000	0.000	0.000	750.000	0.000	1350.000	0.000	0.000	0.000	0.000

REPEAT OF I, INVERT ADJUSTED

X1	31425.000	0.000	0.000	0.000	600.000	1400.000	1050.000	0.000	.350	0.000
X3	10.000	0.000	0.000	0.000	0.000	1150.000	0.000	0.000	0.000	0.000

J VALLEY SECTION J

X1	32475.000	23.000	808.000	852.000	1400.000	600.000	1050.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	606.400	0.000	605.800	100.000	601.600	200.000	601.800	300.000	602.000	400.000
GR	601.600	500.000	602.400	600.000	602.100	700.000	602.500	800.000	601.500	808.000
GR	595.400	818.000	593.300	829.000	595.400	840.000	603.200	852.000	602.300	900.000
GR	603.800	1000.000	604.300	1100.000	604.900	1200.000	607.100	1300.000	607.500	1400.000
GR	607.300	1500.000	606.600	1600.000	605.700	1700.000	0.000	0.000	0.000	0.000
NH	5.000	.046	1200.000	.100	1241.000	.025	1264.000	.120	1300.000	.050
NH	2100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

REPEAT OF K, INVERT ADJUSTED

X1	33389.000	38.000	1200.000	1269.000	1300.000	500.000	914.000	0.000	-.250	0.000
X3	10.000	0.000	0.000	847.000	0.000	1622.000	0.000	0.000	0.000	0.000
GR	612.200	0.000	610.600	100.000	603.700	200.000	608.700	300.000	608.700	300.000
GR	608.400	400.000	608.400	400.000	607.200	500.000	607.200	500.000	605.100	600.000
GR	605.100	600.000	604.400	700.000	604.400	700.000	604.100	800.000	603.700	900.000
GR	603.100	1000.000	602.300	1100.000	603.600	1200.000	600.600	1230.000	597.900	1237.000
GR	595.700	1239.000	595.500	1241.000	594.400	1249.000	593.800	1252.000	594.200	1256.000
GR	595.300	1260.000	597.000	1264.000	602.700	1269.000	603.000	1300.000	603.500	1400.000
GR	608.500	1500.000	606.400	1526.000	607.900	1600.000	606.800	1700.000	608.500	1800.000
GR	608.300	1900.000	611.500	2000.000	610.900	2100.000	0.000	0.000	0.000	0.000

K VALLEY SECTION K

X1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
X3	10.000	0.000	0.000	1188.000	0.000	1282.000	0.000	0.000	0.000	0.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

```
*PROF 1

CCHV=    .300 CEHV=     .500
*SECNO 16771.000
    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA    LEFT/RIGHT
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN       SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID      ENDST


3470 ENCROACHMENT STATIONS=     1185.0     1230.0  TYPE=      1  TARGET=       45.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=        587.50 ELREA=     99996.10


                             REPEAT OF A, INVERT ADJUSTED

  16771.00     13.64     594.44      0.00     594.44     594.76       .32       0.00       0.00    587.50
     2340.        0.      2340.        0.         0.       517.        0.         0.         0.  99996.10
      0.00      0.00      4.53       0.00      .066       .038       .045      0.000     580.30   1185.00
   .000795        0.        0.         0.         0          0          0       0.00      45.00   1230.00


*SECNO 18100.000

3470 ENCROACHMENT STATIONS=     1050.0     1360.0  TYPE=      1  TARGET=      310.000

                    A        VALLEY SECTION A

  18100.00     10.53     595.23      0.00      0.00     595.26       .03        .42        .09    591.40
     2340.      528.       675.     1137.      515.       377.      802.        34.         6.    591.20
       .26      1.03      1.79       1.42      .045       .042       .045       .042     584.70   1050.00
   .000164     1400.      1350.     1300.         2          0          0       0.00     310.00   1360.00


1490 NH CARD USED
*SECNO 19150.000

3470 ENCROACHMENT STATIONS=         .0     1350.0  TYPE=      1  TARGET=     1349.999

                             REPEAT OF B, INVERT ADJUSTED

  19150.00      9.01     595.41      0.00      0.00     595.45       .04        .19        .01    589.90
     2340.       56.       837.     1447.      108.       394.     1021.        73.        15.    590.80
       .44       .52      2.12       1.42      .088       .038       .045       .042     586.40    892.20
  -.000195     1050.      1050.     1050.         2          0          0       0.00     457.80   1350.00


*SECNO 20200.000

3470 ENCROACHMENT STATIONS=         .0     1350.0  TYPE=      1  TARGET=     1349.999

                    B        VALLEY SECTION B

  20200.00      7.58     595.68      0.00      0.00     595.74       .06        .28        .01    591.60
     2340.       37.       845.     1458.       56.       323.      968.       107.        25.    592.50
       .59       .66      2.62       1.51      .083       .038       .045       .041     588.10    937.44
  -.000386     1050.      1050.     1050.         2          0          0       0.00     362.13   1299.57


*SECNO 21421.000
    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
```

SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3470 ENCROACHMENT STATIONS= 1090.0 1740.0 TYPE= 1 TARGET= 650.000

REPEAT OF C, INVERT ADJUSTED

21421.00	8.98	596.38	0.00	0.00	596.44	.06	.70	.00	594.00
2340.	664.	643.	1034.	655.	201.	694.	152.	40.	591.70
.79	1.01	3.21	1.49	.066	.042	.048	.040	587.40	1090.00
.000749	1000.	1221.	1500.	2	0	0	0.00	650.00	1740.00

*SECNO 22642.000

3470 ENCROACHMENT STATIONS= 1125.0 1775.0 TYPE= 1 TARGET= 650.000

C VALLEY SECTION C

22642.00	10.21	596.81	0.00	0.00	596.83	.02	.37	.01	593.20
2340.	834.	385.	1120.	919.	237.	1192.	208.	59.	590.90
1.14	.91	1.62	.94	.045	.042	.045	.040	586.60	1125.00
.000153	1000.	1221.	1500.	2	0	0	0.00	650.00	1775.00

*SECNO 22692.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 1250.0 1850.0 TYPE= 1 TARGET= 600.000

D/S FACE OF 21 MILE RD. BRIDGE

BRIDGE BARRICADED AND NOT IN USE

22692.00	10.00	596.80	0.00	0.00	596.86	.06	.01	.02	590.30
2340.	735.	1463.	142.	571.	639.	176.	210.	59.	594.00
1.14	1.29	2.29	.81	.045	.042	.045	.040	586.80	1250.00
.000368	50.	50.	50.	2	0	0	0.00	530.64	1850.00

SPECIAL BRIDGE

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
0.00	1.20	3.00	0.00	100.00	0.00	553.60	0.00	586.80	586.30

*SECNO 22708.000

3265 DIVIDED FLOW

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
597.13	596.86	0.00	662.	1697.	554.	920.	596.00	596.50

3470 ENCROACHMENT STATIONS= 1250.0 1850.0 TYPE= 1 TARGET= 600.000

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        D          BRIDGE SECTION D

                   U/S FACE OF 21 MILE RD. BRIDGE

   22708.00     10.05   596.85     0.00      0.00   596.98       .13       .12      0.00    595.80
      2340.      314.    1976.      50.      309.     644.       86.      211.       60.    596.00
       1.14      1.02     3.07      .58      .045     .042      .045      .040    586.80   1250.00
    .000719       16.      16.      16.         2        0         2      0.00    565.34   1850.00

*SECNO 22758.000

3470 ENCROACHMENT STATIONS=     1050.0     1750.0  TYPE=      1  TARGET=      700.000

                   REPEAT OF C, INVERT ADJUSTED

   22758.00     10.21   597.01     0.00      0.00   597.02       .02       .01       .03    593.40
      2340.      976.     399.     966.     1163.     237.     1109.      213.       60.    591.10
       1.16       .84     1.68      .87      .048     .040      .048      .040    586.80   1050.00
    .000149       50.      50.      50.         2        0         0      0.00    700.00   1750.00

1490 NH CARD USED
*SECNO 23829.000
   SECNO      DEPTH     CWSEL    CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q          QLOB      QCH      QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME       VLOB      VCH      VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE      XLOBL     XLCH     XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


3470 ENCROACHMENT STATIONS=      650.0     1200.0  TYPE=      1  TARGET=      550.000

                   REPEAT OF E, INVERT ADJUSTED

   23829.00     10.41   597.26     0.00      0.00   597.45       .19       .34       .09    595.45
      2340.      292.    1509.     538.      196.     358.      469.      255.       74.    595.75
       1.25      1.49     4.22     1.15      .045     .040      .075      .040    586.85    751.19
    .001144     1200.    1071.     900.         2        0         0      0.00    407.83   1159.02

1490 NH CARD USED
*SECNO 24900.000

3470 ENCROACHMENT STATIONS=      770.0     1170.0  TYPE=      1  TARGET=      400.000

              E          VALLEY SECTION E

   24900.00     11.24   598.14     0.00      0.00   598.20       .06       .71       .04    595.50
      2340.      353.    1033.     954.      279.     403.      656.      283.       83.    595.80
       1.40      1.27     2.56     1.45      .045     .045      .045      .040    586.90    770.00
    .000456     1150.    1071.     950.         2        0         0      0.00    400.00   1170.00

*SECNO 25800.000

3470 ENCROACHMENT STATIONS=      500.0     1100.0  TYPE=      1  TARGET=      600.000

                   REPEAT OF E, INVERT ADJUSTED

   25800.00      9.77   598.77     0.00      0.00   599.06       .29       .75       .12    597.60
      2340.      148.    1633.     559.      112.     322.      278.      305.       91.    597.90
       1.46      1.33     5.06     2.01      .047     .040      .047      .040    589.00    756.45
    .001893      850.     900.     950.         2        0         0      0.00    343.55   1100.00
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*SECNO 26700.000

3470 ENCROACHMENT STATIONS=      420.0      950.0   TYPE=      1   TARGET=      530.000

                   F          VALLEY SECTION F

  26700.00      8.53    599.73      0.00      0.00    599.77       .04       .63       .08    596.30
     2340.      705.      657.      978.      593.      266.      808.      329.      100.     596.80
      1.62      1.19      2.47      1.21      .047      .040      .047      .040    591.20    420.00
   .000362      900.      900.      900.         2         0         0      0.00    530.00    950.00

*SECNO 27508.000
3280 CROSS SECTION  27508.00 EXTENDED        .00 FEET


3470 ENCROACHMENT STATIONS=      390.0      914.0   TYPE=      1   TARGET=      524.000

                        REPEAT OF F, INVERT ADJUSTED

  27508.00     10.10    599.90      0.00      0.00    599.92       .02       .15       .01    594.90
     2340.      898.      497.      944.     1043.      324.     1081.      367.      110.     595.40
      1.85       .86      1.54       .87      .047      .040      .047      .040    589.80    390.00
   .000107      700.      808.      900.         2         0         0      0.00    524.00    914.00

*SECNO 28316.000
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST


3470 ENCROACHMENT STATIONS=     1168.0     1288.0   TYPE=      1   TARGET=      120.000

                   G          VALLEY SECTION G

  28316.00     11.54    599.94      0.00      0.00    600.29       .36       .20       .17    598.40
     2340.       62.     2248.       30.       46.      460.       30.      395.      115.     599.20
      1.89      1.34      4.88      1.00      .047      .040      .047      .040    588.40   1168.00
   .001161      808.      808.      808.         2         0         0      0.00    120.00   1288.00

*SECNO 28365.000

3470 ENCROACHMENT STATIONS=     1500.0     1593.6   TYPE=      1   TARGET=       93.600

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       597.20 ELREA=    100000.00


                        REPEAT OF H, NO BRIDGE TABLE

  28365.00      9.02    600.22      0.00      0.00    600.39       .17       .04       .06    597.20
     2340.        0.     2340.        0.        0.      709.        0.      396.      116. 100000.00
      1.90      0.00      3.30      0.00      .047      .040      .047      .040    591.20   1500.00
   .000691       49.       49.       49.         2         0         0      0.00     93.60   1593.60

*SECNO 28366.000

3370 NORMAL BRIDGE,NRD= 44 MIN ELTRD=  601.10 MAX ELLC=  601.40
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3470 ENCROACHMENT STATIONS=    1500.0    1593.6  TYPE=     1  TARGET=      93.600
3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      597.20 ELREA=   100000.00

                      D/S FACE OF 22 MILE RD. BRIDGE

                      ONE CONCRETE PIER, 4.4" WIDE

 28366.00      9.00    600.20      0.00      0.00    600.42       .22       .00       .02    597.20
    2340.        0.     2340.        0.        0.      624.        0.      396.      116.  100000.00
     1.90      0.00      3.75      0.00      .024      .028      .024      .040    591.20   1500.00
  .000660        1.        1.        1.         2         0         0    -83.09     93.60   1593.60

*SECNO 28384.000

3370 NORMAL BRIDGE,NRD= 44 MIN ELTRD=  601.10 MAX ELLC=  601.40

3470 ENCROACHMENT STATIONS=    1500.0    1593.6  TYPE=     1  TARGET=      93.600

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      597.20 ELREA=   100000.00

                H        BRIDGE SECTION H

 28384.00      9.01    600.21      0.00      0.00    600.43       .22       .01       .00    597.20
    2340.        0.     2340.        0.        0.      624.        0.      396.      116.  100000.00
     1.90      0.00      3.75      0.00      .024      .028      .024      .040    591.20   1500.00
  .000657       18.       18.       18.         0         0         0    -83.42     93.60   1593.60

*SECNO 28385.000

3470 ENCROACHMENT STATIONS=    1500.0    1593.6  TYPE=     1  TARGET=      93.600

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      597.20 ELREA=   100000.00

                      REPEAT OF H, NO BRIDGE TABLE

 28385.00      9.08    600.28      0.00      0.00    600.45       .17       .00       .02    597.20
    2340.        0.     2340.        0.        0.      714.        0.      396.      116.  100000.00
     1.90      0.00      3.28      0.00      .048      .032      .050      .040    591.20   1500.00
  .000432        1.        1.        1.         2         0         0      0.00     93.60   1593.60

*SECNO 28434.000

3301 HV CHANGED MORE THAN HVINS

   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


3470 ENCROACHMENT STATIONS=    1078.0    1378.0  TYPE=     1  TARGET=     300.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      601.20 ELREA=      602.00
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 28434.00     8.77   599.97     0.00     0.00   600.84      .87      .04      .35   601.20
    2340.       0.    2340.       0.       0.     312.       0.     397.     116.   602.00
    1.90      0.00     7.49     0.00     .048     .032     .050     .040   591.20  1201.17
 .002576       49.      49.      49.        2        0        0     0.00    50.45  1251.62

*SECNO 29407.000

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS=     850.0    1350.0  TYPE=     1  TARGET=      500.000

                          REPEAT OF I, INVERT ADJUSTED

 29407.00     9.69   601.59     0.00     0.00   601.66      .07      .57      .24   593.00
    2340.     435.     880.    1025.     410.     284.     962.     416.     121.   599.10
    2.04      1.06     3.05     1.07     .048     .032     .050     .040   591.90   850.00
 .000277     1500.     967.     500.        2        0        0     0.00   500.00  1350.00

*SECNO 30375.000

3470 ENCROACHMENT STATIONS=     750.0    1350.0  TYPE=     1  TARGET=      600.000

                 I        VALLEY SECTION I

 30375.00     9.34   601.94     0.00     0.00   602.03      .09      .36      .01   593.70
    2420.     464.     965.     991.     444.     276.     853.     458.     135.   599.80
    2.19      1.05     3.49     1.16     .048     .032     .050     .039   592.60   750.00
 .000383      500.     968.    1500.        3        0        0     0.00   600.00  1350.00

*SECNO 31425.000

3470 ENCROACHMENT STATIONS=        .0    1150.0  TYPE=     1  TARGET=     1149.999

                          REPEAT OF I, INVERT ADJUSTED

 31425.00     9.46   602.41     0.00     0.00   602.60      .19      .52      .05   594.05
    2420.     667.    1296.     457.     490.     230.     307.     490.     147.   600.15
    2.28      1.36     4.62     1.49     .048     .032     .050     .038   592.95   697.08
 .000659      600.    1050.    1400.        2        0        0     0.00   452.92  1150.00

*SECNO 32475.000

                 J        VALLEY SECTION J  to J+A   Oct 17, 1979 letter
                    603.0 SE. - according
 32475.00     9.99   ~~603.29~~     0.00     0.00   603.51      .22      .90      .02   601.50
    2420.     960.    1425.      35.     822.     293.      56.     521.     164.   603.20
    2.38      1.17     4.86      .60     .048     .032     .050     .038   593.30   159.79
 .000996     1400.    1050.     600.        3        0        0     0.00   806.11   965.91

1490 NH CARD USED
*SECNO 33389.000
   SECNO     DEPTH    CWSEL    CRIWS    WSELK       EG       HV       HL    OLOSS  BANK ELEV
   Q         OLOB     QCH      QROB     ALOB      ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME      VLOB     VCH      VROB     XNL       XNCH     XNR      WTN    ELMIN        SSTA
   SLOPE   * XLOBL    XLCH     XLOBR    ITRIAL    IDC      ICONT    CORAR  TOPWID      ENDST

[illegible]                   [illegible]   [illegible]  TYPE=     1  TARGET=      775.000
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REPEAT OF K, INVERT ADJUSTED

33389.00	10.61	604.16	0.00	0.00	604.42	.26	.89	.02	603.35
2420.	481.	1807.	133.	450.	381.	172.	548.	182.	602.45
2.45	1.07	4.74	.77	.048	.113	.062	.037	593.55	847.00
.000780	1300.	914.	500.	2	0	0	0.00	571.18	1418.18

*SECNO 34303.000

3470 ENCROACHMENT STATIONS= 1188.0 1282.0 TYPE= 1 TARGET= 94.000

K VALLEY SECTION K

34303.00	11.06	604.86	0.00	0.00	605.37	.51	.83	.12	603.60
2420.	19.	2384.	17.	16.	412.	27.	562.	188.	602.70
2.49	1.18	5.79	.62	.048	.112	.120	.037	593.80	1188.00
.001141	500.	914.	1300.	2	0	0	0.00	94.00	1282.00

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  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

MIDDLE BRANCH CLINTON R.

SUMMARY PRINTOUT

SECNO	ELTRD	ELLC	ELMIN	Q	CHSEL	DEPTH	HV	OLOSS	EG	K*CHSL	TOPWID	AREA
16771.000	0.00	0.00	580.80	2340.00	594.44	13.64	.32	0.00	594.76	0.00	45.00	517.09
18100.000	0.00	0.00	584.70	2340.00	595.23	10.53	.03	.09	595.26	2.89	310.00	1654.09
19150.000	0.00	0.00	586.40	2340.00	595.41	9.01	.04	.01	595.45	1.62	457.80	1523.19
20200.000	0.00	0.00	568.10	2340.00	595.68	7.58	.06	.01	595.74	1.62	362.13	1347.16
21421.000	0.00	0.00	597.40	2340.00	596.38	8.98	.06	.00	596.44	-.57	650.00	1549.25
22642.000	0.00	0.00	586.60	2340.00	596.61	10.21	.02	.01	596.63	-.66	650.00	2347.85
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22708.000	596.50	596.00	585.80	2340.00	596.85	10.05	.13	0.00	596.98	0.00	565.34	1038.60
22758.000	0.00	0.00	586.80	2340.00	597.01	10.21	.02	.03	597.02	-.00	700.00	2509.33
23829.000	0.00	0.00	586.85	2340.00	597.26	10.41	.19	.09	597.45	.05	407.63	1023.67
24900.000	0.00	0.00	556.90	2340.00	598.14	11.24	.06	.04	598.20	.05	400.00	1337.96
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PROGRAM WILL BE ENTERED AT MAIN (355)   SCM LENGTH 64711   LCM LENGTH 0

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/DOUBLE/	372	10
/NAMES/	402	202
H2MAIN	604	15337
ADDPTS	16143	321
BLFLO	16464	1021
BLOCK	17505	261
BWEIR	17766	1427
CARD	21415	2463
CHIMP	24100	1650
DC	25750	706
DONE	26656	60
FLDHAZ	26736	2220
FLODIS	31156	453
BLKDAT.	31631	0
NEAR	31631	16
PRIAH	31647	251
PROF	32120	1142
SCALE	33262	236
SLARA	33520	243
SUMPO	33763	2744
XSEC	36727	1256
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08.47.53 00000.060 JOB.      -ATTACH,LGO,HEC2N76V2,ID=HEC.
08.47.53 00000.065 MFZ.        PF254 - CYCLE     1 ATTACHED FROM SN=SYSTEM
08.47.53 00000.065 LOD.      -LGO(PL=999999).
08.47.54 00000.888 MFZ.        LD610 - FLS REQUIRED TO LOAD - 0027777 OU.COG
08.47.54 00000.892 MFZ.        LD603 - EXECUTION INITIATED OS.EXP
08.47.54 00000.892 USR.       FORTRAN LIBRARY 439            08/20/78
08.47.55 00001.484 USR.          STOP
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08.47.55 00001.490 MFZ.        BWMSG - NUMBER OF TAPES MOUNTED
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08.47.55 00001.492 MFZ.       MACJOAU   MACJOAU
08.47.55.EJ  END OF JOB
MACJOAU  JANDA               01/08/79  08.47.52  7600    JO
```

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Macomb Twp.

3) WATERCOURSE: Middle Branch Clinton River

4) DOCUMENT TYPE: Hydraulic Analysis

00BREAK00

Telex: 23-5793
Phone: (313) 334-9901

Johnson&Anderson,Inc.
CONSULTING ENGINEERS
P. O. Box 1166 • 2300 Dixie Highway • Pontiac, Mich. 48056

November 2, 1978

RECEIVED
NOV 7 1978
WATER MANAGEMENT

Water Management Division
Michigan Dept. of Natural Resources
P. O. Box 30028
Lansing, Michigan 48909

Attention Mr. Daniel H. Morgan

Re: Macomb Township FIS
Middle Branch Clinton River

Gentlemen:

Enclosed for your review are the hydraulic calculations used to determine the profiles for the 10-, 50-, 100- and 500-year floods on the Middle Branch of the Clinton River from Hall Road north to Hayes Road at Shelby Township.

The following items are enclosed:

Profile Sheet
Hydraulic Analysis Booklet
HEC-2 Input/Output, Natural Floodway
HEC-2 Input/Output, 0.1' Floodway
IPLOT of the Cross Sections
200' Scale, 2' Contour Work Map
800' Scale, 5' Contour Work Map

If you have questions or comments, please contact me.

Sincerely,

Ole Anderson

Ole Anderson, P.E.
Project Manager

Bob Waters

OA/dp
enc.
cc: File No. 5850-03

HYDRAULIG ANALYSIS

MACOMB TOWNSHIP FIS

J & A File #5850-03-1

TABLE OF CONTENTS

INTRODUCTION

The river being studied is the Middle Branch Clinton River in Macomb Township, Macomb County, Michigan. The study limits for this river are from the southern corporate limit of Macomb Township at Hall Road (Highway M-59) in section 33 of the Township, upstream to the western corporate limit in section 6 at Hayes Road. Flows at the upstream and downstream ends of this study were those used in the Flood Insurance Studies for Shelby Township and Clinton Township, respectively. Flows for the intermediate locations were taken from the TR-20 model used in the Clinton Township study. These flows have been approved by the Michigan Department of Natural Resources. The date of the field survey was November and December, 1977. The project manager for this analysis was Ole Anderson.

METHOD OF ANALYSIS

Water-surface profiles were computed through use of the COE HEC-2 step-backwater computer program. Bridges which were under low flow conditions for all four flows were coded according to the "normal bridge" routine requirements. For those bridges which experienced pressure or weir flow for any of the four flows, the "special bridge" routine and hand calculations were used to determine the upstream water-surface elevation.

The hydraulic model was developed for the 100-year flow. Valley sections upstream and downstream of bridges were located where full cross-section flow would be developed out of the influence of the bridge constriction. The criteria for placement of these sections was that outlined on pages 18-21 of the HEC Training Document No. 6, Application of the HEC-2 Bridge Routines. Accordingly, the downstream section was placed at a distance of about four times the average length of the side constriction caused by the bridge abutment. The upstream section was placed at a distance about equal to the bridge constriction. If additional sections were found necessary within this distance or if the actual field-surveyed cross section fell within this distance, the intermediate sections were encroached as appropriate.

SPECIAL SITUATION

For the study area of the Middle Branch Clinton River downstream of 25 Mile Road, maps with a scale of 1 in. = 200 ft. and a contour interval of 2 ft. were available. For the areas upstream of 25 Mile Road, these maps were not available and the floodway and the flooded outline are plotted on maps with a scale of 1 in. = 800 ft. and a contour interval of 5 ft.

An initial HEC-2 computer run was made to define the water-surface elevations of the natural floodway. Several other runs were made with the floodway encroached where possible to produce a rise in the water surface no greater than 0.1 ft. at any point. A HEC-2 computer run using the natural floodway and a HEC-2 run using the encroached floodway (100-year flood profile only) are included with this submittal.

VARIABLES AND COEFFICIENTS

The basis for Manning's "n" value selection came from field inspection and comparison with the photographs and descriptions found on pages 101 to 123 in Open-Channel Hydraulics by Ven Ten Chow, as well as with photographs and descriptions found in the Geological Survey Water-Supply Paper 1849, Roughness Characteristics of Natural Channels.

The roughness factors (Manning's "n") were then adjusted to reconstitute the stage-discharge curve for the Middle Branch Clinton River gage at Macomb. The USGS rating curve along with a curve generated using four simulated flows is included with this submittal. The output summary of the computer run using the four simulated flows is also included. In general, the following ranges of Manning's "n" values were used:

DESCRIPTION	MANNING'S "n"
1. Channel	
a. Sand or silt bottom, no debris, good alignment	0.024 - 0.026
b. Sand bottom, moderate debris or brush	0.035 - 0.038
c. Sand and gravel bottom, heavy debris or brush	0.040 - 0.046
2. Overbank	
a. Farmland, low grass, light brush	0.040 - 0.048
b. Farmland, grass, moderate weeds or brush	0.050 - 0.055
c. High grass, moderate weeds, brush or debris	0.060 - 0.066
d. Heavy weeds, brush or debris	0.070 - 0.080
e. Dense brush and weeds, much debris	0.090 - 0.120

VARIABLES AND COEFFICIENTS (Cont'd)

The contraction and expansion coefficients used ranged from .1 - .5 and .3 - 1.0, respectively. References used in the selection of these values were the HEC-2 Users Manual, Exhibit 2, page 2, and Open-Channel Hydraulics, Ven Te Chow, pages 311 and 468.

The loss coefficients used in the HEC-2 "special bridge" routine were determined as outlined in Exhibit 2 of the HEC-2 Users Manual. Calculations are included in the appendix.

SYNTHETIC CROSS SECTIONS

Synthetic cross sections used in the hydraulic analysis were developed in two ways. The two methods used were repetition of a field-surveyed cross section with appropriate invert adjustment or interpolating between two field-surveyed cross sections using the Johnson & Anderson, Inc., AVSEC computer program. The AVSEC program develops an average cross section by averaging the overbanks and channel of the two known cross sections. All cross sections and their origins are indicated by the comment cards in the HEC-2 computer program.

Since inverts are known only at field-surveyed cross sections, a straight line is assumed between these known points, with the inverts of the synthetic cross sections adjusted accordingly.

STARTING POINT

Profile computations for the Middle Branch Clinton River were begun at the upstream face of Hall Road (Hwy. M-59) at the corresponding flood elevations determined for the Clinton Township Flood Insurance Study.

APPENDIX

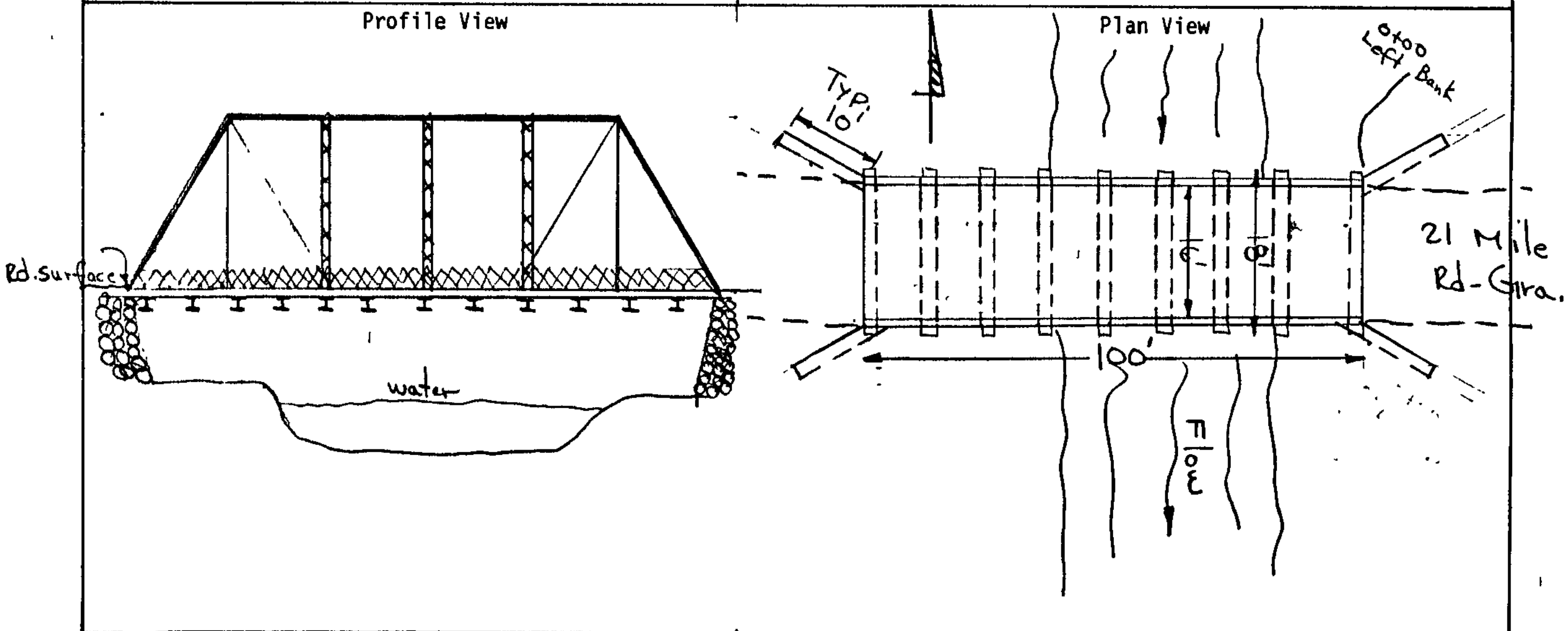
Johnson & Anderson, Inc.
Consulting Engineers
P.O Box 1166 2300 Dixie Highway Pontiac, Michigan 48056

HYDRAULIC STRUCTURAL DATA

Code No. 5850-03- BS#4

Job Name: Macomb Twp FIS			By: Mapley
Date: Drawn. 11-16-77	Feature: Stl. Bridge		Water Course: Middle Branch Clinton River
Remarks: Bridge is barricaded @ both ends w/ stl. guard rails & is not in use @ this time			
Width of Piers: —	Pier Shape: —	No. of Piers: —	Area:
Water Elevation:	Length: 100.0	Width of Deck: 16.0	Skew: None

FIELD SKETCH N



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Consulting Engineers
P.O. Box 1166 2300 Dixie Highway Pontiac, Michigan 48056

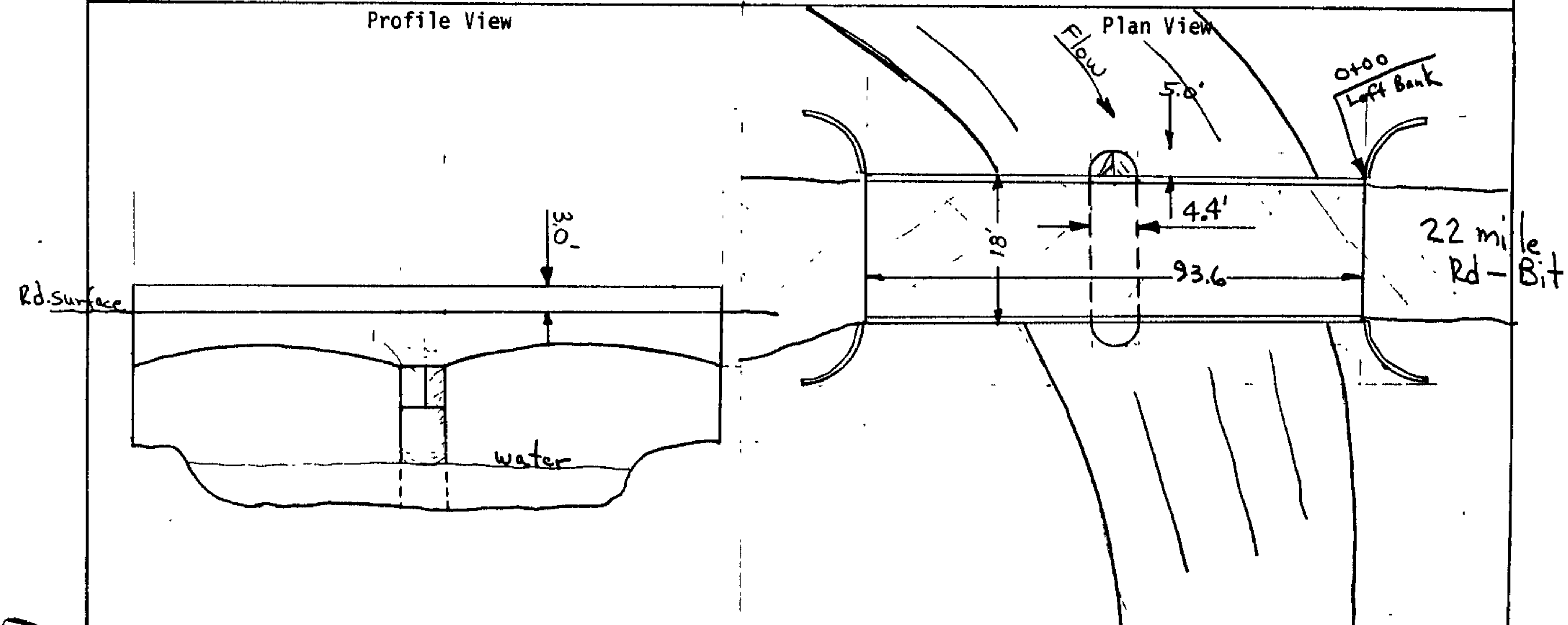
HYDRAULIC STRUCTURAL DATA

Code No. 5850-03- BS# 8

Job Name: Macomb Twp FIS		By: Mapley
Date: Drawn 11-16-77	Feature: Conc. bridge	Water Course: Middle Branch Clinton River
Remarks: 22 mile Rd bridge		

Width of Piers:	Pier Shape: Lower Upper	No. of Piers: 1	Area:
Water Elevation: 592.80	Length: 93.6'	Width of Deck: 18'	Skew:

FIELD SKETCH



Johnson & Anderson, Inc.
Consulting Engineers
P. O. Box 1166 2300 Dixie Highway Pontiac, Michigan 48056

HYDRAULIC STRUCTURAL DATA

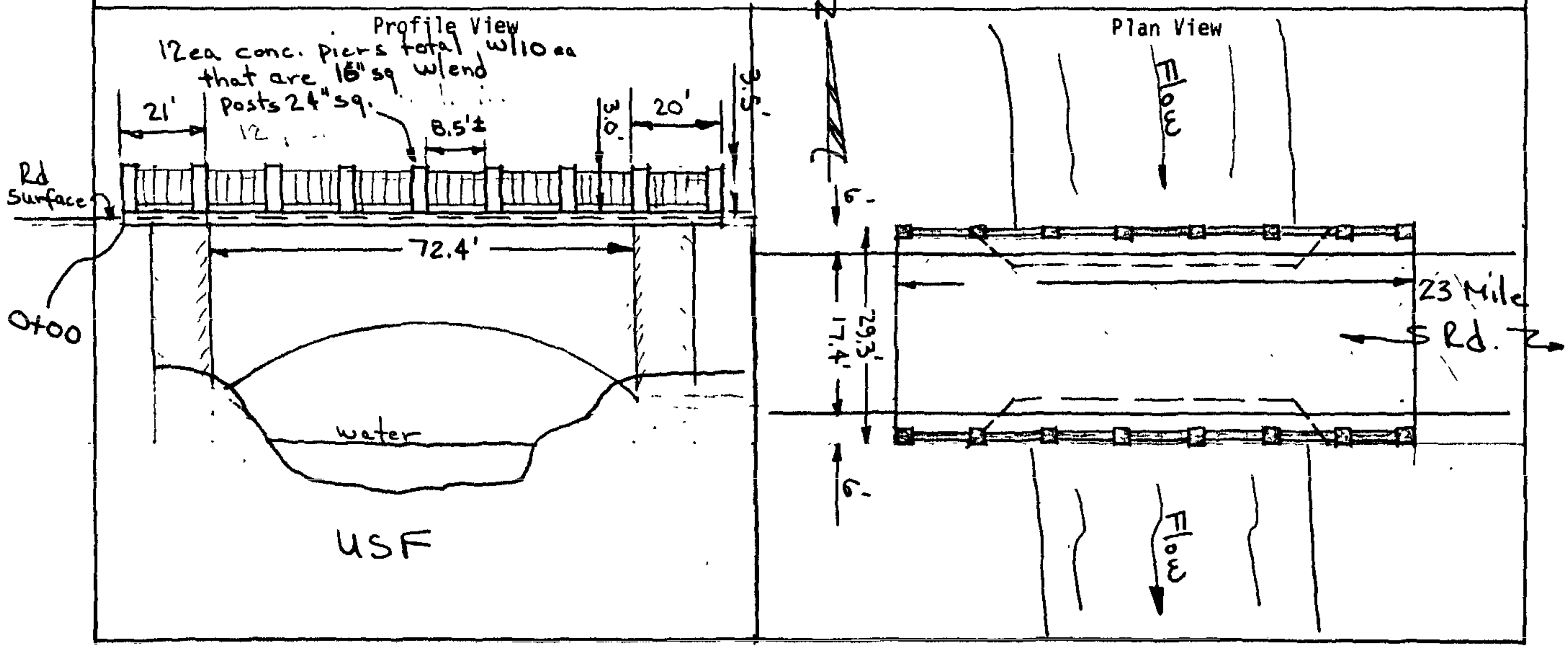
Code No. 5850-03-BS#12

Job Name: Macomb Twp FIS		By: Mapley Ruotsala Lehmoine Shunck Janette
Date: 11-17-77 12-15-77	Feature: 23 MILE Rd. Conc. Arch Bridge	Water Course: Middle Branch Clinton River

Remarks: Arch (inside top) partially buried on each end.

Width of Piers: —	Pier Shape: —	No. of Piers: —	Area:
Water Elevation: 597.8	Length: 72.4	Width of Deck: See drwg.	Skew: 90°

FIELD SKETCH



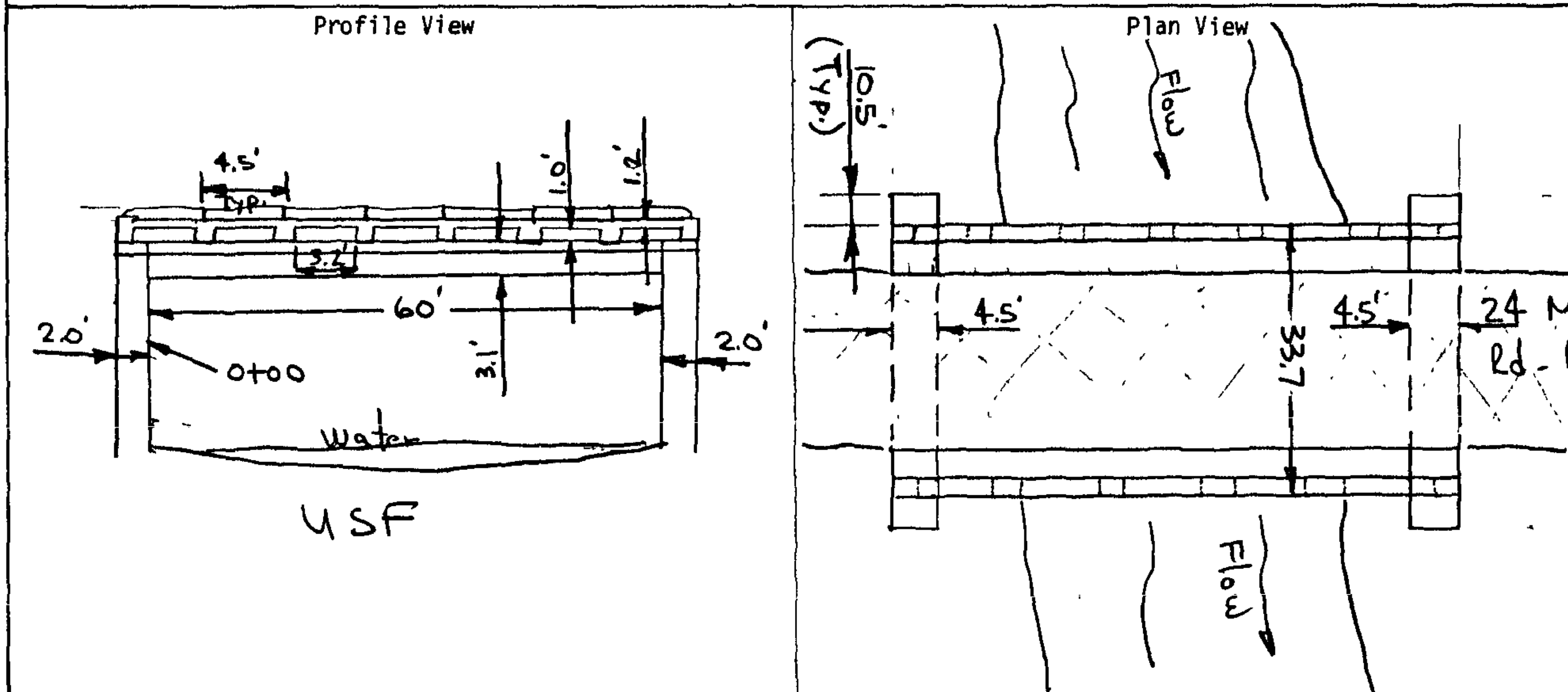
Johnson & Anderson, Inc.
Consulting Engineers
P. O. Box 1166 2300 Dixie Highway Pontiac, Michigan 48056

HYDRAULIC STRUCTURAL DATA

Code No. 5850-03-BS17

Job Name: Macomb Twp FIS			By: Shunck Ruotsala Mapley
Date: 11-17-77	Feature: 24 Mile Rd conc. bridge		Water Course: Middle Branch Clinton River
Remarks:			
Width of Piers: —	Pier Shape: —	No. of Piers: —	Area:
Water Elevation:	Length: 60.0	Width of Deck: 33.7	Skew:

FIELD SKETCH



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Consulting Engineers
P.O. Box 1166 2300 Dixie Highway Pontiac, Michigan 48056

HYDRAULIC STRUCTURAL DATA

Code No. 5850-03-BS#21

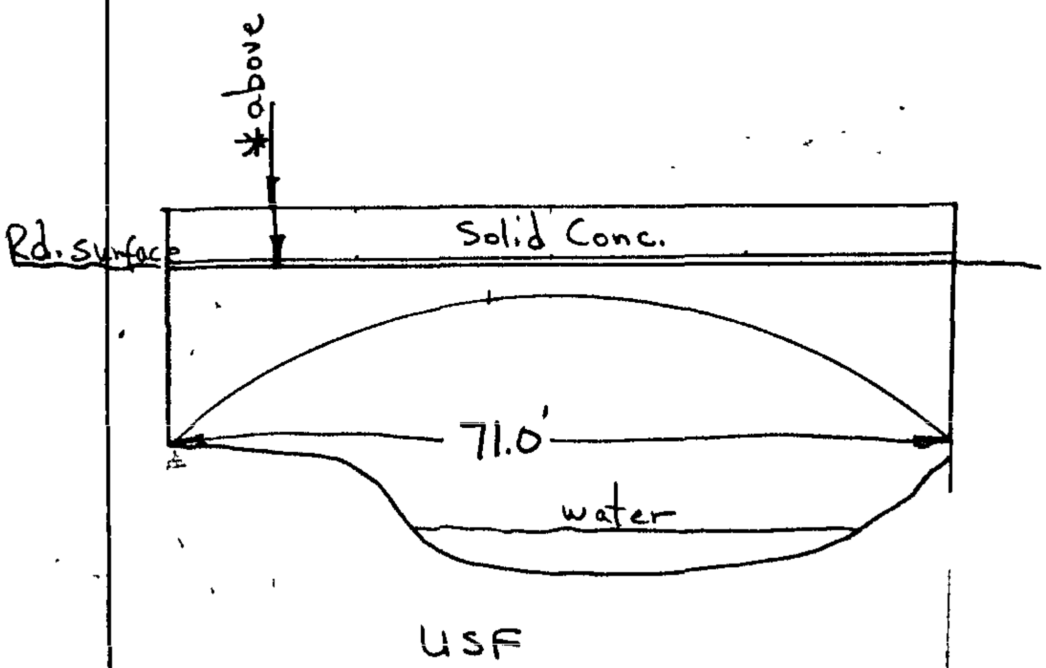
Job Name: Macomb Twp FIS		By: Mapley Lehmoine Janette
Date: 12-15-77	Feature: Arch Bridge	Water Course: Middle Branch Clinton River

Remarks: *See field notes for height of conc. rail as it is arched.

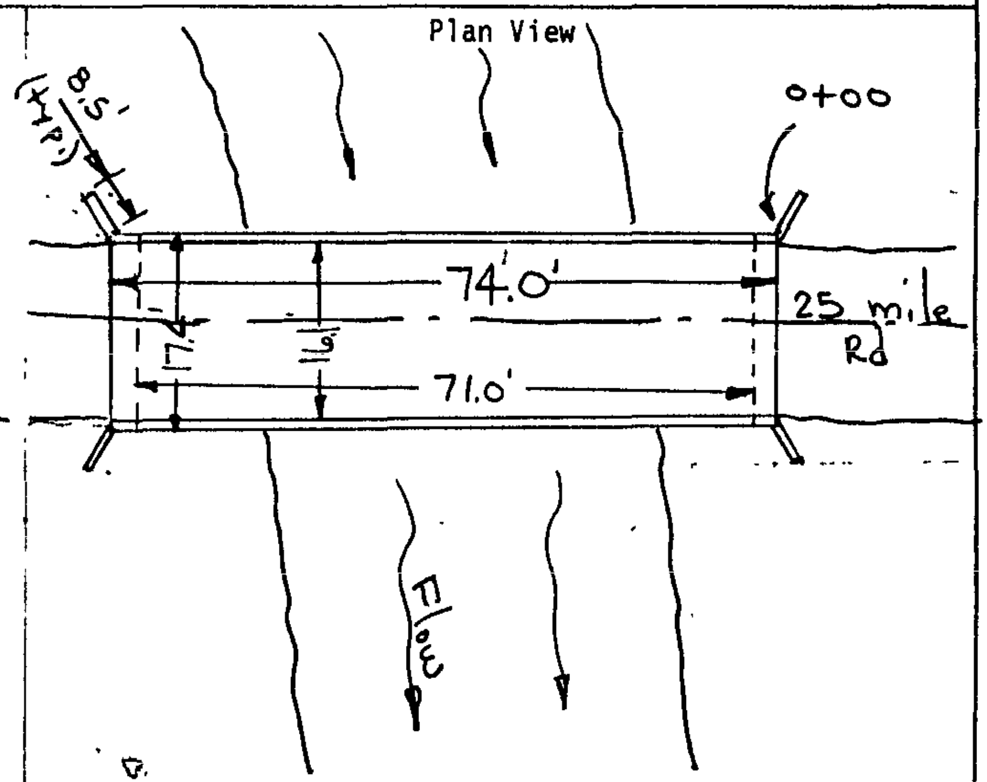
Width of Piers: —	Pier Shape: —	No. of Piers: —	Area:
Water Elevation: 606.02	Length: 74'	Width of Deck: 17.4	Skew: —

FIELD SKETCH

Profile View



Plan View



JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS

BY KGW DATE 2-1-78 JOB DESCRIPTION Macomb Twp. FIS SHEET 1 OF 2
SUBJECT M E Clinton River JOB NO. 5850-03

Conversion to S.B. @ B.S. #4 (21 Mile Rd.)

1.) Determination of XKOR value

Composite 'n' value

$$n = \frac{(P_1 n_1^2 + \dots + P_N n_N^2)^{1/2}}{(P_1 + \dots + P_N)^{1/2}} = \frac{\left[2(5.5)(0.04)^2 + (100)(0.03)^2 + (100)(0.025)^2\right]^{1/2}}{\left[2(5.5) + 100 + 100\right]^{1/2}} = 0.028$$

$L = 16$ ft

$A = 553.6$ ft.^{2} $p = 210.6$ ft.

$$R = A/p = \frac{553.6}{210.6} = 2.63$$

$$k_f = \frac{29.1 n^2 L}{R^{4/3}} = \frac{29.1 (0.028)^2 16}{(2.63)^{4/3}}$$

$k_f = 0.10$

XKOR = 1.0 + k_f + Entrance Loss
= 1.0 + 0.10 + 0.10

XKOR = 1.2

2.) Determination of COFQ value

Weir flow occurs on both sides of the bridge, but not over the bridge itself.

Percent submergence ~ 66 %.   COFQ = 3.0

JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS

BY RGW DATE 4-13-78 JOB DESCRIPTION Macomb Twp. FIS SHEET 2 OF 2
SUBJECT M.B. Clinton River JOB NO. 5850-03

Conversion to S.B. @ B.S. # 17 (24 Mile Rd.)

1.) Determination of XKOR value

Composite 'n' value

$$n = \frac{(P_1 n_1^2 + \dots + P_N n_N^2)^{1/2}}{(P_1 + \dots + P_N)^{1/2}}$$

$$= \frac{\left[2(9.4)(0.02)^2 + 60(0.02)^2 + 60(0.03)^2\right]^{1/2}}{\left[2(9.4) + 60 + 60\right]^{1/2}} = 0.025$$

$L = 34 ft.$

$A = 612.4 ft.^2$ $P = 138.6 ft.$

$R = A/P = \frac{612.4}{138.6} = 4.42 ft.$

$$k_f = \frac{29.1 n^2 L}{R^{4/3}} = \frac{29.1 (0.025)^2 34}{(4.42)^{4/3}} = 0.0852$$

$k_f = 0.09$

XKOR = 1.0 + k_f + Entrance Loss

= 1.0 + 0.09 + 0.5

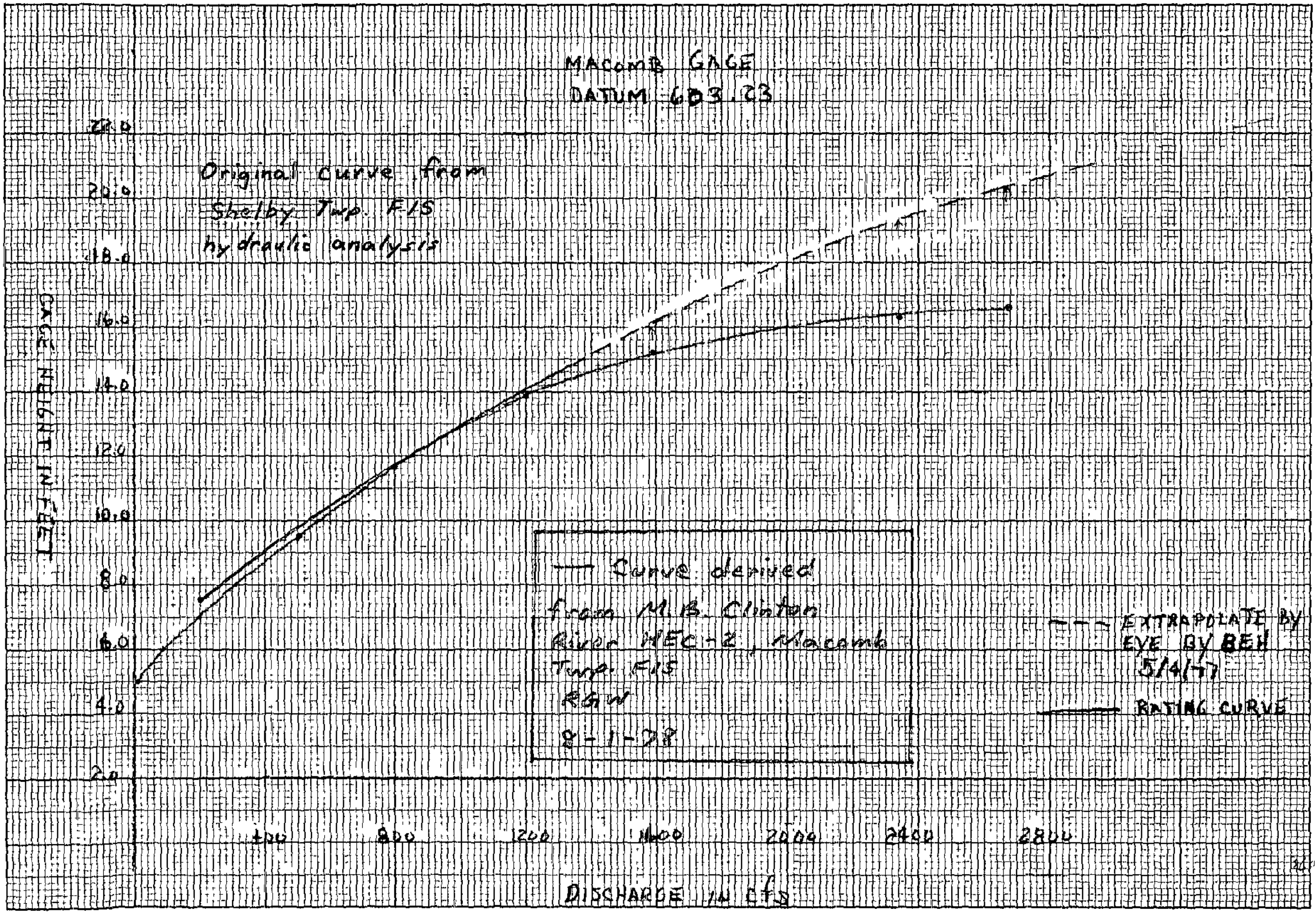
XKOR = 1.59 ~ 1.6

2.) Determination of COFQ value

Weir flow occurs on the right side of the bridge, but not over the bridge itself.

Percent submergence ~ negligible ∴ COFQ = 3.0

K•E 20 X 20 TO THE INCH • 7 X 10 INCHES KEUFFEL & ESSER CO MADE IN U.S.A. 46 1242



00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Macomb Twp

3) WATERCOURSE: Middle Branch Clinton River

4) DOCUMENT TYPE: Natural Floodway 10, 50, 100, 500 year

00BREAK00

MACJB1

Macomb Twp. FIS 5850-03

Middle Branch Clinton River

10-, 50-, 100-, 500-Year Flows

Natural Floodway

Rec. 1-11-79

ok

```
**** 7000 SCOPE 2.1 LVL  221  12/14/78  20.52.16  01/08/79      79008

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08.34.08 00000.894 MFZ.        LD610 - FLS REQUIRED TO LOAD - 0027777 OU.COG
08.34.08 00000.898 MFZ.        LD603 - EXECUTION INITIATED OS.EXP
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08.34.13 00004.488 USR.          3.588 CP SECONDS EXECUTION TIME
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MACJ091  JANDA                01/08/79  08.34.05  7600   JO
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SCOPE 2 LOAD MAP   LOADER VERSION 1.0   01/08/79   08.34.08   PAGE 1

PROGRAM WILL BE ENTERED AT MAIN (355)   SCM LENGTH 64711   LCM LENGTH 0

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/DOUBLE/	372	10
/NAMES/	402	202
H2MAIN	604	15337
ADDPTS	16143	321
BLFLO	16464	1021
BLOCK	17505	261
BWEIR	17766	1427
CARD	21415	2463
CHIMP	24100	1650
DC	25750	706
DONE	26656	60
FLDHAZ	26736	2220
FLODIS	31156	453
BLKDAT.	31631	0
NEAR	31631	16
PRIAH	31647	251
PROF	32120	1142
SCALE	33262	236
SLARA	33520	243
SUMPO	33763	2744
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MAPIT	40327	50
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FORSYS=	42113	561
FORUTL=	42674	16
GETFIT=	42712	43
INCOM=	42755	256
/IO.BUF./	43233	227
INPB=	43462	324
INPC=	44006	173
KODER=	44201	467
KRAKER=	44670	454
OUTB=	45344	246
/HEADING/	45612	16
/LIN.CNT/	45630	1
OUTC=	45631	1054
OUTCOM=	46705	204

REWIND=	47111	36
GOTOER=	47147	14
ALOG	47163	77
EXP	47262	102
ITOJ*	47364	52
SQRT	47436	46
SYSAID=	47504	1
SYS=1ST	47505	62
XTOY*	47567	55
//	47644	15045

```
 ******************************************************
   HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
   ERROR CORR -  01,02
   MODIFICATION -  50,51,52,53
 ******************************************************


 C
 T1      MACOMB TOWNSHIP FIS     5850-03        P.M. = OLE ANDERSON
 T2      10 YEAR FLOOD
 T3      MIDDLE BRANCH CLINTON R.

 J1  ICHECK      ING         NINV        IDIR        STRT        METRIC      HVINS       Q           WSEL        FQ

        0.          2.          0.          0.   0.000000        0.00         0.0          0.    591.870      0.000

 J2  NPROF       IPLOT       PRFVS       XSECV       XSECH       FN          ALLDC       IBW         CHNIM       ITRACE

      1.000       0.000      -1.000       0.000       0.000       0.000       0.000       0.000       0.000       0.000

 J3  VARIABLE CODES FOR SUMMARY PRINTOUT

     38.000      40.000      41.000      42.000      43.000       1.000       8.000      10.000      12.000       5.000


     33.000       4.000      25.000       0.000       0.000       0.000       0.000       0.000       0.000       0.000

 NC         .066        .045        .038        .300        .500       0.000       0.000       0.000       0.000       0.000
 QT        4.000    1380.000    2040.000    2340.000    3250.000       0.000       0.000       0.000       0.000       0.000


                               REPEAT OF A, INVERT ADJUSTED

 X1    16771.000      28.000    1165.000    1230.000       0.000       0.000       0.000       0.000      -3.900       0.000
 X3       10.000       0.000       0.000    1185.000       0.000    1230.000       0.000       0.000       0.000       0.000
 GR      598.100       0.000     597.900     100.000     597.700     200.000     597.900     300.000     597.600     400.000
 GR      597.100     500.000     597.600     600.000     597.900     700.000     597.300     800.000     597.300     900.000
 GR      594.100    1000.000     591.000    1100.000     591.400    1185.000     584.700    1195.000     584.900    1206.000
 GR      586.000    1210.000     591.200    1230.000     588.000    1300.000     588.800    1353.000     595.900    1400.000
 GR      596.900    1500.000     593.700    1600.000     592.800    1700.000     595.400    1800.000     596.300    1900.000
 GR      596.600    2000.000     597.400    2100.000     596.800    2200.000       0.000       0.000       0.000       0.000
 NC         .045        .045        .042       0.000       0.000       0.000       0.000       0.000       0.000       0.000


                A              VALLEY SECTION A

 X1    18100.000       0.000       0.000       0.000    1400.000    1300.000    1350.000       0.000       5.900       0.000
 X3       10.000       0.000       0.000       0.000       0.000       0.000       0.000       0.000       0.000       0.000
 NH        4.000        .048     700.000        .088     960.000        .033    1010.000        .045    1200.000       0.000


                               REPEAT OF B, INVERT ADJUSTED

 X1    19150.000      29.000     960.000    1010.000    1050.000    1050.000    1050.000       0.000      -1.700       0.000
 X3       10.000       0.000       0.000       0.000       0.000       0.000       0.000       0.000       0.000       0.000
 GR      599.300       0.000     599.300     100.000     598.500     200.000     598.300     300.000     598.000     400.000
 GR      598.400     500.000     597.700     600.000     598.400     700.000     598.400     800.000     597.000     900.000
 GR      596.300     935.000     592.500     950.000     591.600     960.000     586.600     970.000     588.600     985.000
 GR      588.100    1000.000     592.500    1010.000     591.600    1100.000     591.300    1200.000     595.700    1300.000
 GR      597.500    1400.000     598.100    1500.000     598.700    1600.000     599.000    1700.000     599.000    1800.000
 GR      598.600    1900.000     598.300    2000.000     598.000    2100.000     599.300    2200.000       0.000       0.000
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B VALLEY SECTION B

X1	20200.000	0.000	0.000	0.000	1050.000	1050.000	1050.000	0.000	1.700	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.066	.048	.042	0.000	0.000	0.000	0.000	0.000	0.000	0.000

REPEAT OF C, INVERT ADJUSTED

X1	21421.000	36.000	1400.000	1430.000	1000.000	1500.000	1221.000	0.000	.800	0.000
X3	10.000	0.000	0.000	1090.000	0.000	1740.000	0.000	0.000	0.000	0.000
GR	596.200	0.000	594.900	100.000	594.500	200.000	597.100	300.000	598.500	400.000
GR	598.200	500.000	598.400	600.000	596.500	700.000	598.500	800.000	598.500	900.000
GR	594.100	1000.000	593.400	1100.000	593.800	1200.000	593.300	1300.000	593.200	1400.000
GR	593.200	1400.000	587.500	1407.000	586.600	1409.000	587.200	1412.000	587.400	1415.000
GR	588.500	1416.000	589.100	1420.000	583.900	1425.000	590.900	1430.000	593.900	1500.000
GR	593.600	1600.000	593.200	1700.000	593.700	1800.000	593.500	1900.000	594.900	2000.000
GR	598.600	2100.000	598.700	2200.000	600.100	2237.000	599.400	2300.000	599.200	2400.000
GR	599.000	2500.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.045	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

C VALLEY SECTION C

X1	22642.000	0.000	0.000	0.000	1000.000	1500.000	1221.000	0.000	-.800	0.000
X3	10.000	0.000	0.000	990.000	0.000	1840.000	0.000	0.000	0.000	0.000

D/S FACE OF 21 MILE RD. BRIDGE

BRIDGE BARRICADED AND NOT IN USE

X1	22692.000	47.000	1500.000	1600.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	597.200	0.000	597.300	100.000	597.400	200.000	597.400	300.000	597.800	400.000
GR	598.200	500.000	598.300	600.000	598.400	700.000	598.500	800.000	598.600	900.000
GR	597.900	1000.000	597.000	1100.000	595.800	1200.000	595.500	1300.000	595.600	1400.000
GR	590.300	1500.000	590.100	1510.000	590.000	1520.000	591.600	1530.000	591.300	1535.000
GR	588.000	1539.000	587.700	1540.000	587.000	1545.000	586.800	1550.000	586.800	1555.000
GR	587.400	1560.000	587.800	1563.000	588.500	1565.000	592.400	1570.000	593.500	1580.000
GR	592.800	1590.000	594.000	1600.000	596.400	1700.000	596.900	1800.000	596.700	1900.000
GR	596.400	2000.000	597.000	2100.000	598.000	2200.000	598.300	2300.000	600.100	2386.000
GR	599.300	2400.000	599.200	2500.000	599.400	2600.000	599.300	2700.000	599.400	2800.000
GR	599.500	2900.000	599.600	3000.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	1.200	3.000	0.000	100.000	0.000	553.600	0.000	586.800	585.800

D BRIDGE SECTION D

U/S FACE OF 21 MILE RD. BRIDGE

X1	22708.000	49.000	1500.000	1600.000	16.000	16.000	16.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	596.000	596.500	0.000	0.000	0.000	0.000	0.000
BT	33.000	0.000	597.200	0.000	100.000	597.300	0.000	200.000	597.400	0.000
BT	300.000	597.400	0.000	400.000	597.600	0.000	500.000	598.300	0.000	600.000
BT	598.300	0.000	700.000	598.400	0.000	800.000	598.500	0.000	900.000	598.600
BT	0.000	1000.000	597.900	0.000	1100.000	597.000	0.000	1200.000	595.800	0.000
BT	1300.000	595.500	0.000	1400.000	595.600	0.000	1500.000	598.600	595.800	1550.000
BT	598.800	596.000	1600.000	596.800	596.000	1700.000	596.400	0.000	1800.000	596.900
BT	0.000	1900.000	596.700	0.000	2000.000	596.400	0.000	2100.000	597.000	0.000
BT	2200.000	598.000	0.000	2300.000	598.300	0.000	2386.000	600.100	0.000	2400.000
BT	599.800	0.000	2500.000	599.200	0.000	2600.000	599.400	0.000	2700.000	599.300
BT	0.000	2800.000	599.400	0.000	2900.000	599.500	0.000	3000.000	599.600	0.000
GR	597.200	0.000	597.300	100.000	597.400	200.000	597.400	300.000	597.800	400.000
GR	598.200	500.000	598.300	600.000	598.400	700.000	598.500	800.000	598.600	900.000

GR	[illegible]	1000.000	[illegible]	1100.000	[illegible]	1200.000	[illegible]	1300.00	[illegible]	1400.000
GR	595.800	1500.000	590.300	1500.000	590.100	1510.000	590.000	1520.000	591.600	1530.000
GR	591.300	1535.000	568.000	1539.000	587.700	1540.000	587.000	1545.000	586.800	1550.000
GR	586.800	1555.000	587.400	1560.000	587.800	1563.000	586.500	1565.000	592.400	1570.000
GR	593.500	1580.000	592.800	1590.000	594.000	1600.000	596.000	1600.000	596.400	1700.000
GR	596.900	1800.000	596.700	1900.000	596.400	2000.000	597.000	2100.000	598.000	2200.000
GR	598.300	2300.000	600.100	2386.000	599.800	2400.000	599.200	2500.000	599.400	2600.000
GR	599.300	2700.000	599.400	2800.000	599.500	2900.000	599.600	3000.000	0.000	0.000
NC	.048	.048	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000

REPEAT OF C, INVERT ADJUSTED

X1	22756.000	36.000	1400.000	1430.000	50.000	50.000	50.000	0.000	.200	0.000
X3	10.000	0.000	0.000	1040.000	0.000	1790.000	0.000	0.000	0.000	0.000
GR	596.200	0.000	594.900	100.000	594.500	200.000	597.100	300.000	598.500	400.000
GR	598.200	500.000	598.400	600.000	598.500	700.000	598.500	800.000	598.500	900.000
GR	594.100	1000.000	593.400	1100.000	593.600	1200.000	593.300	1300.000	593.200	1400.000
GR	593.200	1400.000	587.500	1407.000	586.600	1409.000	587.200	1412.000	587.400	1415.000
GR	588.500	1416.000	589.100	1420.000	588.900	1425.000	590.900	1430.000	593.900	1500.000
GR	593.800	1600.000	593.200	1700.000	593.700	1800.000	593.500	1900.000	594.900	2000.000
GR	598.600	2100.000	598.700	2200.000	600.100	2237.000	599.400	2300.000	599.200	2400.000
GR	599.000	2500.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	4.000	.045	885.000	.040	940.000	.075	1300.000	.046	2200.000	0.000

REPEAT OF E, INVERT ADJUSTED

X1	23829.000	29.000	885.000	940.000	1200.000	900.000	1071.000	0.000	-.050	0.000
X3	10.000	0.000	0.000	650.000	0.000	1200.000	0.000	0.000	0.000	0.000
GR	599.800	0.000	600.200	100.000	599.900	200.000	600.000	300.000	600.100	400.000
GR	601.600	500.000	601.200	600.000	601.600	700.000	600.700	730.000	596.700	755.000
GR	595.700	800.000	595.500	885.000	591.400	900.000	586.900	920.000	589.600	930.000
GR	595.300	940.000	595.000	1000.000	594.300	1100.000	599.400	1200.000	600.300	1300.000
GR	601.500	1400.000	600.000	1500.000	599.500	1600.000	599.000	1700.000	599.700	1800.000
GR	600.200	1900.000	600.200	2000.000	600.400	2100.000	601.700	2200.000	0.000	0.000
NH	5.000	.045	533.000	.075	633.000	.040	670.000	.075	770.000	.045
NH	1600.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

E VALLEY SECTION E

X1	24900.000	0.000	0.000	0.000	1150.000	950.000	1071.000	0.000	.050	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.047	.047	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000

REPEAT OF E, INVERT ADJUSTED

X1	25800.000	0.000	0.000	0.000	850.000	950.000	900.000	0.000	2.100	0.000

F VALLEY SECTION F

X1	26700.000	22.000	633.000	670.000	900.000	900.000	900.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	420.000	0.000	950.000	0.000	0.000	0.000	0.000
GR	600.900	0.000	600.100	100.000	597.500	200.000	597.500	300.000	597.500	400.000
GR	597.100	500.000	596.600	600.000	596.300	633.000	592.700	635.000	591.200	655.000
GR	593.100	665.000	596.800	670.000	596.700	700.000	597.100	800.000	596.700	900.000
GR	596.500	1000.000	596.400	1100.000	596.700	1200.000	600.100	1300.000	600.300	1400.000
GR	600.800	1500.000	601.300	1600.000	0.000	0.000	0.000	0.000	0.000	0.000

G VALLEY SECTION G

X1	28316.000	32.000	1200.000	1255.000	0.000	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	1168.000	0.000	1288.000	0.000	0.000	0.000	0.000
GR	606.100	0.000	604.600	100.000	603.900	200.000	604.200	300.000	602.300	400.000
GR	602.800	500.000	602.500	600.000	603.300	700.000	601.400	800.000	598.600	900.000
GR	598.200	1000.000	599.000	1100.000	598.400	1200.000	592.100	1206.000	590.300	1210.000
GR	589.100	1215.000	588.600	1220.000	588.400	1225.000	588.900	1230.000	589.800	1235.000
GR	591.400	1240.000	591.400	1242.000	599.200	1255.000	598.700	1300.000	598.400	1400.000
GR	598.800	1500.000	602.000	1600.000	602.700	1700.000	603.700	1800.000	604.300	1860.000
GR	604.200	1900.000	604.200	2000.000	0.000	0.000	0.000	0.000	0.000	0.000

REPEAT OF H, NO BRIDGE TABLE

X1	28365.000	46.000	1500.000	1593.600	49.000	49.000	49.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	1500.000	0.000	1593.600	0.000	0.000	0.000	0.000
GR	605.900	0.000	604.800	100.000	606.000	200.000	605.300	300.000	603.800	400.000
GR	603.100	500.000	603.200	600.000	603.000	700.000	603.300	800.000	602.800	900.000
GR	602.600	1000.000	601.800	1100.000	601.200	1200.000	601.100	1300.000	601.100	1400.000
GR	597.200	1500.000	595.900	1500.000	593.900	1511.300	591.800	1522.500	591.200	1533.700
GR	592.100	1545.000	597.100	1545.000	597.100	1546.800	597.100	1549.400	592.100	1549.400
GR	591.600	1560.400	591.400	1571.400	591.900	1582.400	595.100	1593.600	597.000	1593.600
GR	602.200	1600.000	601.900	1700.000	602.100	1800.000	602.400	1900.000	602.900	2000.000
GR	603.900	2100.000	604.300	2185.000	604.400	2200.000	604.500	2300.000	604.400	2400.000
GR	604.600	2500.000	604.400	2600.000	604.400	2700.000	604.900	2800.000	604.600	2900.000
GR	605.200	3000.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.024	.024	.028	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D/S [illegible] BRIDGE

ONE CONCRETE PIER, 4.4" WIDE

X1	28366.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	1500.000	0.000	1593.600	0.000	0.000	0.000	0.000
BT	44.000	0.000	605.900	0.000	100.000	604.800	0.000	200.000	606.000	0.000
BT	300.000	605.300	0.000	400.000	603.800	0.000	500.000	603.100	0.000	600.000
BT	603.200	0.000	700.000	603.000	0.000	800.000	603.300	0.000	900.000	602.800
BT	0.000	1000.000	602.600	0.000	1100.000	601.800	0.000	1200.000	601.200	0.000
BT	1300.000	601.100	0.000	1400.000	601.100	0.000	1500.000	603.200	597.200	1500.000
BT	605.700	597.200	1511.300	605.700	601.000	1522.500	605.700	601.400	1533.700	605.600
BT	600.400	1545.000	605.600	597.100	1546.800	605.600	597.100	1549.400	605.600	597.100
BT	1560.400	605.500	600.300	1571.400	605.400	601.000	1582.400	605.300	600.300	1593.600
BT	605.300	597.000	1593.600	602.300	597.000	1600.000	602.200	0.000	1700.000	601.900
BT	0.000	1800.000	602.100	0.000	1900.000	602.400	0.000	2000.000	602.900	0.000
BT	2100.000	603.900	0.000	2185.000	604.300	0.000	2200.000	604.400	0.000	2300.000
BT	604.500	0.000	2400.000	604.400	0.000	2500.000	604.600	0.000	2600.000	604.400
BT	0.000	2700.000	604.400	0.000	2800.000	604.900	0.000	2900.000	604.600	0.000
BT	3000.000	605.200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

H BRIDGE SECTION H

X1	28384.000	0.000	0.000	0.000	18.000	18.000	18.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	1500.000	0.000	1593.600	0.000	0.000	0.000	0.000
NC	.048	.050	.032	0.000	0.000	0.000	0.000	0.000	0.000	0.000

REPEAT OF H, NO BRIDGE TABLE

X1	28385.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	1500.000	0.000	1593.600	0.000	0.000	0.000	0.000

REPEAT OF G, INVERT ADJUSTED

X1	28434.000	32.000	1200.000	1255.000	49.000	49.000	49.000	0.000	2.800	0.000
X3	10.000	0.000	0.000	1078.000	0.000	1378.000	0.000	0.000	0.000	0.000
GR	606.100	0.000	604.600	100.000	603.900	200.000	604.200	300.000	602.300	400.000
GR	602.800	500.000	602.500	600.000	603.300	700.000	601.400	800.000	598.600	900.000
GR	598.200	1000.000	599.000	1100.000	598.400	1200.000	592.100	1206.000	590.300	1210.000
GR	589.100	1215.000	588.600	1220.000	588.400	1225.000	588.900	1230.000	589.800	1235.000
GR	591.400	1240.000	591.400	1242.000	599.200	1255.000	598.700	1300.000	598.400	1400.000
GR	598.800	1500.000	602.000	1600.000	602.700	1700.000	603.700	1800.000	604.300	1860.000
GR	604.200	1900.000	604.200	2000.000	0.000	0.000	0.000	0.000	0.000	0.000

REPEAT OF I, INVERT ADJUSTED

X1	29407.000	26.000	1006.000	1040.000	1500.000	500.000	967.000	0.000	-.700	0.000
X3	10.000	0.000	0.000	850.000	0.000	1350.000	0.000	0.000	0.000	0.000
GR	605.800	0.000	605.400	100.000	605.200	200.000	605.900	300.000	605.600	400.000
GR	604.800	500.000	603.900	600.000	602.000	700.000	600.900	800.000	601.000	900.000
GR	597.500	1000.000	593.700	1006.000	592.600	1020.000	593.800	1034.000	593.800	1034.000
GR	599.800	1040.000	599.200	1100.000	598.300	1200.000	599.600	1300.000	601.900	1400.000
GR	604.700	1500.000	606.000	1600.000	607.700	1700.000	607.100	1800.000	605.300	1900.000
GR	605.800	2000.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	4.000	1430.000	2120.000	2420.000	3370.000	0.000	0.000	0.000	0.000	0.000

I VALLEY SECTION I

X1	30375.000	0.000	0.000	0.000	500.000	1500.000	968.000	0.000	.700	0.000
[illegible]	[illegible]	[illegible]	0.000	750.000	0.000	1350.000	0.000	0.000	0.000	0.000

REPEAT OF I, INVERT ADJUSTED

X1	31425.000	0.000	0.000	0.000	600.000	1400.000	1050.000	0.000	.350	0.000
X3	10.000	0.000	0.000	0.000	0.000	1280.000	0.000	0.000	0.000	0.000

J VALLEY SECTION J

X1	32475.000	23.000	808.000	852.000	1400.000	600.000	1050.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	606.400	0.000	605.800	100.000	601.600	200.000	601.800	300.000	602.000	400.000
GR	601.600	500.000	602.400	600.000	602.100	700.000	602.500	800.000	601.500	808.000
GR	595.400	818.000	593.300	829.000	595.400	840.000	603.200	852.000	602.300	900.000
GR	603.800	1000.000	604.300	1100.000	604.900	1200.000	607.100	1300.000	607.500	1400.000
GR	607.300	1500.000	606.600	1600.000	605.700	1700.000	0.000	0.000	0.000	0.000
NH	5.000	.048	1200.000	.100	1241.000	.024	1264.000	.120	1300.000	.050
NH	2100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

REPEAT OF K, INVERT ADJUSTED

X1	33389.000	38.000	1200.000	1269.000	1300.000	500.000	914.000	0.000	-.250	0.000
X3	10.000	0.000	0.000	847.000	0.000	1622.000	0.000	0.000	0.000	0.000
GR	612.200	0.000	610.600	100.000	608.700	200.000	608.700	300.000	608.700	300.000
GR	608.400	400.000	608.400	400.000	607.200	500.000	607.200	500.000	605.100	600.000
GR	605.100	600.000	604.400	700.000	604.400	700.000	604.100	800.000	603.700	900.000
GR	603.100	1000.000	602.300	1100.000	603.600	1200.000	600.600	1230.000	597.900	1237.000
GR	595.700	1239.000	595.500	1241.000	594.400	1249.000	593.800	1252.000	594.200	1256.000
GR	595.300	1260.000	597.000	1264.000	602.700	1269.000	603.000	1300.000	603.500	1400.000
GR	608.500	1500.000	608.400	1526.000	607.900	1600.000	608.800	1700.000	608.500	1800.000
GR	608.300	1900.000	611.500	2000.000	610.900	2100.000	0.000	0.000	0.000	0.000

K VALLEY SECTION K

X1	34303.000	0.000	0.000	0.000	500.000	1300.000	914.000	0.000	.250	0.000
X3	10.000	0.000	0.000	1188.000	0.000	1282.000	0.000	0.000	0.000	0.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

K VALLEY SECTION K

X1	34303.000	0.000	0.000	0.000	500.000	1300.000	914.000	0.000	.250	0.000
X3	10.000	0.000	0.000	1188.000	0.000	1262.000	0.000	0.000	0.000	0.000

REPEAT OF L, NO BRIDGE TABLE

X1	34352.000	28.000	1223.000	1289.000	49.000	49.000	49.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	1223.000	0.000	1289.000	0.000	0.000	0.000	0.000
GR	611.600	0.000	611.700	100.000	611.200	200.000	610.600	300.000	610.000	400.000
GR	609.200	500.000	608.600	600.000	608.400	700.000	608.200	800.000	607.900	900.000
GR	608.000	1000.000	608.600	1100.000	609.300	1200.000	603.800	1223.000	597.200	1239.100
GR	595.000	1257.200	595.600	1275.300	602.200	1289.000	609.500	1300.000	609.000	1400.000
GR	608.900	1500.000	608.900	1523.000	608.900	1600.000	609.000	1700.000	609.500	1800.000
GR	610.000	1900.000	610.500	2000.000	610.700	2100.000	0.000	0.000	0.000	0.000
NC	.026	.026	.024	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D/S FACE OF 23 MILE RD. BRIDGE

CONCRETE ARCH BRIDGE, NO PIERS

X1	34353.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	1223.000	0.000	1289.000	0.000	0.000	0.000	0.000
BT	28.000	0.000	611.600	0.000	100.000	611.700	0.000	200.000	611.200	0.000
BT	300.000	610.600	0.000	400.000	610.000	0.000	500.000	609.200	0.000	600.000
BT	608.600	0.000	700.000	608.400	0.000	800.000	608.200	0.000	900.000	607.900
BT	0.000	1000.000	608.000	0.000	1100.000	608.600	0.000	1200.000	609.300	0.000
BT	1223.000	609.300	599.300	1239.100	609.300	604.300	1257.200	609.400	605.600	1275.300
BT	609.500	603.700	1289.000	609.500	598.600	1300.000	609.500	0.000	1400.000	609.000
BT	0.000	1500.000	608.900	0.000	1523.000	608.900	0.000	1600.000	608.900	0.000
BT	1700.000	609.000	0.000	1800.000	609.500	0.000	1900.000	610.000	0.000	2000.000
BT	610.500	0.000	2100.000	610.700	0.000	0.000	0.000	0.000	0.000	0.000

L BRIDGE SECTION L

X1	34363.000	0.000	0.000	0.000	30.000	30.000	30.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	1223.000	0.000	1289.000	0.000	0.000	0.000	0.000
NC	.048	.050	.024	0.000	0.000	0.000	0.000	0.000	0.000	0.000

REPEAT OF L, NO BRIDGE TABLE

X1	34364.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	1223.000	0.000	1289.000	0.000	0.000	0.000	0.000
NH	5.000	.048	1200.000	.100	1241.000	.024	1264.000	.120	1300.000	.050
NH	2100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

REPEAT OF K, INVERT ADJUSTED

X1	34433.000	38.000	1200.000	1269.000	49.000	49.000	49.000	0.000	1.200	0.000
X3	10.000	0.000	0.000	1151.000	0.000	1318.000	0.000	0.000	0.000	0.000
GR	612.200	0.000	610.600	100.000	608.700	200.000	608.700	300.000	608.700	300.000
GR	605.400	400.000	608.400	400.000	607.200	500.000	607.200	500.000	605.100	600.000
GR	605.100	600.000	604.400	700.000	604.400	700.000	604.100	800.000	603.700	900.000
GR	605.100	1000.000	602.300	1100.000	603.600	1200.000	600.600	1230.000	597.900	1237.000
GR	595.700	1239.000	595.500	1241.000	594.400	1249.000	593.600	1252.000	594.200	1256.000
GR	595.300	1260.000	597.000	1264.000	602.700	1269.000	603.000	1300.000	603.500	1400.000
GR	608.500	1500.000	608.400	1526.000	607.900	1600.000	608.800	1700.000	608.500	1800.000
GR	608.300	1900.000	611.500	2000.000	610.900	2100.000	0.000	0.000	0.000	0.000
	[illegible]	[illegible]	[illegible]	.100	1010.000	.024	1025.000	.120	1040.000	.050

X1	2000.00	0.000	0.000	0.000	0.300	0.000	.000	0.000	.000	0.000

REPEAT OF M, INVERT ADJUSTED

X1	35180.000	27.000	1000.000	1040.000	747.000	747.000	747.000	0.000	.350	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	609.300	0.000	609.800	100.000	610.300	200.000	609.200	300.000	609.400	400.000
GR	610.000	500.000	610.600	520.000	607.100	600.000	604.200	700.000	603.300	800.000
GR	604.000	900.000	605.100	1000.000	597.000	1010.000	594.300	1015.000	597.000	1015.000
GR	597.000	1025.000	604.100	1040.000	605.500	1100.000	606.200	1200.000	607.700	1300.000
GR	608.700	1400.000	610.600	1500.000	611.800	1600.000	612.200	1700.000	611.500	1800.000
GR	611.800	1900.000	612.200	2000.000	0.000	0.000	0.000	0.000	0.000	0.000

N VALLEY SECTION N

X1	35928.000	0.000	0.000	0.000	748.000	748.000	748.000	0.000	-.350	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	5.000	.065	665.000	.075	676.000	.024	692.000	.075	700.000	.050
NH	1800.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

REPEAT OF N, INVERT ADJUSTED

X1	36628.000	24.000	665.000	700.000	900.000	500.000	700.000	0.000	-1.150	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	614.300	0.000	613.600	100.000	610.400	200.000	606.300	300.000	607.200	400.000
GR	606.400	500.000	607.400	600.000	607.000	665.000	598.600	676.000	596.600	684.000
GR	598.700	684.000	598.700	692.000	605.800	700.000	608.200	800.000	610.500	900.000
GR	610.400	1000.000	612.300	1100.000	611.200	1200.000	611.600	1300.000	611.600	1400.000
GR	612.200	1500.000	612.900	1600.000	614.400	1700.000	614.000	1800.000	0.000	0.000

N VALLEY SECTION N

X1	37328.000	0.000	0.000	0.000	900.000	500.000	700.000	0.000	1.150	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.054	.054	.026	0.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	4.000	1470.000	2180.000	2500.000	3460.000	0.000	0.000	0.000	0.000	0.000

O VALLEY SECTION O

X1	38928.000	29.000	850.000	900.000	800.000	2400.000	1600.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	1150.000	0.000	0.000	0.000	0.000
GR	611.500	0.000	611.500	100.000	610.900	200.000	611.100	300.000	610.300	400.000
GR	610.700	500.000	611.100	600.000	609.900	700.000	606.400	800.000	608.400	850.000
GR	601.500	862.000	601.100	875.000	600.500	875.000	601.300	888.000	608.800	900.000
GR	607.000	1000.000	606.600	1100.000	607.300	1109.000	602.300	1119.000	607.000	1124.000
GR	607.200	1200.000	607.800	1300.000	613.300	1400.000	612.900	1500.000	611.800	1600.000
GR	611.800	1700.000	612.300	1800.000	611.800	1900.000	610.900	2000.000	0.000	0.000

REPEAT OF P, INVERT ADJUSTED

X1	39724.000	33.000	800.000	869.000	1100.000	500.000	796.000	0.000	.550	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	611.800	0.000	611.700	100.000	611.700	200.000	612.800	300.000	614.000	400.000
GR	614.700	500.000	611.500	600.000	609.700	700.000	607.200	800.000	607.200	800.000
GR	601.200	816.000	600.000	820.000	599.800	825.000	599.700	827.000	599.800	831.000
GR	599.400	834.000	599.400	838.000	601.700	841.000	602.600	842.000	608.200	869.000
GR	608.100	900.000	608.800	1000.000	608.200	1100.000	609.000	1200.000	611.000	1300.000
GR	611.400	1400.000	612.100	1500.000	612.700	1600.000	612.900	1700.000	613.300	1800.000
GR	612.300	1900.000	612.600	2000.000	612.900	2032.000	0.000	0.000	0.000	0.000

P VALLEY SECTION P

X1	40521.000	0.000	0.000	0.000	500.000	1100.000	797.000	0.000	-.550	0.000
X3	10.000	0.000	0.000	732.000	0.000	937.000	0.000	0.000	0.000	0.000

D/S FACE OF 24 MILE RD. BRIDGE

CONCRETE BRIDGE, NO PIERS

X1	40571.000	29.000	800.000	860.000	50.000	50.000	50.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	800.000	0.000	1300.000	0.000	0.000	0.000	0.000
GR	612.400	0.000	612.200	100.000	611.900	200.000	612.500	300.000	613.000	400.000
GR	612.100	500.000	611.500	600.000	612.000	700.000	610.700	800.000	601.500	800.000
GR	600.500	810.000	599.500	820.000	600.400	830.000	600.400	840.000	601.000	850.000
GR	601.400	860.000	610.700	860.000	613.400	900.000	609.600	1000.000	611.400	1100.000
GR	611.300	1200.000	611.600	1300.000	612.200	1400.000	612.200	1500.000	611.700	1600.000
GR	611.400	1700.000	611.700	1800.000	612.100	1900.000	613.300	1995.000	0.000	0.000
SB	0.000	1.590	3.000	0.000	60.000	0.000	612.400	0.000	599.500	599.500

0 BRIDGE SECTION 0

U/S FACE OF 24 MILE RD. BRIDGE

X1	40605.000	0.000	0.000	0.000	34.000	34.000	34.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	610.800	611.000	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	800.000	0.000	1300.000	0.000	0.000	0.000	0.000
BT	23.000	0.000	612.400	0.000	100.000	612.200	0.000	200.000	611.900	0.000
BT	300.000	612.500	0.000	400.000	613.000	0.000	500.000	612.100	0.000	600.000
BT	611.500	0.000	700.000	612.000	0.000	800.000	613.300	610.700	830.000	513.400
BT	610.800	860.000	613.600	610.700	900.000	613.400	0.000	1000.000	609.600	0.000
BT	1100.000	611.400	0.000	1200.000	611.300	0.000	1300.000	611.600	0.000	1400.000
BT	612.200	0.000	1500.000	612.200	0.000	1600.000	611.700	0.000	1700.000	611.400
BT	0.000	1800.000	611.700	0.000	1900.000	612.100	0.000	1995.000	613.300	0.000
NC	.054	.054	.026	0.000	0.000	0.000	0.000	0.000	0.000	0.000

REPEAT OF P, INVERT ADJUSTED

X1	40655.000	33.000	800.000	869.000	50.000	50.000	50.000	0.000	.100	0.000
X3	10.000	0.000	0.000	690.000	0.000	980.000	0.000	0.000	0.000	0.000
GR	611.800	0.000	611.700	100.000	611.700	200.000	612.800	300.000	614.000	400.000
GR	614.700	500.000	611.500	600.000	609.700	700.000	607.200	800.000	607.200	800.000
GR	601.200	816.000	600.000	820.000	599.800	823.000	599.700	827.000	599.800	831.000
GR	599.400	834.000	599.400	838.000	601.700	841.000	602.600	842.000	608.200	869.000
GR	608.100	900.000	608.800	1000.000	608.200	1100.000	609.000	1200.000	611.000	1300.000
GR	611.400	1400.000	612.100	1500.000	612.700	1600.000	612.900	1700.000	613.300	1600.000
GR	612.300	1900.000	612.600	2000.000	612.900	2032.000	0.000	0.000	0.000	0.000
NH	4.000	.120	874.000	.026	900.000	.120	1300.000	.048	2000.000	0.000

REPEAT OF R, INVERT ADJUSTED

X1	41521.000	28.000	866.000	912.000	906.000	766.000	856.000	0.000	-.250	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	614.200	0.000	614.700	100.000	615.700	200.000	614.500	250.000	612.900	260.000
GR	611.200	300.000	609.300	400.000	610.100	500.000	610.400	600.000	611.000	700.000
GR	610.800	800.000	609.500	866.000	601.500	874.000	600.000	887.000	601.200	900.000
GR	601.200	900.000	612.000	912.000	609.600	1000.000	609.600	1100.000	610.900	1200.000
GR	612.500	1300.000	613.300	1400.000	618.200	1500.000	618.400	1600.000	618.100	1700.000
GR	616.900	1800.000	614.400	1900.000	614.200	2000.000	0.000	0.000	0.000	0.000

R VALLEY SECTION R

X1	42388.000	0.000	0.000	0.000	767.000	967.000	867.000	0.000	.250	0.000
X3	10.000	0.000	0.000	350.000	0.000	1100.000	0.000	0.000	0.000	0.000
NH	5.000	.046	1240.000	.075	1254.000	.026	1274.000	.075	1289.000	.052
NH	2000.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

REPEAT OF S, INVERT ADJUSTED

X1	43488.000	27.000	1240.000	1289.000	1300.000	900.000	1100.000	0.000	-.950	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	617.300	0.000	616.900	100.000	616.900	200.000	616.500	300.000	616.700	400.000
GR	615.900	500.000	617.100	600.000	618.300	700.000	617.800	800.000	617.800	900.000
GR	617.200	1000.000	613.500	1100.000	611.100	1200.000	610.700	1240.000	603.900	1254.000
GR	601.900	1264.000	603.700	1264.000	603.400	1274.000	612.300	1289.000	612.100	1300.000
GR	611.900	1400.000	613.500	1500.000	616.000	1600.000	618.300	1700.000	619.200	1800.000
GR	620.200	1900.000	620.500	2000.000	0.000	0.000	0.000	0.000	0.000	0.000
ST	4.000	1590.000	2340.000	2670.000	3680.000	0.000	0.000	0.000	0.000	0.000

S VALLEY SECTION S

X1	44538.000	0.000	0.000	0.000	900.000	1300.000	1100.000	0.000	.950	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.042	.042	.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000

REPEAT OF T, INVERT ADJUSTED

X1	45371.000	19.000	700.000	770.000	753.000	783.000	783.000	0.000	-.650	0.000
X3	10.000	0.000	0.000	490.000	0.000	980.000	0.000	0.000	0.000	0.000
GR	619.900	0.000	615.600	100.000	614.100	200.000	614.200	300.000	613.900	400.000
GR	614.400	500.000	614.000	600.000	613.800	700.000	605.400	714.000	604.600	715.000
GR	603.500	720.000	603.200	725.000	605.500	730.000	606.000	735.000	607.300	750.000
GR	612.700	770.000	613.700	800.000	615.300	900.000	623.000	1000.000	0.000	0.000

T VALLEY SECTION T

X1	46154.000	0.000	0.000	0.000	783.000	783.000	783.000	0.000	.650	0.000
X3	10.000	0.000	0.000	636.000	0.000	784.000	0.000	0.000	0.000	0.000

REPEAT OF U, NO BRIDGE TABLE

X1	46203.000	25.000	1201.000	1272.000	49.000	49.000	49.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	1201.000	0.000	1272.000	0.000	0.000	0.000	0.000
GR	620.400	0.000	620.800	100.000	621.100	200.000	621.200	300.000	621.900	400.000
GR	619.500	500.000	618.200	600.000	617.600	700.000	617.500	800.000	617.700	900.000
GR	617.600	1000.000	617.600	1100.000	610.700	1200.000	610.700	1201.000	608.400	1218.800
GR	605.100	1235.500	604.600	1255.300	607.100	1272.000	611.000	1272.000	619.000	1274.000
GR	618.400	1300.000	618.200	1400.000	619.600	1500.000	622.200	1600.000	623.700	1646.000
NC	.024	.024	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D/S FACE OF 25 MILE RD. BRIDGE

CONCRETE ARCH BRIDGE

X1	46204.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	1201.000	0.000	1272.000	0.000	0.000	0.000	0.000
BT	26.000	0.000	620.400	0.000	100.000	620.800	0.000	200.000	621.100	0.000
BT	300.000	621.200	0.000	400.000	621.900	0.000	500.000	619.500	0.000	600.000
BT	618.200	0.000	700.000	617.600	0.000	800.000	617.500	0.000	900.000	617.700
BT	0.000	1000.000	617.600	0.000	1100.000	617.600	0.000	1200.000	619.200	0.000
[illegible]	[illegible]	[illegible]	0.000	1201.000	622.800	610.700	1218.800	622.800	616.700	[illegible]35.500

BT	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
BT	0.000	1274.000	619.000	0.000	1300.000	618.400	0.000	1400.000	618.200	0.000
BT	1500.000	619.600	0.000	1600.000	622.200	0.000	1646.000	623.700	0.000	0.000

U BRIDGE SECTION U

U/S FACE OF 25 MILE RD. BRIDGE

X1	46221.000	0.000	0.000	0.000	17.000	17.000	17.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	1201.000	0.000	1272.000	0.000	0.000	0.000	0.000
NC	.042	.042	.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000

REPEAT OF U, NO BRIDGE TABLE

X1	46222.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	1201.000	0.000	1272.000	0.000	0.000	0.000	0.000

REPEAT OF T, INVERT ADJUSTED

X1	46271.000	19.000	700.000	770.000	49.000	49.000	49.000	0.000	1.400	0.000
X3	10.000	0.000	0.000	650.000	0.000	1308.000	0.000	0.000	0.000	0.000
GR	619.900	0.000	613.600	100.000	614.100	200.000	614.200	300.000	613.900	400.000
GR	614.400	500.000	614.000	600.000	613.800	700.000	605.400	714.000	604.600	715.000
GR	603.500	720.000	603.200	725.000	605.500	730.000	606.000	735.000	607.300	750.000
GR	612.700	770.000	613.700	800.000	615.300	900.000	623.000	1000.000	0.000	0.000
NC	.042	.046	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NV	6.000	.026	610.000	.028	611.500	.048	613.000	.066	615.500	.074
NV	619.500	.074	630.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

REPEAT OF V, INVERT ADJUSTED

X1	47092.000	30.000	1143.000	1200.000	1600.000	10.000	821.000	0.000	-.350	0.000
X3	10.000	0.000	0.000	772.000	0.000	1570.000	0.000	0.000	0.000	0.000
GR	623.100	0.000	623.300	100.000	622.000	200.000	622.900	300.000	623.700	400.000
GR	623.200	500.000	619.800	558.000	623.100	563.000	622.500	600.000	615.900	700.000
GR	615.700	800.000	615.900	900.000	616.600	1000.000	615.400	1100.000	616.600	1143.000
GR	608.700	1165.000	605.300	1179.000	608.500	1179.000	608.600	1195.000	617.100	1200.000
GR	615.100	1300.000	616.200	1400.000	616.600	1500.000	615.700	1600.000	616.100	1700.000
GR	614.900	1800.000	613.700	1900.000	616.200	1960.000	624.300	2000.000	624.700	2100.000
NV	6.000	.026	611.000	.028	612.500	.048	614.500	.066	617.500	.074
NV	619.500	.074	630.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

V VALLEY SECTION V

X1	47913.000	0.000	0.000	0.000	821.000	821.000	821.000	0.000	.350	0.000
X3	10.000	0.000	0.000	978.000	0.000	1365.000	0.000	0.000	0.000	0.000
NC	.050	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NV	6.000	.025	611.000	.028	613.000	.048	615.500	.066	618.500	.074
NV	619.500	.074	630.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

REPEAT OF W, INVERT ADJUSTED

X1	48475.000	20.000	491.000	555.000	562.000	562.000	562.000	0.000	-.800	0.000
X3	10.000	0.000	0.000	470.000	622.700	576.000	0.000	0.000	0.000	0.000
GR	630.400	0.000	621.600	35.000	620.500	55.000	618.400	155.000	619.100	255.000
GR	618.600	355.000	618.400	455.000	618.700	491.000	608.900	506.000	607.100	509.000
GR	606.900	510.000	607.200	515.000	607.300	520.000	607.500	525.000	603.900	528.000
GR	610.800	529.000	619.000	555.000	623.800	655.000	627.200	755.000	629.000	855.000
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	613.500	.046	616.000	.058	618.500	.076

NV	619.500	.076	630.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

REPEAT OF W, INVERT ADJUSTED

X1	48756.000	0.000	0.000	0.000	480.000	75.000	281.000	0.000	.400	0.000
X3	10.000	0.000	0.000	470.000	622.700	576.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
NV	6.000	.025	611.000	.028	613.500	.046	616.500	.058	618.500	.076
NV	619.500	.076	630.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

W VALLEY SECTION W

GAGING STATION

X1	49035.000	0.000	0.000	0.000	480.000	75.000	282.000	0.000	.400	0.000
X3	0.000	0.000	0.000	470.000	622.700	576.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
NH	5.000	.050	531.800	.070	548.000	.040	595.000	.070	600.000	.045
NH	1000.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D/S FACE OF ROMEO PLANK RD. BRIDGE

X1	49123.000	34.000	531.800	600.000	85.000	85.000	85.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	531.800	623.000	600.000	0.000	0.000	0.000	0.000
GR	630.900	0.000	629.200	45.000	621.600	75.000	620.500	95.000	613.400	195.000
GR	619.100	295.000	618.600	395.000	618.400	495.000	618.700	531.800	614.000	531.800
GR	615.400	548.000	611.100	549.000	610.400	552.200	621.200	552.200	621.200	553.400
GR	610.400	553.400	608.100	556.000	608.600	560.000	608.300	565.000	608.200	570.000
GR	608.200	576.200	621.100	576.200	621.100	577.400	608.200	577.400	608.800	580.000
GR	610.800	585.000	610.300	590.000	609.000	595.000	609.200	600.000	619.000	600.000
GR	623.800	695.000	627.500	795.000	628.600	900.000	630.000	1000.000	0.000	0.000
SB	0.000	1.870	3.020	0.000	58.200	0.000	696.300	0.000	608.100	608.100
NH	5.000	.050	531.800	.070	548.000	.040	595.000	.070	600.000	.045
NH	1000.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X BRIDGE SECTION X

U/S FACE OF ROMEO PLANK RD. BRIDGE

X1	49153.000	0.000	0.000	0.000	30.000	30.000	30.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	621.200	623.300	0.000	0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	531.800	623.000	600.000	0.000	0.000	0.000	0.000
BT	19.000	0.000	630.900	0.000	45.000	629.200	0.000	95.000	627.100	0.000
BT	195.000	624.600	0.000	295.000	623.500	0.000	395.000	623.300	0.000	495.000
BT	623.900	0.000	531.800	624.100	618.700	531.800	627.600	621.200	552.200	627.600
BT	621.200	553.400	627.600	621.200	576.200	627.500	621.100	577.400	627.500	621.100
BT	600.000	627.500	621.100	600.000	624.300	619.000	695.000	626.000	0.000	795.000
BT	627.509	0.000	900.000	628.600	0.000	1000.000	630.000	0.000	0.000	0.000
NH	6.000	.050	100.000	.090	136.000	.070	148.000	.040	178.000	.070
NH	193.000	.045	500.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Y VALLEY SECTION Y

X1	50308.000	21.000	136.000	193.000	984.000	984.000	1155.000	0.000	0.000	0.000
GR	635.000	0.000	629.900	100.000	620.700	125.000	619.900	136.000	614.700	146.000
GR	610.800	148.000	610.200	150.000	610.200	160.000	610.200	170.000	610.200	176.000
GR	611.400	178.000	616.100	181.000	620.000	193.000	618.700	200.000	613.500	300.000
GR	618.500	400.000	624.300	500.000	631.100	540.000	631.200	600.000	633.500	700.000
GR	634.400	800.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
[illegible]	[illegible]	[illegible]	380.000	.070	389.000	.045	423.000	.070	433.000	.070

[illegible]	[illegible]	0.000	0.000	0.000	0.000	.000	0.000	0.000	0.000	0.000

Z VALLEY SECTION Z

X1	51428.000	21.000	380.000	438.000	1020.000	1090.000	1120.000	0.000	0.000	0.000
GR	631.300	0.000	631.000	60.000	626.600	160.000	620.700	210.000	619.700	260.000
GR	620.500	360.000	620.500	380.000	614.300	387.000	613.100	389.000	611.600	391.000
GR	610.900	400.000	611.400	413.000	611.600	421.000	613.100	423.000	61[illegible].400	425.000
GR	619.600	438.000	618.800	460.000	617.400	480.000	623.900	497.000	632.000	517.000
GR	635.200	560.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CT	4.000	1340.000	2150.000	2540.000	3570.000	0.000	0.000	0.000	0.000	0.000
NH	6.000	.070	204.000	.090	212.000	.040	236.000	.090	255.000	.070
NH	490.000	.060	635.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

AA VALLEY SECTION AA

X1	52958.000	21.000	204.000	255.000	1400.000	1400.000	1530.000	0.000	0.000	0.000
GR	633.600	0.000	632.900	35.000	622.900	95.000	622.400	135.000	620.800	163.000
GR	624.500	184.000	617.100	197.000	618.100	204.000	617.100	210.000	614.800	212.000
GR	614.000	213.000	614.000	225.000	613.500	232.000	613.900	235.000	614.800	236.000
GR	622.900	255.000	622.400	335.000	621.800	435.000	630.900	490.000	632.500	535.000
GR	634.700	635.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	6.000	.030	240.000	.080	407.000	.060	414.000	.040	433.000	.060
NH	454.000	.090	540.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

AB VALLEY SECTION AB

X1	54038.000	14.000	407.000	654.000	1080.000	980.000	1080.000	0.000	0.000	0.000
GR	630.800	0.000	624.200	100.000	621.600	240.000	621.000	300.000	622.700	407.000
GR	617.800	414.000	616.000	415.000	615.700	425.000	616.400	433.000	618.200	434.000
GR	618.700	444.000	621.100	454.000	625.600	502.000	634.100	540.000	0.000	0.000
NC	0.000	0.000	0.000	.300	.700	0.000	0.000	0.000	0.000	0.000
NH	5.000	.060	470.000	.070	480.000	.037	495.000	.070	508.000	.075
NH	595.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTIONS AB) AC AVERAGED USING AVSEC PROGRAM

X1	54368.000	13.000	470.000	508.000	330.000	330.000	330.000	0.000	-.200	0.000
X3	0.000	0.000	0.000	320.000	0.000	578.000	0.000	0.000	0.000	0.000
GR	631.300	0.000	624.400	90.000	622.800	336.000	623.600	391.000	622.700	470.000
GR	616.500	480.000	616.400	488.000	616.900	494.000	618.600	495.000	619.800	502.000
GR	622.500	508.000	626.100	570.000	634.200	595.000	0.000	0.000	0.000	0.000
NH	5.000	.050	470.000	.080	480.000	.037	495.000	.075	508.000	.080
NH	595.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

REPEAT OF PREVIOUS SECTION, INVERT ADJUSTED

X1	54468.000	0.000	0.000	0.000	100.000	100.000	100.000	0.000	.150	0.000
X3	0.000	0.000	0.000	370.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	5.000	.040	538.000	.085	543.000	.035	561.000	.080	565.000	.060
NH	650.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

AC VALLEY SECTION AC

X1	54568.000	16.000	538.000	565.000	80.000	100.000	100.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	494.000	0.000	590.000	0.000	0.000	0.000	0.000
GR	631.900	0.000	626.000	50.000	624.100	70.000	623.700	150.000	623.800	250.000
GR	624.200	350.000	624.500	450.000	622.200	538.000	618.400	543.000	615.500	546.000
GR	616.900	553.000	617.000	559.000	618.400	561.000	623.600	565.000	626.700	640.000
[illegible]	[illegible]	[illegible]	[illegible]	0.000	0.000	0.000	0.000	0.000	0.000	0.000

NH	900.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

REPEAT OF AD, NO BRIDGE TABLE

X1	54637.000	28.000	600.000	668.800	89.000	59.000	69.000	.864	0.000	0.000
GR	637.400	0.000	636.100	50.000	633.800	100.000	629.800	200.000	628.200	300.000
GR	628.700	400.000	630.000	500.000	631.100	550.000	631.100	550.000	632.400	600.000
GR	620.300	600.000	619.900	604.000	618.700	611.000	619.400	623.000	619.500	629.000
GR	618.400	638.000	618.100	640.000	618.000	645.000	617.600	650.000	617.800	655.000
GR	617.400	662.000	620.000	663.000	621.000	668.600	633.100	666.800	632.900	695.000
GR	632.900	695.000	635.000	800.000	637.000	900.000	0.000	0.000	0.000	0.000

D/S FACE OF HAYES RD.

CONCRETE BRIDGE, NO PIERS

X1	5463[illegible].000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.864	0.000
BT	17.000	0.000	637.400	0.000	50.000	636.100	0.000	100.000	633.300	0.000
BT	200.000	629.800	0.000	300.000	628.200	0.000	400.000	626.700	0.000	500.000
BT	630.000	0.000	550.000	631.100	0.000	550.000	631.100	0.000	600.000	632.400
BT	620.300	600.000	634.700	628.000	658.800	635.400	626.700	666.800	633.100	621.000
BT	695.000	632.900	0.000	695.000	632.900	0.000	800.000	635.000	0.000	900.000
BT	637.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

AD BRIDGE SECTION AD

U/S FACE OF HAYES RD.

X1	54675.000	0.000	0.000	0.000	40.000	40.000	40.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NH	5.000	.050	600.000	.070	604.000	.035	663.000	.070	667.000	.055
NH	900.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

REPEAT OF AD, NO BRIDGE TABLE

X1	54679.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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*********************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
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T1      MACOMB TOWNSHIP FIS    5850-03      P.M. = OLE ANDERSON
T2      100 YEAR FLOOD
T3      MIDDLE BRANCH CLINTON R.

J1  ICHECK     INQ      NINV     IDIR      STRT     METRIC   HVINS     Q        WSEL     FQ

       0.       4.       0.        0.  0.000000     0.00     0.0      0.   594.440   0.000

J2  NPROF     IPLOT    PRFVS     XSECV     XSECH     FN       ALLDC    IBW      CHNIM    ITRACE

     3.000    0.000   -1.000     0.000     0.000    0.000    0.000    0.000    0.000    0.000
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*PROF 3

CCHV=     .300 CEHV=      .500
*SECNO 16771.000
      SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
      Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA     LEFT/RIGHT
      TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN        SSTA
      SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID       ENDST


3470 ENCROACHMENT STATIONS=      1185.0      1230.0  TYPE=       1   TARGET=        45.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=        587.50 ELREA=      99996.10


                              REPEAT OF A, INVERT ADJUSTED

   16771.00      13.64     594.44       0.00     594.44     594.76        .32       0.00       0.00     587.50
      2340.         0.      2340.         0.         0.       517.         0.         0.         0.   99996.10
       0.00       0.00       4.53       0.00       .056       .033       .045      0.000     580.80    1185.00
    .000795         0.         0.         0.          0          0          0       0.00      45.00    1230.00

*SECNO 18100.000

3265 DIVIDED FLOW


                  A           VALLEY SECTION A

   18100.00      10.48     595.18       0.00       0.00     595.20        .02        .35        .09     591.40
      2340.       507.       589.      1245.       619.       375.      1238.        42.        11.     591.20
        .34        .82       1.57       1.01       .045       .042       .045       .042     534.70     960.43
    .000128      1400.      1350.      1300.          2          0          0       0.00     666.68    1791.32

1490 NH CARD USED
*SECNO 19150.000

                              REPEAT OF B, INVERT ADJUSTED

   19150.00       8.93     595.33       0.00       0.00     595.38        .05        .17        .01     589.90
      2340.        54.       642.      1444.       103.       390.      1006.        87.        25.     590.80
        .51        .53       2.16       1.43       .088       .038       .045       .042     586.40     897.85
    .000206      1050.      1050.      1050.          2          0          0       0.00     476.05    1373.90

*SECNO 20200.000

                  B           VALLEY SECTION B

   20200.00       7.52     595.62       0.00       0.00     595.68        .06        .29        .01     591.60
      2340.        37.       852.      1451.        55.       320.       949.       121.        35.     592.50
        .66        .67       2.67       1.53       .086       .038       .045       .041     588.10     937.70
    .000405      1050.      1050.      1050.          2          0          0       0.00     360.37    1298.07

*SECNO 21621.000
      SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
      Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA     LEFT/RIGHT
      TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN        SSTA
      SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID       ENDST
```

3470 ENCROACHMENT STATIONS= 1090.0 1740.0 TYPE= 1 TARGET= 650.000

REPEAT OF C, INVERT ADJUSTED

21421.00	8.95	596.35	0.00	0.00	596.41	.07	.73	.00	594.00
2340.	660.	651.	1030.	644.	200.	684.	165.	50.	591.70
.86	1.02	3.26	1.51	.066	.042	.048	.040	587.40	1090.00
.000780	1000.	1221.	1500.	2	0	0	0.00	650.00	1740.00

*SECNO 22642.000

3470 ENCROACHMENT STATIONS= 990.0 1840.0 TYPE= 1 TARGET= 850.000

C VALLEY SECTION C

22642.00	10.11	596.71	0.00	0.00	596.72	.01	.30	.02	593.20
2340.	966.	321.	1053.	1293.	234.	1356.	228.	72.	590.90
1.25	.75	1.37	.78	.045	.042	.045	.040	586.60	990.00
.000111	1000.	1221.	1500.	2	0	0	0.00	850.00	1840.00

*SECNO 22692.000

3265 DIVIDED FLOW

D/S FACE OF 21 MILE RD. BRIDGE

BRIDGE BARRICADED AND NOT IN USE

22692.00	9.90	596.70	0.00	0.00	596.76	.06	.01	.02	590.30
2340.	750.	1457.	133.	628.	629.	181.	231.	72.	594.00
1.29	1.19	2.32	.73	.045	.042	.045	.040	586.80	1125.12
.000385	50.	50.	50.	2	0	0	0.00	783.87	2049.76

SPECIAL BRIDGE

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
0.00	1.20	3.00	0.00	100.00	0.00	553.60	0.00	586.80	586.80

*SECNO 22708.000

3265 DIVIDED FLOW

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
597.03	596.76	0.00	604.	1544.	554.	920.	596.00	596.50

D BRIDGE SECTION D

U/S FACE OF 21 MILE RD. BRIDGE

22708.00	9.91	596.71	0.00	0.00	596.84	.13	.09	0.00	595.80
[illegible]	[illegible]	[illegible]	[illegible]	359.	630.	86.	231.	73.	596.00

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 .000766      16.      16.      16.        2        0        3     0.00   798.74  2052.41

*SECNO 22758.000

3470 ENCROACHMENT STATIONS=   1040.0    1790.0  TYPE=      1  TARGET=     750.000

                          REPEAT OF C, INVERT ADJUSTED

 22758.00     10.05   596.88     0.00     0.00   596.89      .02      .01      .03   593.40
   2340.      939.     369.     1012.    1147.     233.    1192.     233.      74.    591.10
   1.30       .82      1.67      .85     .048     .040     .048     .040   586.80  1040.00
 .000150      50.      50.      50.        2        0        0     0.00   750.00  1790.00

1490 NH CARD USED
*SECNO 23829.000
  SECNO     DEPTH    CWSEL    CRIWS    WSELK      EG       HV       HL      OLOSS   BANK ELEV
  Q         QLOB     QCH      QROB     ALOB      ACH      AROB     VOL      TWA   LEFT/RIGHT
  TIME      VLOB     VCH      VROB     XNL       XNCH     XNR      WTN      ELMIN     SSTA
  SLOPE     XLOBL    XLCH     XLOSR    ITRIAL    IDC      ICONT    CORAR    TOPWID    ENDST


3470 ENCROACHMENT STATIONS=    650.0    1200.0  TYPE=      1  TARGET=     550.000

                          REPEAT OF E, INVERT ADJUSTED

 23829.00     10.28   597.13     0.00     0.00   597.34      .21      .35      .10   595.45
   2340.      266.    1551.      520.     179.     351.     441.     275.      87.    595.75
   1.39       1.50     4.42     1.18     .045     .040     .075     .040   586.85   752.00
 .001293     1200.    1071.     900.       2        0        0     0.00   404.47  1156.47

1490 NH CARD USED
*SECNO 24900.000

                 E        VALLEY SECTION E

 24900.00     11.18   598.08     0.00     0.00   598.15      .06      .76      .04   595.50
   2340.      371.    1035.      934.     302.     400.     644.     303.      97.    595.80
   1.54       1.23     2.59     1.45     .045     .045     .045     .040   586.90   746.36
 .000469     1150.    1071.     950.       2        0        0     0.00   427.81  1174.17

*SECNO 25600.000

                          REPEAT OF E, INVERT ADJUSTED

 25800.00      9.73   598.73     0.00     0.00   599.00      .27      .75      .11   597.60
   2340.      137.    1587.      616.     107.     320.     325.     325.     106.    597.90
   1.60       1.28     4.95     1.90     .047     .040     .047     .040   589.00   758.11
 .001826      850.     900.     950.       2        0        0     0.00   387.59  1145.70

*SECNO 26700.000

3470 ENCROACHMENT STATIONS=    420.0     950.0  TYPE=      1  TARGET=     530.000

                 F        VALLEY SECTION F

 26700.00      8.47   599.67     0.00     0.00   599.72      .04      .65      .07   596.30
   2340.      701.     665.      973.     582.     264.     794.     350.     115.    595.80
   1.76       1.21     2.52     1.23     .047     .040     .047     .040   591.20   420.00
 .000381      900.     900.     900.       2        0        0     0.00   530.00   950.00
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*SECNO 27508.000

3470 ENCROACHMENT STATIONS= 390.0 914.0 TYPE= 1 TARGET= 524.000

REPEAT OF F, INVERT ADJUSTED

27508.00	10.06	599.86	0.00	0.00	599.88	.02	.15	.01	594.90
2340.	897.	501.	943.	1033.	322.	1071.	387.	125.	595.40
1.98	.87	1.55	.88	.047	.040	.047	.040	589.80	390.00
.000110	700.	608.	900.	2	0	0	0.00	524.00	914.00

*SECNO 28316.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

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*PROF 1

CCHV=     .300 CEHV=      .500
*SECNO 28316.000
     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA    LEFT/RIGHT
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3470 ENCROACHMENT STATIONS=     1168.0     1288.0  TYPE=      1  TARGET=      120.000

                          G         VALLEY SECTION G

  28316.00     11.54     599.94      0.00     599.94     600.30       .36       0.00       0.00     593.40
     2340.       62.      2248.       30.        46.       460.       30.         0.         0.     599.20
      0.00      1.34      4.88      1.00       .047       .040      .047      0.000     588.40    1168.00
   .001160        0.        0.        0.          0          0         0       0.00     120.00    1288.00

*SECNO 28365.000

3470 ENCROACHMENT STATIONS=     1500.0     1593.6  TYPE=      1  TARGET=       93.600

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       597.20 ELREA=   100000.00

                                    REPEAT OF H, NO BRIDGE TABLE

  28365.00      9.03     600.23      0.00       0.00     600.40       .17        .04        .06     597.20
     2340.        0.      2340.        0.         0.       709.        0.         1.         0. 100000.00
       .00      0.00      3.30      0.00       .047       .040      .047       .039     591.20    1500.00
   .000690       49.       49.       49.          2          0         0       0.00      93.60    1593.60

*SECNO 28366.000

3370 NORMAL BRIDGE,NRD= 44 MIN ELTRD=  601.10 MAX ELLC=  601.40

3470 ENCROACHMENT STATIONS=     1500.0     1593.6  TYPE=      1  TARGET=       93.600

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       597.20 ELREA=   100000.00

                                    D/S FACE OF 22 MILE RD. BRIDGE

                                    ONE CONCRETE PIER, 4.4" WIDE

  28366.00      9.00     600.20      0.00       0.00     600.42       .22        .00        .02     597.20
     2340.        0.      2340.        0.         0.       624.        0.         1.         0. 100000.00
       .00      0.00      3.75      0.00       .024       .028      .024       .038     591.20    1500.00
   .000659        1.        1.        1.          2          0         0     -83.14      93.60    1593.60

*SECNO 28384.000

3370 NORMAL BRIDGE,NRD= 44 MIN ELTRD=  601.10 MAX ELLC=  601.40

3470 ENCROACHMENT STATIONS=     1500.0     1593.6  TYPE=      1  TARGET=       93.600
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3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      597.20 ELREA=   100000.00

                    H          BRIDGE SECTION H

  28384.00      9.02    600.22      0.00      0.00    600.43       .22       .01       .00    597.20
     2340.        0.     2340.        0.        0.      624.        0.        1.        0. 100000.00
       .01      0.00      3.75      0.00      .024      .028      .024      .035    591.20   1500.00
   .000657       18.       18.       18.         0         0         0    -83.46     93.60   1593.60

*SECNO 28385.000
     SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS  BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST

3470 ENCROACHMENT STATIONS=    1500.0     1593.6  TYPE=      1  TARGET=       93.600

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      597.20 ELREA=   100000.00

                               REPEAT OF H, NO BRIDGE TABLE

  28385.00      9.08    600.28      0.00      0.00    600.45       .17       .00       .02    597.20
     2340.        0.     2340.        0.        0.      714.        0.        1.        0. 100000.00
       .01      0.00      3.28      0.00      .048      .032      .050      .035    591.20   1500.00
   .000432        1.        1.        1.         2         0         0      0.00     93.60   1593.60

*SECNO 28434.000

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS=    1078.0     1378.0  TYPE=      1  TARGET=      300.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      601.20 ELREA=      602.00

                               REPEAT OF G, INVERT ADJUSTED

  28434.00      8.77    599.97      0.00      0.00    600.84       .87       .04       .35    601.20
     2340.        0.     2340.        0.        0.      312.        0.        2.        0.    602.00
       .01      0.00      7.49      0.00      .048      .032      .050      .033    591.20   1201.17
   .002574       49.       49.       49.         2         0         0      0.00     50.46   1251.62

*SECNO 29407.000

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS=     850.0     1350.0  TYPE=      1  TARGET=      500.000

                               REPEAT OF I, INVERT ADJUSTED

  29407.00      9.69    601.59      0.00      0.00    601.66       .07       .57       .24    593.00
     2340.      435.      880.     1025.      410.      288.      962.       21.        6.    599.10
       .15      1.06      3.05      1.07      .048      .032      .050      .034    591.90    850.00
   .000277     1500.      967.      500.         2         0         0      0.00    500.00   1350.00
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*SECNO 30375.000

3470 ENCROACHMENT STATIONS=      750.0     1350.0  TYPE=      1  TARGET=      600.000

              I          VALLEY SECTION I

  30375.00     9.34   601.94     0.00     0.00   602.03      .09      .36      .01    593.70
    2420.      465.     964.     991.     445.     276.     853.      63.      19.    599.80
      .30     1.05     3.49     1.16     .048     .032     .050     .031   592.60    750.00
  .000383      500.     968.    1500.        3        0        0     0.00   600.00   1350.00

*SECNO 31425.000

3470 ENCROACHMENT STATIONS=         .0     1280.0  TYPE=      1  TARGET=     1279.999

                         REPEAT OF I, INVERT ADJUSTED

  31425.00     9.42   602.37     0.00     0.00   602.46      .10      .43      .00    594.05
    2420.      504.    1001.     916.     478.     279.     733.     102.      33.    600.15
      .44     1.05     3.59     1.25     .048     .032     .050     .031   592.95    699.17
  .000400      600.    1050.    1400.        2        0        0     0.00   580.83   1280.00

*SECNO 32475.000

3265 DIVIDED FLOW

   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      601.50 ELREA=      603.20


              J          VALLEY SECTION J
                  602.9 According to Oct 17,1979 letter from J+A
  32475.00     9.67   602.97     0.00     0.00   603.35      .38      .74      .14    601.50
    2420.      765.    1655.       0.     621.     279.       0.     131.      51.    603.20
      .50     1.23     5.93     0.00     .048     .032     .050     .031   593.30    167.23
  .001558     1400.    1050.     600.        2        0        0     0.00   684.42    852.00

1490 NH CARD USED
*SECNO 33389.000

3470 ENCROACHMENT STATIONS=      847.0     1622.0  TYPE=      1  TARGET=      775.000

                         REPEAT OF K, INVERT ADJUSTED

  33389.00    10.63   604.18     0.00     0.00   604.44      .25     1.05      .04    603.35
    2420.      493.    1790.     137.     462.     383.     178.     155.      68.    602.45
      .58     1.07     4.67      .77     .048     .113     .062     .031   593.55    847.00
  .000755     1300.     914.     500.        2        0        0     0.00   571.87   1418.87

*SECNO 34303.000

3470 ENCROACHMENT STATIONS=     1188.0     1282.0  TYPE=      1  TARGET=       94.000

              K          VALLEY SECTION K

  34303.00    11.06   604.86     0.00     0.00   605.38      .51      .01      .13      .03 .0
```

.62	1.18	5.78	.62	.048	.112	.120	.031	593.80	1188.00
.001139	500.	914.	1300.	2	0	0	0.00	94.00	1282.00

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*SECNO 34352.000

3470 ENCROACHMENT STATIONS=     1223.0     1289.0  TYPE=      1  TARGET=       66.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       603.80 ELREA=   100000.00


                          REPEAT OF L, NO BRIDGE TABLES

  34352.00     10.14    605.14      0.00      0.00    605.50       .36       .07       .04   603.80
     2420.        0.     2420.        0.        0.      502.        0.      591.      215. 100000.00
      2.67      0.00      4.82      0.00      .048      .115      .120      .037    595.00   1223.00
   .001693       49.       49.       49.         2         0         0      0.00     66.00   1289.00

*SECNO 34353.000

3370 NORMAL BRIDGE,NRD= 28 MIN ELTRD=  607.90 MAX ELLC=  605.60

3470 ENCROACHMENT STATIONS=     1223.0     1289.0  TYPE=      1  TARGET=       66.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       603.80 ELREA=   100000.00

                          D/S FACE OF 23 MILE RD. BRIDGE


                          CONCRETE ARCH BRIDGE, NO PIERS

  34353.00     10.08    605.08      0.00      0.00    605.57       .49       .00       .06   603.80
     2420.        0.     2420.        0.        0.      433.        0.      591.      215. 100000.00
      2.67      0.00      5.59      0.00      .026      .024      .026      .037    595.00   1223.00
   .001273        1.        1.        1.         2         0         0    -65.39     66.00   1289.00

*SECNO 34383.000

3370 NORMAL BRIDGE,NRD= 28 MIN ELTRD=  607.90 MAX ELLC=  605.60

3470 ENCROACHMENT STATIONS=     1223.0     1289.0  TYPE=      1  TARGET=       66.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       603.80 ELREA=   100000.00

                L         BRIDGE SECTION L

  34383.00     10.12    605.12      0.00      0.00    605.61       .48       .04       .00   603.80
     2420.        0.     2420.        0.        0.      433.        0.      591.      215. 100000.00
      2.67      0.00      5.58      0.00      .026      .024      .025      .037    595.00   1223.00
   .001267       30.       30.       30.         0         0         0    -67.52     66.00   1289.00

*SECNO 34384.000
    SECNO      DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS  BANK ELEV
    Q          QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
    TIME       VLOB      VCH       VROB      XNL       XNCH      XNR       WTN     ELMIN       SSTA
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3470 ENCROACHMENT STATIONS=     1223.0      1289.0  TYPE=       1  TARGET=        66.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=        603.80 ELREA=    100000.00


                              REPEAT OF L, NO BRIDGE TABLE

 34384.00     10.30    605.30     0.00      0.00    605.65       .35       .00       .04    603.80
    2420.       0.     2420.        0.        0.      513.        0.      591.      215. 100000.00
    2.67      0.00      4.72      0.00      .048      .024      .050      .037    595.00   1223.00
 .000437        1.        1.        1.         2         0         0      0.00     66.00   1289.00


1490 NH CARD USED
*SECNO 34433.000

3470 ENCROACHMENT STATIONS=     1151.0      1318.0  TYPE=       1  TARGET=       167.000

                              REPEAT OF K, INVERT ADJUSTED

 34433.00     10.17    605.17     0.00      0.00    605.85       .65       .04       .17    604.80
    2420.       32.     2351.       37.       34.      351.       52.      592.      215.    603.90
    2.67       .95      6.70       .71      .048      .114      .085      .037    595.00   1151.00
 .001573       49.       49.       49.         2         0         0      0.00    167.00   1318.00


1490 NH CARD USED
*SECNO 35180.000

3301 HV CHANGED MORE THAN HVINS


                              REPEAT OF K, INVERT ADJUSTED

 35180.00     12.06    606.71     0.00      0.00    606.83       .12       .81       .17    605.45
    2420.     1201.     1085.      133.      794.      287.      146.      606.      221.    604.45
    2.76      1.51      3.78       .91      .048      .115      .050      .036    594.65    625.45
 .000794      747.      747.      747.         3         0         0      0.00    585.35   1210.80


*SECNO 35928.000

                     M        VALLEY SECTION M

 35928.00     12.60    607.18     0.00      0.00    607.23       .05       .38       .02    605.10
    2420.     1343.      834.      244.     1112.      320.      308.      632.      232.    604.10
    2.88      1.21      2.60       .79      .048      .114      .050      .036    594.30    598.18
 .000355      748.      748.      748.         2         0         0      0.00    667.14   1265.32


1490 NH CARD USED
*SECNO 36628.000

                              REPEAT OF N, INVERT ADJUSTED

 36628.00     12.03    607.46     0.00      0.00    607.76       .26       .42       .11    605.85
    2420.      707.     1505.      209.      705.      253.      168.      658.      243.    604.65
    2.94      1.00      5.32      1.24      .065      .071      .050      .035    595.45    243.05
 .000945      900.      700.      500.         2         0         0      0.00    575.87    815.92


*SECNO 37328.000
   SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS  BANK ELEV
```

Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

N VALLEY SECTION N

37328.00	11.64	608.24	0.00	0.00	608.68	.44	.83	.08	607.00
2420.	560.	1701.	159.	543.	269.	125.	677.	254.	605.80
2.98	1.03	6.31	1.28	.065	.071	.050	.035	596.60	252.55
.001379	900.	700.	500.	2	0	0	0.00	549.43	301.98

*SECNO 38928.000

3470 ENCROACHMENT STATIONS= .0 1150.0 TYPE= 1 TARGET= 1149.999

O VALLEY SECTION O

38928.00	9.30	609.80	0.00	0.00	609.97	.17	1.21	.08	608.40
2500.	271.	1448.	781.	285.	341.	664.	716.	270.	608.80
3.14	.95	4.24	1.13	.054	.026	.054	.034	600.50	702.81
.000478	800.	1600.	2400.	2	0	0	0.00	447.19	1150.00

*SECNO 39724.000

REPEAT OF P, INVERT ADJUSTED

39724.00	10.19	610.14	0.00	0.00	610.45	.30	.41	.07	607.75
2500.	88.	2140.	272.	115.	449.	377.	736.	278.	608.75
3.19	.77	4.77	.72	.054	.026	.054	.034	599.95	704.27
.000609	1100.	796.	500.	2	0	0	0.00	525.40	1229.67

*SECNO 40521.000

3470 ENCROACHMENT STATIONS= 732.0 937.0 TYPE= 1 TARGET= 205.000

P VALLEY SECTION P

40521.00	11.21	610.61	0.00	0.00	610.85	.24	.39	.02	607.20
2500.	173.	2170.	157.	174.	519.	165.	753.	285.	608.20
3.25	.99	4.18	.95	.054	.026	.054	.034	599.40	732.00
.000385	500.	797.	1100.	2	0	0	0.00	205.00	937.00

*SECNO 40571.000

3470 ENCROACHMENT STATIONS= 800.0 1300.0 TYPE= 1 TARGET= 500.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 610.70 ELREA= 610.70

D/S FACE OF 24 MILE RD. BRIDGE

CONCRETE BRIDGE, NO PIERS

40571.00	11.12	610.62	0.00	0.00	610.88	.27	.02	.01	610.70
2500.	0.	2500.	0.	0.	605.	0.	754.	286.	610.70
3.25	0.00	4.14	0.00	.054	.026	.054	.034	599.50	800.00
.000344	50.	50.	50.	2	0	0	0.00	60.00	860.00

```
SPECIAL BRIDGE

 SB  XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
     0.00       1.59       3.00       0.00      60.00       0.00     612.40       0.00     599.50     599.50

*SECNO 40605.000

3265 DIVIDED FLOW

   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA     LEFT/RIGHT
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN        SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID       ENDST


PRESSURE AND WEIR FLOW


 EGPRS       EGLWC        H3        QWEIR       QPR         BAREA     TRAPEZOID      ELLC        ELTRD
                                                                        AREA
   611.03     610.88      0.00       135.       2306.       612.       678.        610.80      611.00


3470 ENCROACHMENT STATIONS=      600.0     1300.0  TYPE=      1  TARGET=      500.000

                  0         BRIDGE SECTION 0


                            U/S FACE OF 24 MILE RD. BRIDGE

 40605.00     11.21     610.71       0.00       0.00     610.97        .26        .08       0.00     610.70
    2500.        0.      2483.        17.         0.       610.        51.       754.       286.      610.70
     3.25      0.00       4.07        .34       .054       .026       .054       .034     599.50     800.00
  .000331       34.        34.        34.          2          0          2       0.00     151.29    1061.82


*SECNO 40655.000

3470 ENCROACHMENT STATIONS=      690.0      980.0  TYPE=      1  TARGET=      290.000

                            REPEAT OF P, INVERT ADJUSTED

 40655.00     11.30     610.80       0.00       0.00     611.00        .20        .02        .02     607.30
    2500.      199.      2065.       236.       234.       525.       265.       755.       286.     609.30
     3.26       .85       3.93        .89       .054       .026       .054       .034     599.50     690.00
  .000336       50.        50.        50.          2          0          0       0.00     290.00     980.00


1490 NH CARD USED
*SECNO 41521.000

3265 DIVIDED FLOW


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      609.25 ELREA=      611.75


                            REPEAT OF R, INVERT ADJUSTED

 41521.00     11.33     611.08       0.00       0.00     611.59        .51        .43        .15     609.25
    2500.      219.      2281.         0.       568.       381.         0.       776.       296.      611.75
     3.30       .39       5.98       0.00       .120       .118       .054       .033     599.75     296.73
  .000819      966.       866.       766.          0          0          0       0.00     614.54     912.00
```

*SECNO 42388.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 350.0 1100.0 TYPE= 1 TARGET= 750.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 609.50 ELREA= 612.00

R VALLEY SECTION R

42388.00	11.86	611.86	0.00	0.00	612.23	.38	.61	.04	609.50
2500.	348.	2152.	0.	805.	405.	0.	796.	306.	612.00
3.35	.43	5.32	0.00	.120	.118	.054	.033	600.00	350.00
.000619	757.	867.	967.	2	0	0	0.00	561.84	912.00

1490 NH CARD USED
*SECNO 43488.000

REPEAT OF S, INVERT ADJUSTED

43488.00	11.90	612.65	0.00	0.00	613.08	.23	.80	.05	609.75
2500.	407.	1754.	340.	268.	392.	311.	825.	319.	611.35
3.44	1.52	4.47	1.09	.046	.070	.052	.033	600.95	1091.75
.000839	1300.	1100.	900.	2	0	0	0.00	720.47	1512.21

*SECNO 44588.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

S VALLEY SECTION S

44588.00	11.92	613.82	0.00	0.00	614.07	.26	.95	.01	610.70
2670.	436.	1868.	365.	270.	393.	313.	850.	330.	612.30
3.52	1.62	4.76	1.17	.046	.070	.052	.033	601.90	1091.47
.000949	900.	1100.	1300.	2	0	0	0.00	421.15	1512.62

*SECNO 45371.000

3470 ENCROACHMENT STATIONS= 490.0 980.0 TYPE= 1 TARGET= 490.000

REPEAT OF T, INVERT ADJUSTED

45371.00	11.84	614.39	0.00	0.00	614.67	.29	.59	.01	613.15
2670.	178.	2382.	110.	205.	526.	111.	866.	338.	612.05
3.57	.87	4.53	.99	.042	.030	.042	.033	602.55	490.00
.000611	783.	783.	783.	2	0	0	0.00	393.73	383.73

*SECNO 46154.000

3470 ENCROACHMENT STATIONS= 686.0 784.0 TYPE= 1 TARGET= 98.000

T VALLEY SECTION T

46154.00	11.68	614.88	0.00	0.00	615.27	.39	.54	.05	613.80
2670.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

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 .000793      783.      783.      783.         2         0         0      0.00     98.00    784.00

*SECNO 46203.000

3470 ENCROACHMENT STATIONS=     1201.0     1272.0   TYPE=      1   TARGET=       71.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=        610.70 ELREA=    100000.00

                              REPEAT OF U, NO BRIDGE TABLE

  46203.00     10.41    615.01      0.00      0.00    615.33       .32       .03       .02    610.70
     2670.        0.     2670.        0.        0.      589.        0.      879.      342. 100000.00
      3.62      0.00      4.53      0.00      .042      .030      .042      .033    604.60   1201.00
   .000623       49.       49.       49.         2         0         0      0.00     71.00   1272.00

*SECNO 46204.000

3370 NORMAL BRIDGE,NRD= 26 MIN ELTRD=   617.50 MAX ELLC=   618.20

3470 ENCROACHMENT STATIONS=     1201.0     1272.0   TYPE=      1   TARGET=       71.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=        610.70 ELREA=    100000.00

                              D/S FACE OF 25 MILE RD. BRIDGE

                              CONCRETE ARCH BRIDGE

  46204.00     10.36    614.96      0.00      0.00    615.38       .42       .00       .05    610.70
     2670.        0.     2670.        0.        0.      515.        0.      879.      342. 100000.00
      3.62      0.00      5.19      0.00      .024      .030      .024      .033    604.60   1201.00
   .001243        1.        1.        1.         2         0         0    -70.99     71.00   1272.00

*SECNO 46221.000
    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


3370 NORMAL BRIDGE,NRD= 26 MIN ELTRD=   617.50 MAX ELLC=   618.20

3470 ENCROACHMENT STATIONS=     1201.0     1272.0   TYPE=      1   TARGET=       71.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=        610.70 ELREA=    100000.00

                    U         BRIDGE SECTION U

                              U/S FACE OF 25 MILE RD. BRIDGE

  46221.00     10.38    614.98      0.00      0.00    615.40       .42       .02       .00    610.70
     2670.        0.     2670.        0.        0.      516.        0.      879.      342. 100000.00
      3.62      0.00      5.18      0.00      .024      .030      .024      .033    604.60   1201.00
   .001237       17.       17.       17.         0         0         0    -71.27     71.00   1272.00
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*SECNO 46222.000

3470 ENCROACHMENT STATIONS=     1201.0     1272.0   TYPE=      1   TARGET=        71.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=        610.70 ELREA=    100000.00


                                  REPEAT OF U, NO BRIDGE TABLE

  46222.00      10.52     615.12      0.00      0.00    615.43       .31       .00       .03    610.70
     2670.         0.      2670.         0.        0.      597.         0.      879.      342. 100000.00
      3.62       0.00       4.47      0.00      .042      .030      .042      .033    604.60   1201.00
   .000598         1.         1.        1.         2         0         0      0.00     71.00   1272.00


*SECNO 46271.000

3470 ENCROACHMENT STATIONS=      650.0     1308.0   TYPE=      1   TARGET=       658.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=        615.20 ELREA=       614.10


                                  REPEAT OF T, INVERT ADJUSTED

  46271.00      10.42     615.02      0.00      0.00    615.62       .60       .04       .14    615.20
     2670.         0.      2660.       10.        0.      427.        13.      880.      342.    614.10
      3.62       0.00       6.23       .62      .042      .030      .042      .033    604.60    700.30
   .001520        49.        49.       49.         2         0         0      0.00     97.36    797.66


1455 NV CARD USED
*SECNO 47092.000

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=      772.0     1570.0   TYPE=      1   TARGET=       798.000

                                  REPEAT OF V, INVERT ADJUSTED

  47092.00      12.04     616.99      0.00      0.00    617.05       .08      1.30       .15    616.25
     2670.       715.      1220.      735.      430.      411.      463.      896.      350.    616.75
      3.72       1.66       2.97      1.59      .042      .069      .046      .034    604.95    772.00
   .001695      1600.       821.       10.         5         0         0      0.00    798.00   1570.00


1455 NV CARD USED
*SECNO 47913.000

3470 ENCROACHMENT STATIONS=      978.0     1365.0   TYPE=      1   TARGET=       387.000

                        V         VALLEY SECTION V

  47913.00      12.93     616.23      0.00      0.00    618.32       .09      1.24       .00    616.60
     2670.       526.      1318.      826.      284.      461.      392.      919.      362.    617.10
      3.82       1.85       2.86      2.10      .042      .069      .046      .034    605.30    978.00
   .001345       821.       821.      821.         2         0         0      0.00    387.00   1365.00


1455 NV CARD USED
*SECNO 48475.000
   SECNO     DEPTH      CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
   Q         QLOB       QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB       VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
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3470 ENCROACHMENT STATIONS=      470.0      576.0  TYPE=      1  TARGET=      106.000
 ELENCL=     622.70  ELENCR= 100000.00

                                REPEAT OF W, INVERT ADJUSTED

 48475.00     13.21    619.31      0.00       0.00    619.68       .37      1.22       .14    617.90
    2670.       74.     2577.       19.        31.      519.       13.      930.      365.    618.20
     3.85      2.36      4.96      1.50       .050      .072      .045      .035    606.10    470.00
  .004070      562.      562.      562.          2         0         0      0.00    106.00    576.00


1455 NV CARD USED
*SECNO 48756.000

3470 ENCROACHMENT STATIONS=      470.0      576.0  TYPE=      1  TARGET=      106.000
 ELENCL=     622.70  ELENCR= 100000.00

                                REPEAT OF W, INVERT ADJUSTED

 48756.00     13.93    620.43      0.00       0.00    620.72       .29      1.01       .03    618.30
    2670.      123.     2486.       61.        47.      566.       28.      934.      365.    618.60
     3.87      2.64      4.40      2.17       .050      .076      .045      .035    606.50    470.00
  .003134      480.      281.       75.          2         0         0      0.00    106.00    576.00


CCHV=     .100 CEHV=      .300
1455 NV CARD USED
*SECNO 49038.000

3470 ENCROACHMENT STATIONS=      470.0      576.0  TYPE=      1  TARGET=      106.000
 ELENCL=     622.70  ELENCR= 100000.00

                W               VALLEY SECTION W


                                GAGING STATION

 49038.00     14.38    621.28      0.00       0.00    621.53       .25       .31       .00    616.70
    2670.      149.     2433.       88.        56.      594.       37.      938.      366.    619.00
     3.89      2.66      4.09      2.35       .050      .076      .045      .036    606.90    470.00
  .002544      430.      282.       75.          2         0         0      0.00    106.00    576.00


CCHV=     .300 CEHV=      .500
1490 NH CARD USED
*SECNO 49123.000

3470 ENCROACHMENT STATIONS=      531.8      600.0  TYPE=      1  TARGET=       68.200
 ELENCL=     623.00  ELENCR= 100000.00

                                D/S FACE OF ROMEO PLANK RD. BRIDGE

 49123.00     13.38    621.48      0.00       0.00    621.69       .21       .15       .01    618.70
    2670.        0.     2670.        0.         0.      719.        0.      940.      366. 100000.00
     3.89      0.00      3.71      0.00       .050      .067      .045      .036    608.10    531.80
  .001343       85.       85.       85.          2         0         0      0.00     68.20    600.00


SPECIAL BRIDGE

SB  XK          XKOR         COFQ         RDLEN        BWC          BWP         BAREA        SS          ELCHU       ELCHD
                                                                                0.00        696.30        0.00      608.10      608.10
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1490 NH CARD USED
*SECNO 49153.000
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
621.90	621.69	0.00	0.	2670.	696.	693.	621.20	623.30

3470 ENCROACHMENT STATIONS= 531.8 600.0 TYPE= 1 TARGET= 68.200
ELENCL= 623.00 ELENCR= 100000.00

X BRIDGE SECTION X

U/S FACE OF ROMEO PLANK RD. BRIDGE

49153.00	13.60	621.70	0.00	0.00	621.90	.21	.21	0.00	618.70
2670.	0.	2670.	0.	0.	734.	0.	940.	366.	100000.00
3.90	0.00	3.64	0.00	.050	.067	.045	.036	608.10	531.80
.001259	30.	30.	30.	2	0	0	0.00	63.20	600.00

1490 NH CARD USED
*SECNO 50308.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

Y VALLEY SECTION Y

50308.00	12.28	622.48	0.00	0.00	622.55	.07	.60	.04	619.90
2670.	13.	1390.	1267.	28.	517.	942.	968.	371.	620.00
4.05	.45	2.69	1.34	.090	.068	.045	.037	610.20	120.19
.000301	984.	1155.	984.	2	0	0	0.00	348.29	468.47

CCHV= .100 CEHV= .300
1490 NH CARD USED
*SECNO 51428.000

Z VALLEY SECTION Z

51428.00	12.00	622.90	0.00	0.00	623.05	.15	.48	.02	620.50
2670.	445.	1927.	298.	484.	543.	217.	1002.	379.	619.60
4.15	.92	3.55	1.37	.080	.069	.070	.039	610.90	191.36
.000670	1020.	1120.	1090.	2	0	0	0.00	303.03	494.38

1490 NH CARD USED
*SECNO 52958.000

3265 DIVIDED FLOW

AA VALLEY SECTION AA

52958.00	10.64	624.24	0.00	0.00	624.42	.19	1.37	.01	618.10
2540.	421.	1689.	430.	268.	406.	359.	1040.	390.	622.90
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.087	.070	.040	613.00	65.95

1490 NH CARD USED
*SECNO 54038.000

AB VALLEY SECTION AB

54038.00	9.62	625.32	0.00	0.00	625.39	.08	.96	.01	622.70
2540.	1446.	1029.	64.	958.	343.	95.	1069.	399.	621.10
4.42	1.51	3.00	.68	.054	.059	.090	.041	615.70	83.17
.000635	1080.	1080.	980.	1	0	0	0.00	415.74	498.91

CCHV= .300 CEHV= .700
1490 NH CARD USED
*SECNO 54368.000

3470 ENCROACHMENT STATIONS= 320.0 578.0 TYPE= 1 TARGET= 258.000

VALLEY SECTIONS AB) AC AVERAGED USING AVSEC PROGRAM

54368.00	9.40	625.60	0.00	0.00	625.92	.32	.36	.17	622.50
2540.	893.	1524.	123.	400.	274.	94.	1077.	402.	622.30
4.45	2.23	5.56	1.31	.060	.066	.075	.042	616.20	320.00
.002252	330.	330.	330.	2	0	0	0.00	244.90	564.90

1490 NH CARD USED
*SECNO 54468.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3470 ENCROACHMENT STATIONS= 370.0 595.0 TYPE= 1 TARGET= -370.000

REPEAT OF PREVIOUS SECTION, INVERT ADJUSTED

54468.00	9.48	625.83	0.00	0.00	626.22	.39	.24	.05	622.65
2540.	773.	1634.	133.	266.	277.	98.	1079.	402.	622.45
4.45	2.90	5.91	1.35	.050	.071	.080	.042	616.35	370.00
.002648	100.	100.	100.	2	0	0	0.00	196.14	566.14

1490 NH CARD USED
*SECNO 54568.000

3470 ENCROACHMENT STATIONS= 494.0 590.0 TYPE= 1 TARGET= 96.000

AC VALLEY SECTION AC

54568.00	9.47	625.97	0.00	0.00	626.85	.89	.29	.35	622.20
2540.	653.	1787.	100.	140.	209.	46.	1080.	403.	623.60
4.46	4.65	8.54	2.16	.040	.075	.060	.042	616.50	494.00
.003602	80.	100.	100.	2	0	0	0.00	96.00	590.00

1490 NH CARD USED
*SECNO 54637.000

REPEAT OF AC, NO BRIDGE TABLE

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  2540.        0.     2540.       0.        0.      75.        0.     1081.     403.    633.10
  4.46      0.00      5.33      0.00      .040      .040      .060      .042    617.40    518.40
.001733      89.       69.       59.         2         0         0      0.00     59.44    577.84

*SECNO 54638.000

3370 NORMAL BRIDGE,NRD= 17 MIN ELTRD=  628.20 MAX ELLC=  628.70

                     D/S FACE OF HAYES RD.

                     CONCRETE BRIDGE, NO PIERS

 54638.00      9.32    626.72      0.00      0.00    627.16       .44       .00       .00    632.40
    2540.        0.     2540.        0.        0.      475.        0.     1081.      403.    633.10
     4.46      0.00      5.33      0.00      .040      .040      .060      .042    617.40    518.40
  .001734        1.        1.        1.         0         0         0      0.00     59.44    577.84

*SECNO 54678.000

3370 NORMAL BRIDGE,NRD= 17 MIN ELTRD=  628.20 MAX ELLC=  628.70

          AD       BRIDGE SECTION AD

                     U/S FACE OF HAYES RD.

 54678.00      9.40    626.80      0.00      0.00    627.23       .43       .07       .00    632.40
    2540.        0.     2540.        0.        0.      480.        0.     1081.      403.    633.10
     4.46      0.00      5.29      0.00      .040      .040      .060      .042    617.40    513.40
  .001689       40.       40.       40.         0         0         0      0.00     59.44    577.84

1490 NH CARD USED
*SECNO 54679.000
   SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS  BANK ELEV
   Q         QLOB      QCH       QROB      ALOB       ACH       AROB      VOL      TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL        XNCH      XNR       WTN      ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL     IDC       ICONT     CORAR    TOPWID     ENDST

                     REPEAT OF AD, NO BRIDGE TABLE

 54679.00      9.40    626.80      0.00      0.00    627.23       .43       .00       .00    632.40
    2540.        0.     2540.        0.        0.      481.        0.     1081.      403.    633.10
     4.46      0.00      5.28      0.00      .040      .050      .060      .042    617.40    513.40
  .002629        1.        1.        1.         0         0         0      0.00     59.44    577.84
```

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Macomb Twp

3) WATERCOURSE: Miller Drain

4) DOCUMENT TYPE: 100 year flood plain revised w/ improvements

00BREAK00

From File No.: 88-14-606

THIS RUN EXECUTED 01-20-89

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 HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
 ERROR CORR -  01,02,03,04,05,06
 MODIFICATION -  50,51,52,53,54,55,56
 IBM-PC-XT VERSION AUGUST 1985
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T1 BACKWATER ANALYSIS MILLER BY Anderson Eckstein &Westrick
T2 MILLER DRAIN
T3 FLOOD PLAIN IMPROVEMENTS

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	2.	0.	0.	.000000	.00	.0	0.	593.640	.000

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	1.000	.000	-1.000	.000	.000	.000	.000	.000	.000	.000

NC	.040	.042	.037	.300	.500	.000	.000	.000	.000	.000
QT	4.000	205.000	300.000	325.000	465.000	.000	.000	.000	.000	.000
X1	12655.000	9.000	50.000	128.000	.000	.000	.000	.000	.000	.000
GR	598.600	.000	597.800	50.000	589.900	85.000	588.300	90.000	588.200	94.000
GR	588.400	98.000	589.300	101.000	598.300	128.000	598.500	150.000	.000	.000
X1	13568.000	13.000	93.600	106.400	913.000	913.000	913.000	.000	.000	.000
GR	598.800	.000	597.600	93.600	590.800	93.600	589.700	94.000	588.900	96.000
GR	588.800	98.000	588.700	100.000	588.800	102.000	588.900	104.000	589.700	106.000
GR	590.800	106.400	597.600	106.400	598.300	200.000	.000	.000	.000	.000
NC	.040	.040	.033	.000	.000	.000	.000	.000	.000	.000
X1	13569.000	.000	.000	.000	1.000	1.000	1.000	.000	.000	.000
BT	11.000	.000	598.800	.000	93.600	597.600	590.800	94.000	597.600	593.200
BT	96.000	597.600	595.800	98.000	597.600	596.700	100.000	597.600	597.000	102.000
BT	597.600	596.700	104.000	597.600	595.800	106.000	597.600	593.200	106.400	597.600
BT	590.800	200.000	598.300	.000	.000	.000	.000	.000	.000	.000
X1	13672.000	.000	.000	.000	103.000	103.000	103.000	.000	.000	.000
X2	.000	.000	.000	.000	.000	.000	1.000	.000	.000	.000
NC	.060	.060	.040	.000	.000	.000	.000	.000	.000	.000
X1	13673.000	.000	.000	.000	1.000	1.000	1.000	.000	.000	.000
X1	13913.000	6.000	.000	89.000	240.000	240.000	240.000	.000	.000	.000
GR	599.000	.000	594.000	24.000	586.720	45.000	586.720	54.000	595.000	80.000
GR	597.050	89.000	.000	.000	.000	.000	.000	.000	.000	.000

NOTE: This analysis has assumed that the dredged portion of the low flow channel will not be filled in with sediment.
IF XSEC's are to be used it is suggested flow area below 5887 be deleted at XSEC 13913, with similar deletions up to XSEC 16185.
Impact on 100-yr stage is minimal BEM

X1	14126.000	8.000	.000	132.000	213.000	213.000	213.000	.000	.000	.000
GR	596.800	.000	591.830	20.000	590.830	50.000	586.830	62.000	586.830	70.000
GR	590.830	82.000	591.830	112.000	596.420	132.000	.000	.000	.000	.000
NC	.060	.060	.040	.000	.000	.000	.000	.000	.000	.000
X1	14506.000	8.000	.000	120.000	425.000	330.000	380.000	.000	.000	.000
GR	596.850	.000	593.350	14.000	591.010	44.000	587.010	56.000	587.010	64.000
GR	591.010	76.000	593.350	106.000	596.850	120.000	.000	.000	.000	.000
QT	4.000	200.000	295.000	320.000	465.000	.000	.000	.000	.000	.000
X1	14725.000	8.000	.000	120.000	200.000	235.000	219.000	.000	.000	.000
GR	597.060	.000	593.560	14.000	591.130	44.000	587.130	56.000	587.130	64.000
GR	591.130	76.000	593.560	106.000	597.060	120.000	.000	.000	.000	.000
X1	14925.000	8.000	.000	120.000	150.000	260.000	200.000	.000	.000	.000
GR	597.200	.000	593.700	14.000	591.230	44.000	587.230	56.000	587.230	64.000
GR	591.230	76.000	593.700	106.000	597.200	120.000	.000	.000	.000	.000
QT	4.000	200.000	295.000	320.000	465.000	.000	.000	.000	.000	.000
X1	14950.000	8.000	.000	120.000	25.000	25.000	25.000	.000	.000	.000
GR	597.750	.000	594.250	14.000	591.750	44.000	587.750	56.000	587.750	64.000
GR	591.750	76.000	594.250	106.000	597.750	120.000	.000	.000	.000	.000
X1	15315.000	8.000	.000	120.000	385.000	195.000	365.000	.000	.000	.000
GR	597.430	.000	593.930	14.000	591.430	44.000	587.430	56.000	587.430	64.000
GR	591.430	76.000	593.930	106.000	597.430	120.000	.000	.000	.000	.000
X1	15671.000	8.000	.000	120.000	390.000	270.000	356.000	.000	.000	.000
GR	597.620	.000	594.120	14.000	591.600	44.000	587.600	56.000	587.600	64.000
GR	591.600	76.000	594.120	106.000	597.620	120.000	.000	.000	.000	.000
X1	16071.000	8.000	.000	120.000	410.000	380.000	400.000	.000	.000	.000
GR	597.840	.000	594.340	14.000	591.800	44.000	587.800	56.000	587.800	64.000
GR	591.800	76.000	594.340	106.000	597.840	120.000	.000	.000	.000	.000
X1	16185.000	8.000	.000	120.000	150.000	85.000	114.000	.000	.000	.000
GR	597.900	.000	594.400	14.000	591.860	44.000	587.860	56.000	587.860	64.000
GR	591.860	76.000	594.400	106.000	597.900	120.000	.000	.000	.000	.000
NC	.060	.060	.040	.600	1.000	.000	.000	.000	.000	.000
X1	16285.000	4.000	.000	49.700	100.000	100.000	100.000	.000	.000	.000
GR	597.950	.000	591.000	20.850	591.000	28.850	597.950	49.700	.000	.000
X1	16385.000	8.000	303.000	326.000	100.000	100.000	100.000	.000	.000	.000
GR	598.000	.000	597.000	263.000	596.000	303.000	593.000	311.000	593.000	322.000
GR	596.000	326.000	597.000	358.000	598.000	417.000	.000	.000	.000	.000
X1	17320.000	16.000	500.000	527.000	720.000	900.000	935.000	.000	.000	.000
GR	598.100	.000	598.300	100.000	598.200	200.000	597.300	300.000	597.800	400.000
GR	597.400	500.000	594.300	509.000	594.000	514.000	594.300	520.000	597.300	527.000
GR	597.100	550.000	597.200	600.000	598.000	700.000	598.200	800.000	598.300	900.000
GR	598.300	1000.000	.000	.000	.000	.000	.000	.000	.000	.000
EJ	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*PROF 1

CCHV= .300 CEHV= .500

*SECNO 12655.000

12655.00	5.44	593.64	.00	593.64	593.67	.03	.00	.00	597.80
205.	0.	205.	0.	0.	139.	0.	0.	0.	598.30
.00	.00	1.47	.00	.040	.037	.042	.000	588.20	68.43
.000317	0.	0.	0.	0	0	0	.00	45.59	114.02

*SECNO 13568.000

13568.00	5.41	594.11	.00	.00	594.27	.16	.53	.06	597.60
205.	0.	205.	0.	0.	65.	0.	2.	1.	597.60
.08	.00	3.16	.00	.040	.037	.042	.000	588.70	93.60
.001404	913.	913.	913.	2	0	0	.00	12.80	106.40

*SECNO 13569.000

3370 NORMAL BRIDGE,NRD= 11 MIN ELTRD= 597.60 MAX ELLC= 597.00

13569.00	5.41	594.11	.00	.00	594.27	.17	.00	.01	597.60
205.	0.	205.	0.	0.	63.	0.	2.	1.	597.60
.08	.00	3.28	.00	.040	.033	.040	.000	588.70	93.60
.001305	1.	1.	1.	0	0	0	-2.33	12.80	106.40

*SECNO 13672.000

3370 NORMAL BRIDGE,NRD= 11 MIN ELTRD= 597.60 MAX ELLC= 597.00

13672.00	5.55	594.25	.00	.00	594.41	.16	.13	.00	597.60
205.	0.	205.	0.	0.	64.	0.	2.	1.	597.60
.09	.00	3.21	.00	.040	.033	.040	.000	588.70	93.60
.001236	103.	103.	103.	0	0	0	-2.64	12.80	106.40

*SECNO 13673.000

13673.00	5.56	594.26	.00	.00	594.41	.15	.00	.00	597.60
205.	0.	205.	0.	0.	67.	0.	2.	1.	597.60
.09	.00	3.07	.00	.060	.040	.060	.000	588.70	93.60
.001521	1.	1.	1.	1	0	0	.00	12.80	106.40

THIS RUN EXECUTED 01-20-89

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 HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
 ERROR CORR -  01,02,03,04,05,06
 MODIFICATION -  50,51,52,53,54,55,56
 IBM-PC-XT VERSION AUGUST 1985
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T1
T2
T3

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-10.	4.	0.	0.	.000000	.00	.0	0.	595.290	.000

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	3.000	.000	-1.000	.000	.000	.000	.000	.000	.000	.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*PROF 3

CCHV= .300 CEHV= .500

*SECNO 12655.000

12655.00	7.09	595.29	.00	595.29	595.32	.03	.00	.00	597.80
325.	0.	325.	0.	0.	225.	0.	0.	0.	598.30
.00	.00	1.45	.00	.040	.037	.042	.000	588.20	61.12
.000222	0.	0.	0.	0	0	0	.00	57.85	118.97

*SECNO 13568.000

13568.00	6.93	595.63	.00	.00	595.86	.23	.44	.10	597.60
325.	0.	325.	0.	0.	84.	0.	3.	1.	597.60
.07	.00	3.86	.00	.040	.037	.042	.000	588.70	93.60
.001757	913.	913.	913.	2	0	0	.00	12.80	106.40

*SECNO 13569.000

3370 NORMAL BRIDGE,NRD= 11 MIN ELTRD= 597.60 MAX ELLC= 597.00

13569.00	6.91	595.61	.00	.00	595.89	.28	.00	.02	597.60
325.	0.	325.	0.	0.	77.	0.	3.	1.	597.60
.07	.00	4.24	.00	.040	.033	.040	.000	588.70	93.60
.002055	1.	1.	1.	2	0	0	-7.36	12.80	106.40

*SECNO 13672.000

3370 NORMAL BRIDGE,NRD= 11 MIN ELTRD= 597.60 MAX ELLC= 597.00

13672.00	7.13	595.83	.00	.00	596.10	.27	.21	.00	597.60
325.	0.	325.	0.	0.	78.	0.	3.	1.	597.60
.07	.00	4.14	.00	.040	.033	.040	.000	588.70	93.60
.001965	103.	103.	103.	2	0	0	-8.41	12.80	106.40

*SECNO 13673.000

13673.00	7.21	595.91	.00	.00	596.12	.21	.00	.02	597.60
325.	0.	325.	0.	0.	88.	0.	3.	1.	597.60
.07	.00	3.70	.00	.060	.040	.060	.000	588.70	93.60
.001847	1.	1.	1.	2	0	0	.00	12.80	106.40

I FID

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 13913.000

13913.00	9.49	596.21	.00	.00	596.23	.01	.05	.06	599.00
325.	0.	325.	0.	0.	363.	0.	5.	588.7 1.	597.05
.15	.00	.90	.00	.060	.040	.060	.000	586.72	13.37
.000071	240.	240.	240.	2	0	0	.00	71.95	85.33

A

*SECNO 14126.000

14126.00	9.40	596.23	.00	.00	596.24	.00	.01	.00	596.80
325.	0.	325.	0.	0.	628.	0.	7.	588.8 1.	~~596.42~~
.26	.00	.52	.00	.060	.040	.060	.000	586.83	2.28
.000024	213.	213.	213.	2	0	0	.00	128.90	131.18

B

will likely fill in with sediment use X3.2 to eliminate f/oed area

*SECNO 14506.000

14506.00	9.23	596.24	.00	.00	596.25	.01	.01	.00	596.85
325.	0.	325.	0.	0.	526.	0.	12.	589 3.	596.85
.43	.00	.62	.00	.060	.040	.060	.000	587.01	2.40
.000038	425.	380.	330.	0	0	0	.00	115.21	117.60

C

*SECNO 14725.000

14725.00	9.12	596.25	.00	.00	596.26	.01	.01	.00	597.06
320.	0.	320.	0.	0.	507.	0.	15.	589.1 3.	597.06
.53	.00	.63	.00	.060	.040	.060	.000	587.13	3.24
.000040	200.	219.	235.	0	0	0	.00	113.52	116.76

D

*SECNO 14925.000

14925.00	9.03	596.26	.00	.00	596.27	.01	.01	.00	597.20
320.	0.	320.	0.	0.	495.	0.	17.	589.2 4.	597.20
.61	.00	.65	.00	.060	.040	.060	.000	587.23	3.76
.000043	150.	200.	260.	0	0	0	.00	112.47	116.24

E

*SECNO 14950.000

14950.00	8.51	596.26	.00	.00	596.27	.01	.00	.00	597.75
320.	0.	320.	0.	0.	436.	0.	17.	589.7 4.	597.75
.62	.00	.73	.00	.060	.040	.060	.000	587.75	5.96
.000062	25.	25.	25.	0	0	0	.00	108.08	114.04

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 15315.000

15315.00	8.85	596.28	.00	.00	596.29	.01	.02	.00	597.43
320.	0.	320.	0.	0.	473.	0.	21.	590 5.	597.43
.77	.00	.68	.00	.060	.040	.060	.000	587.43	4.61
.000049	385.	365.	195.	0	0	0	.00	110.77	115.39

Likely to fill in with sediment

*SECNO 15671.000

15671.00	8.70	596.30	.00	.00	596.31	.01	.02	.00	597.62
320.	0.	320.	0.	0.	456.	0.	25.	590.3 6.	597.62
.91	.00	.70	.00	.060	.040	.060	.000	587.60	5.28
.000055	390.	356.	270.	0	0	0	.00	109.44	114.72

*SECNO 16071.000

16071.00	8.52	596.32	.00	.00	596.33	.01	.02	.00	597.84
320.	0.	320.	0.	0.	435.	0.	29.	590.7 7.	597.84
1.07	.00	.74	.00	.060	.040	.060	.000	587.80	6.08
.000062	410.	400.	380.	0	0	0	.00	107.84	113.92

G

*SECNO 16185.000

16185.00	8.47	596.33	.00	.00	596.34	.01	.01	.00	597.90
320.	0.	320.	0.	0.	430.	0.	30.	590.8 7.	597.90
1.11	.00	.74	.00	.060	.040	.060	.000	587.86	6.28
.000065	150.	114.	85.	0	0	0	.00	107.44	113.72

H

CCHV= .600 CEHV= 1.000

*SECNO 16285.000

16285.00	5.35	596.35	.00	.00	596.44	.10	.02	.09	597.95
320.	0.	320.	0.	0.	128.	0.	31.	7.	597.95
1.12	.00	2.49	.00	.060	.040	.060	.000	591.00	4.83
.001009	100.	100.	100.	1	0	0	.00	40.05	44.87

I

*SECNO 16385.000

16385.00	3.54	596.54	.00	.00	596.91	.37	.19	.27	596.00
320.	4.	312.	3.	6.	63.	5.	31.	7.	596.00
1.13	.73	4.93	.73	.060	.040	.060	.000	593.00	281.47
.004970	100.	100.	100.	2	0	0	.00	61.75	343.22

J

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 17320.000

3265 DIVIDED FLOW

3280 CROSS SECTION 17320.00 EXTENDED .15 FEET

17320.00	4.25	598.25	.00	.00	598.27	.03	1.16	.20	597.40
320.	82.	156.	82.	193.	84.	161.	36.	15.	597.30
1.34	.43	1.86	.51	.060	.040	.060	.000	594.00	.00
.000581	720.	935.	900.	3	0	0	.00	782.18	852.87

THIS RUN EXECUTED 01-20-89

##
HEC2 RELEASE DATED NOV 76 UPDATED MAY 1984
ERROR CORR - 01,02,03,04,05,06
MODIFICATION - 50,51,52,53,54,55,56
IBM-PC-XT VERSION AUGUST 1985
##

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

FLOOD PLAIN IMPROVEMENTS

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
12655.000	.00	.00	.00	588.20	205.00	593.64	.00	593.67	3.17	1.47	139.23	115.18
12655.000	.00	.00	.00	588.20	300.00	594.91	.00	594.94	2.48	1.48	203.12	190.59
12655.000	.00	.00	.00	588.20	325.00	595.29	.00	595.32	2.22	1.45	224.56	217.89
12655.000	.00	.00	.00	588.20	465.00	596.80	.00	596.83	1.77	1.45	320.39	349.94
13568.000	913.00	.00	.00	588.70	205.00	594.11	.00	594.27	14.04	3.16	64.82	54.70
13568.000	913.00	.00	.00	588.70	300.00	595.29	.00	595.51	17.20	3.75	79.95	72.34
13568.000	913.00	.00	.00	588.70	325.00	595.63	.00	595.86	17.57	3.86	84.30	77.54
13568.000	913.00	.00	.00	588.70	465.00	597.05	.00	597.37	21.78	4.54	102.40	99.65
13569.000	1.00	597.60	597.00	588.70	205.00	594.11	.00	594.27	13.05	3.28	62.50	56.76
13569.000	1.00	597.60	597.00	588.70	300.00	595.28	.00	595.53	18.96	4.06	73.88	68.90
13569.000	1.00	597.60	597.00	588.70	325.00	595.61	.00	595.89	20.55	4.24	76.66	71.70
13569.000	1.00	597.60	597.00	588.70	465.00	596.97	.00	597.45	45.17	5.52	84.20	69.18
13672.000	103.00	597.60	597.00	588.70	205.00	594.25	.00	594.41	12.36	3.21	63.91	58.30
13672.000	103.00	597.60	597.00	588.70	300.00	595.48	.00	595.73	18.09	3.97	75.49	70.53
13672.000	103.00	597.60	597.00	588.70	325.00	595.83	.00	596.10	19.65	4.14	78.47	73.33
13672.000	103.00	597.60	597.00	588.70	465.00	597.44	.00	597.92	45.80	5.52	84.20	68.71
13673.000	1.00	.00	.00	588.70	205.00	594.26	.00	594.41	15.21	3.07	66.68	52.57
13673.000	1.00	.00	.00	588.70	300.00	595.54	.00	595.74	18.17	3.61	83.09	70.38
13673.000	1.00	.00	.00	588.70	325.00	595.91	.00	596.12	18.47	3.70	87.79	75.62
13673.000	1.00	.00	.00	588.70	465.00	597.71	.00	597.98	20.60	4.19	112.01	102.44
13913.000	240.00	.00	.00	586.72	205.00	594.49	.00	594.50	.70	.81	251.89	245.69
13913.000	240.00	.00	.00	586.72	300.00	595.83	.00	595.85	.73	.89	335.92	350.86
13913.000	240.00	.00	.00	586.72	325.00	596.21	.00	596.23	.71	.90	362.56	385.69
13913.000	240.00	.00	.00	586.72	465.00	598.08	.00	598.10	.58	.91	510.90	609.42
14126.000	213.00	.00	.00	586.83	205.00	594.51	.00	594.51	.32	.49	418.18	364.45
14126.000	213.00	.00	.00	586.83	300.00	595.85	.00	595.86	.26	.52	580.00	590.05
14126.000	213.00	.00	.00	586.83	325.00	596.23	.00	596.24	.24	.52	628.27	662.90
14126.000	213.00	.00	.00	586.83	465.00	598.10	.00	598.11	.17	.53	874.29	1115.14

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
14506.000	380.00	.00	.00	587.01	205.00	594.52	.00	594.53	.54	.61	338.71	277.98
14506.000	380.00	.00	.00	587.01	300.00	595.86	.00	595.87	.41	.62	482.57	468.38
14506.000	380.00	.00	.00	587.01	325.00	596.24	.00	596.25	.38	.62	525.60	530.43
14506.000	380.00	.00	.00	587.01	465.00	598.11	.00	598.12	.26	.62	748.02	916.62
14725.000	219.00	.00	.00	587.13	200.00	594.53	.00	594.54	.59	.62	323.64	260.49
14725.000	219.00	.00	.00	587.13	295.00	595.87	.00	595.88	.44	.63	464.75	444.38
14725.000	219.00	.00	.00	587.13	320.00	596.25	.00	596.26	.40	.63	507.06	504.56
14725.000	219.00	.00	.00	587.13	465.00	598.11	.00	598.12	.28	.64	728.11	878.25
14925.000	200.00	.00	.00	587.23	200.00	594.54	.00	594.55	.65	.64	313.66	248.92
14925.000	200.00	.00	.00	587.23	295.00	595.88	.00	595.89	.47	.65	452.99	428.50
14925.000	200.00	.00	.00	587.23	320.00	596.26	.00	596.27	.43	.65	494.80	487.41
14925.000	200.00	.00	.00	587.23	465.00	598.12	.00	598.13	.30	.65	714.57	852.38
14950.000	25.00	.00	.00	587.75	200.00	594.55	.00	594.55	1.10	.76	262.61	190.90
14950.000	25.00	.00	.00	587.75	295.00	595.88	.00	595.89	.70	.74	396.01	352.08
14950.000	25.00	.00	.00	587.75	320.00	596.26	.00	596.27	.62	.73	436.15	405.71
14950.000	25.00	.00	.00	587.75	465.00	598.12	.00	598.13	.40	.71	650.54	733.23
15315.000	365.00	.00	.00	587.43	200.00	594.58	.00	594.59	.77	.68	295.80	228.27
15315.000	365.00	.00	.00	587.43	295.00	595.91	.00	595.91	.54	.68	431.96	400.07
15315.000	365.00	.00	.00	587.43	320.00	596.28	.00	596.29	.49	.69	472.90	456.65
15315.000	365.00	.00	.00	587.43	465.00	598.14	.00	598.14	.33	.67	690.20	806.38
15671.000	356.00	.00	.00	587.60	200.00	594.61	.00	594.62	.88	.71	282.55	213.28
15671.000	356.00	.00	.00	587.60	295.00	595.93	.00	595.94	.61	.71	415.72	378.38
15671.000	356.00	.00	.00	587.60	320.00	596.30	.00	596.31	.55	.70	455.87	433.07
15671.000	356.00	.00	.00	587.60	465.00	598.15	.00	598.15	.36	.69	670.55	769.90
16071.000	400.00	.00	.00	587.80	200.00	594.65	.00	594.66	1.06	.75	265.70	194.57
16071.000	400.00	.00	.00	587.80	295.00	595.95	.00	595.96	.70	.74	396.03	352.50
16071.000	400.00	.00	.00	587.80	320.00	596.32	.00	596.33	.62	.74	435.36	405.09
16071.000	400.00	.00	.00	587.80	465.00	598.16	.00	598.17	.41	.72	647.02	726.99
16185.000	114.00	.00	.00	587.86	200.00	594.66	.00	594.67	1.11	.76	261.60	190.07
16185.000	114.00	.00	.00	587.86	295.00	595.96	.00	595.97	.73	.75	390.84	345.72
16185.000	114.00	.00	.00	587.86	320.00	596.33	.00	596.34	.65	.74	429.89	397.65
16185.000	114.00	.00	.00	587.86	465.00	598.17	.00	598.18	.42	.73	640.51	715.27
16285.000	100.00	.00	.00	591.00	200.00	594.69	.00	594.82	20.13	2.85	70.07	44.57
16285.000	100.00	.00	.00	591.00	295.00	595.98	.00	596.08	11.78	2.59	114.03	85.94
16285.000	100.00	.00	.00	591.00	320.00	596.35	.00	596.44	10.09	2.49	128.32	100.73
16285.000	100.00	.00	.00	591.00	465.00	598.18	.00	598.25	5.45	2.20	211.50	199.20
16385.000	100.00	.00	.00	593.00	200.00	595.12	.00	595.72	151.81	6.19	32.33	16.23
16385.000	100.00	.00	.00	593.00	295.00	596.21	.00	596.64	66.92	5.26	57.57	36.08
16385.000	100.00	.00	.00	593.00	320.00	596.54	.00	596.91	49.70	4.93	73.80	45.39
16385.000	100.00	.00	.00	593.00	465.00	598.28	.00	598.33	5.38	2.25	484.66	200.40

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
17320.000	935.00	.00	.00	594.00	200.00	597.86	.00	597.90	7.54	1.93	226.48	72.8[illegible]
17320.000	935.00	.00	.00	594.00	295.00	598.18	.00	598.21	6.23	1.89	386.08	118.1[illegible]
17320.000	935.00	.00	.00	594.00	320.00	598.25	.00	598.27	5.81	1.86	438.36	132.7[illegible]
17320.000	935.00	.00	.00	594.00	465.00	598.68	.00	598.69	3.23	1.51	857.45	258.8[illegible]

FLOOD PLAIN IMPROVEMENTS

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
12655.000	205.00	593.64	.00	.00	.00	45.59	.00
12655.000	300.00	594.91	1.27	.00	.00	55.03	.00
12655.000	325.00	595.29	.38	.00	.00	57.85	.00
12655.000	465.00	596.80	1.51	.00	.00	69.07	.00
13568.000	205.00	594.11	.00	.47	.00	12.80	913.00
13568.000	300.00	595.29	1.18	.38	.00	12.80	913.00
13568.000	325.00	595.63	.34	.34	.00	12.80	913.00
13568.000	465.00	597.05	1.41	.25	.00	12.80	913.00
13569.000	205.00	594.11	.00	.00	.00	12.80	1.00
13569.000	300.00	595.28	1.17	-.02	.00	12.80	1.00
13569.000	325.00	595.61	.33	-.02	.00	12.80	1.00
13569.000	465.00	596.97	1.36	-.07	.00	12.80	1.00
13672.000	205.00	594.25	.00	.14	.00	12.80	103.00
13672.000	300.00	595.48	1.23	.20	.00	12.80	103.00
13672.000	325.00	595.83	.35	.22	.00	12.80	103.00
13672.000	465.00	597.44	1.61	.47	.00	12.80	103.00
13673.000	205.00	594.26	.00	.02	.00	12.80	1.00
13673.000	300.00	595.54	1.27	.06	.00	12.80	1.00
13673.000	325.00	595.91	.37	.07	.00	12.80	1.00
13673.000	465.00	597.71	1.80	.26	.00	35.15	1.00
13913.000	205.00	594.49	.00	.22	.00	56.73	240.00
13913.000	300.00	595.83	1.35	.30	.00	68.47	240.00
13913.000	325.00	596.21	.38	.31	.00	71.95	240.00
13913.000	465.00	598.08	1.87	.38	.00	84.61	240.00
14126.000	205.00	594.51	.00	.02	.00	114.43	213.00
14126.000	300.00	595.85	1.35	.02	.00	125.72	213.00
14126.000	325.00	596.23	.38	.02	.00	128.90	213.00
14126.000	465.00	598.10	1.87	.02	.00	132.00	213.00
14506.000	205.00	594.52	.00	.01	.00	101.40	380.00
14506.000	300.00	595.86	1.34	.01	.00	112.18	380.00
14506.000	325.00	596.24	.38	.01	.00	115.21	380.00
14506.000	465.00	598.11	1.87	.01	.00	120.00	380.00
14725.000	200.00	594.53	.00	.01	.00	99.76	219.00
14725.000	295.00	595.87	1.34	.01	.00	110.50	219.00
14725.000	320.00	596.25	.38	.01	.00	113.52	219.00
14725.000	465.00	598.11	1.86	.01	.00	120.00	219.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
14925.000	200.00	594.54	.00	.01	.00	98.75	200.00
14925.000	295.00	595.88	1.34	.01	.00	109.46	200.00
14925.000	320.00	596.26	.38	.01	.00	112.47	200.00
14925.000	465.00	598.12	1.86	.01	.00	120.00	200.00
14950.000	200.00	594.55	.00	.00	.00	94.37	25.00
14950.000	295.00	595.88	1.34	.00	.00	105.07	25.00
14950.000	320.00	596.26	.38	.00	.00	108.08	25.00
14950.000	465.00	598.12	1.86	.00	.00	120.00	25.00
15315.000	200.00	594.58	.00	.04	.00	97.14	365.00
15315.000	295.00	595.91	1.33	.02	.00	107.77	365.00
15315.000	320.00	596.28	.37	.02	.00	110.77	365.00
15315.000	465.00	598.14	1.85	.01	.00	120.00	365.00
15671.000	200.00	594.61	.00	.03	.00	95.94	356.00
15671.000	295.00	595.93	1.32	.02	.00	106.47	356.00
15671.000	320.00	596.30	.37	.02	.00	109.44	356.00
15671.000	465.00	598.15	1.85	.01	.00	120.00	356.00
16071.000	200.00	594.65	.00	.04	.00	94.42	400.00
16071.000	295.00	595.95	1.31	.03	.00	104.88	400.00
16071.000	320.00	596.32	.37	.02	.00	107.84	400.00
16071.000	465.00	598.16	1.84	.02	.00	120.00	400.00
16185.000	200.00	594.66	.00	.01	.00	94.07	114.00
16185.000	295.00	595.96	1.30	.01	.00	104.49	114.00
16185.000	320.00	596.33	.37	.01	.00	107.44	114.00
16185.000	465.00	598.17	1.84	.00	.00	120.00	114.00
16285.000	200.00	594.69	.00	.03	.00	30.08	100.00
16285.000	295.00	595.98	1.29	.02	.00	37.85	100.00
16285.000	320.00	596.35	.37	.02	.00	40.05	100.00
16285.000	465.00	598.18	1.83	.01	.00	49.70	100.00
16385.000	200.00	595.12	.00	.43	.00	19.48	100.00
16385.000	295.00	596.21	1.09	.23	.00	38.40	100.00
16385.000	320.00	596.54	.32	.19	.00	61.75	100.00
16385.000	465.00	598.28	1.75	.11	.00	417.00	100.00
17320.000	200.00	597.86	.00	2.74	.00	445.16	935.00
17320.000	295.00	598.18	.31	1.96	.00	624.86	935.00
17320.000	320.00	598.25	.07	1.71	.00	782.18	935.00
17320.000	465.00	598.68	.43	.40	.00	1000.00	935.00

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Macomb Twp.

3) WATERCOURSE: Miller Drain

4) DOCUMENT TYPE: 100 year floodplain

00BREAK00

MACJ006

MACJ006 JANDA 04/09/79 16.36.53 7600 JO

MILLER DRAIN
J&A FILE No. 5850-03
MACOMB TWP. FIS
100 YEAR FLOOD
"NATURAL FLOODWAY"

CAUTION
SEE
ATTACHED COMMENTS

Profile Revised from
XSEC 13913 → 16185
See analysis in folder at front of analysis
BEM 3/13/92

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 ********************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
 ********************************************

C
T1                 MACOMB TWP. FIS J&A FILE NO. 5850-03-1
T2                 100 YEAR FLOOD
T3                 MILLER DRAIN

J1  ICHECK    INQ      NINV      IDIR      STRT     METRIC    HVINS      Q       WSEL       FQ
        0.       4.       0.       0.  0.000000     0.00      0.0        0.   593.740     0.000

J2  NPROF     IPLOT    PREVS     XSECV     XSECH     FN       ALLDC     IBW     CHNIM     ITRACE
     1.000    0.000   -1.000     0.000     0.000    0.000     0.000    0.000    0.000     0.000

NC    .040      .050      .045      .300      .500     0.000     0.000     0.000     0.000     0.000
QT   4.000   180.000   265.000   300.000   415.000     0.000     0.000     0.000     0.000     0.000

X1 10220.000   24.000  1000.000  1060.000     0.000     0.000     0.000     0.000     0.000     0.000
GR 599.500    0.000   599.600   100.000   598.900   200.000   598.800   300.000   598.100   400.000
GR 598.200  500.000   599.200   600.000   598.500   700.000   597.500   800.000   596.000   900.000
GR 596.000  960.000   594.800  1000.000   588.100  1020.000   587.600  1023.000   586.600  1029.000
GR 587.600 1040.000   595.400  1060.000   597.000  1100.000   596.700  1200.000   595.800  1300.000
GR 596.500 1400.000   596.400  1500.000   597.800  1600.000   599.700  1687.000     0.000     0.000
NC    .040     .040      .020     0.000     0.000     0.000     0.000     0.000     0.000     0.000
QT   4.000  205.000   300.000   325.000   465.000     0.000     0.000     0.000     0.000     0.000

X1 10519.000   15.000   500.000   514.000    99.000    99.000    99.000     0.000     0.000     0.000
GR 599.700    0.000   599.800   100.000   599.800   200.000   599.700   300.000   599.800   400.000
GR 599.900  500.000   587.300   500.000   586.900   507.000   587.300   514.000   599.900   514.000
GR 599.900  600.000   599.700   700.000   599.700   800.000   599.800   900.000   599.700  1000.000

X1 10520.000    0.000     0.000     0.000     1.000     1.000     1.000     0.000     0.000     0.000
SB   0.000    2.010     3.050     0.000    13.500     0.000    51.000     0.000   586.900   586.900

                   HALL ROAD (M-59) BRIDGE SECTION 1 (J&A)          SECT.A

X1 10591.000    0.000     0.000     0.000    71.000    71.000    71.000     0.000     0.000     0.000
X2   0.000    0.000     1.000   592.900   599.700     0.000     0.000     0.000     0.000     0.000
BT  12.000    0.000   599.700     0.000   100.000   599.800     0.000   200.000   599.800     0.000
BT 300.000  599.700     0.000   400.000   599.800     0.000   500.000   599.900   592.900   514.000
BT 599.900  592.900   600.000   599.800     0.000   700.000   599.700     0.000   800.000   599.700
BT   0.000  900.000   599.800     0.000  1000.000   599.700     0.000     0.000     0.000     0.000
NC    .042     .042      .036     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1 10592.000    0.000     0.000     0.000     1.000     1.000     1.000     0.000     0.000     0.000

                   VALLEY SECTION 2 (J&A)                           SECT.B

X1 10641.000   15.000   500.000   534.000    49.000    49.000    49.000     0.000     0.000     0.000
GR 597.700    0.000   598.700   100.000   598.800   200.000   598.000   300.000   597.300   400.000
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CAUTION

SEE

ATTACHED COMMENTS

XSEC on Clinton From FZS, Clinton Twp

Starting WSEL from FZS

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GR   595.500   500.000   585.900   514.000   586.700   519.000   586.800   524.000   595.700   534.000
GR   594.600   600.000   596.100   700.000   597.000   800.000   596.800   900.000   596.800  1000.000

X1 10969.000    16.000   143.100   156.900   328.000   328.000   328.000     0.000     0.000     0.000
GR   597.100     0.000   595.500   100.000   595.600   143.100   590.600   143.100   588.200   143.100
GR   587.200   144.700   585.900   146.900   586.600   150.000   586.900   153.100   587.200   155.300
GR   588.200   156.900   590.600   156.900   595.800   156.900   595.600   250.000   596.200   350.000
GR   596.700   450.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
NC      .042      .042      .033     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1 10970.000     0.000     0.000     0.000     1.000     1.000     1.000     0.000     0.000     0.000
BT    12.000     0.000   597.100     0.000   100.000   595.500     0.000   143.100   595.600   590.600
BT   144.700   595.600   593.000   146.900   595.700   594.600   150.000   595.700   595.200   153.100
BT   595.700   594.600   155.300   595.800   593.000   156.900   595.800   590.600   250.000   595.600
BT     0.000   350.000   596.200     0.000   450.000   596.700     0.000     0.000     0.000     0.000

                    PRIVATE CULVERT  BRIDGE SECTION 3.1 (AE&Y)       SECT.C

                    13'-11" X 8'7" MULTIPLATE PIPE ARCH

X1 11006.000     0.000     0.000     0.000    36.000    36.000    36.000     0.000     0.000     0.000
X2     0.000     0.000     0.000     0.000     0.000     0.000     1.000     0.000     0.000     0.000
NC      .042      .042      .036     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1 11007.000     0.000     0.000     0.000     1.000     1.000     1.000     0.000     0.000     0.000
NC      .040      .042      .037     0.000     0.000     0.000     0.000     0.000     0.000     0.000

                    VALLEY SECTION 4 (J&A)                           SECT.D

X1 12655.000     9.000    50.000   128.000  1648.000  1648.000  1648.000     0.000     0.000     0.000
GR   598.600     0.000   597.800    50.000   589.900    85.000   588.300    90.000   588.200    94.000
GR   588.400    98.000   589.300   101.000   598.300   123.000   598.500   150.000     0.000     0.000

X1 13563.000    13.000    93.600   106.400   913.000   913.000   913.000     0.000     0.000     0.000
GR   598.800     0.000   597.600    93.600   590.800    93.600   589.700    94.000   588.900    96.000
GR   588.800    98.000   588.700   100.000   588.800   102.000   588.900   104.000   589.700   106.000
GR   590.800   106.400   597.600   106.400   598.300   200.000     0.000     0.000     0.000     0.000
NC      .040      .040      .033     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1 13569.000     0.000     0.000     0.000     1.000     1.000     1.000     0.000     0.000     0.000
BT    11.000     0.000   598.300     0.000    93.600   597.600   590.800    94.000   597.600   593.200
BT    96.000   597.600   595.800    98.000   597.600   595.700   100.000   597.600   597.000   102.000
BT   597.600   596.700   104.000   597.600   595.300   106.000   597.600   593.200   106.400   597.600
BT   590.800   200.000   598.300     0.000     0.000     0.000     0.000     0.000     0.000     0.000

                    CHATEAU THEIRRY ROAD  BRIDGE SECTION 5 (J&A)     SECT.E

X1 13672.000     0.000     0.000     0.000   103.000   103.000   103.000     0.000     0.000     0.000
X2     0.000     0.000     0.000     0.000     0.000     0.000     1.000     0.000     0.000     0.000
NC      .060      .060      .040     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1 13673.000     0.000     0.000     0.000     1.000     1.000     1.000     0.000     0.000     0.000
QT     4.000   200.000   295.000   320.000   465.000     0.000     0.000     0.000     0.000     0.000

                    VALLEY SECTION 6 (J&A)                           SECT.F
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CAUTION

See Revision in folder at front of output

X1	14950.000	15.000	500.000	525.000	1277.000	1277.000	1277.000	0.000	0.000	0.000
GR	598.400	0.000	598.000	100.000	597.700	200.000	597.500	300.000	597.100	400.000
GR	596.000	500.000	593.100	506.000	592.900	513.000	593.300	520.000	595.600	525.000
GR	596.700	600.000	597.100	700.000	597.800	800.000	599.100	900.000	598.300	1000.000
	VALLEY SECTION 7 (J&A)					SECT.G				
X1	17320.000	16.000	500.000	527.000	2600.000	1600.000	2370.000	0.000	0.000	0.000
GR	598.100	0.000	598.300	100.000	598.200	200.000	597.300	300.000	597.800	400.000
GR	597.400	500.000	594.300	509.000	594.000	514.000	594.300	520.000	597.300	527.000
GR	597.100	550.000	597.200	600.000	598.000	700.000	598.200	800.000	598.300	900.000
GR	598.300	1000.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	17919.000	37.000	488.300	511.700	599.000	599.000	599.000	0.000	0.000	0.000
GR	598.700	0.000	598.400	100.000	598.700	200.000	598.800	300.000	598.900	400.000
GR	599.300	488.300	595.300	488.300	594.300	488.300	593.800	489.300	593.800	491.300
GR	593.300	493.300	594.300	494.300	595.300	494.300	599.300	494.300	599.300	497.000
GR	595.200	497.000	594.200	497.000	593.700	498.000	593.700	500.000	593.700	502.000
GR	594.200	503.000	595.200	503.000	599.300	503.000	599.300	505.700	595.300	505.700
GR	594.300	505.700	593.800	506.700	593.800	508.700	593.800	510.700	594.300	511.700
GR	595.300	511.700	599.300	511.700	598.700	600.000	598.300	700.000	598.300	800.000
GR	598.500	900.000	598.800	1000.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.050	.050	.033	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	17920.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	25.000	0.000	598.700	0.000	100.000	593.400	0.000	200.000	598.700	0.000
BT	300.000	598.800	0.000	400.000	598.900	0.000	488.300	599.300	595.300	489.300
BT	599.300	596.900	491.300	599.300	597.400	493.300	599.300	596.900	494.300	599.300
BT	595.300	497.000	599.300	595.200	498.000	599.300	596.800	500.000	599.300	597.300
BT	502.000	599.300	596.800	503.000	599.300	595.200	505.700	599.300	595.300	506.700
BT	599.300	596.900	508.700	599.300	597.400	510.700	599.300	596.900	511.700	599.300
BT	595.300	600.000	598.700	0.000	700.000	598.300	0.000	800.000	598.300	0.000
BT	900.000	598.500	0.000	1000.000	598.800	0.000	0.000	0.000	0.000	0.000
	21 MILE ROAD BRIDGE SECTION 8 (J&A)					SECT.H				
X1	17952.000	0.000	0.000	0.000	32.000	32.000	32.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NC	.060	.060	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	17953.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
	VALLEY SECTION 9 (J&A)					SECT.I				
X1	19405.000	16.000	500.000	525.000	1452.000	1452.000	1452.000	0.000	0.000	0.000
GR	598.700	0.000	598.300	100.000	599.300	200.000	599.400	300.000	598.500	400.000
GR	597.900	500.000	594.100	505.000	593.500	512.000	594.100	520.000	598.400	525.000
GR	599.000	560.000	599.100	600.000	599.500	700.000	599.400	800.000	599.100	900.000
GR	598.900	1000.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	20809.000	31.000	494.000	506.200	1404.000	1404.000	1404.000	0.000	0.000	0.000
GR	600.100	0.000	600.100	100.000	599.500	200.000	601.900	325.000	599.600	400.000
GR	601.300	460.000	600.500	485.000	600.500	494.000	596.000	494.000	594.000	494.000
GR	593.300	494.800	592.800	496.300	593.300	497.800	594.000	498.600	596.000	498.600
GR	600.200	498.600	600.200	501.600	596.700	501.600	594.700	501.600	594.000	502.400
GR	593.500	503.900	594.000	505.400	594.700	506.200	596.700	506.200	600.200	506.200
GR	600.200	515.000	600.500	600.000	600.500	700.000	600.800	800.000	600.500	900.000
GR	600.800	1000.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.040	.040	.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	20810.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	23.000	0.000	600.100	0.000	100.000	600.100	0.000	200.000	599.500	0.000
BT	325.000	601.900	0.000	400.000	599.600	0.000	460.000	601.300	0.000	485.000
BT	600.500	0.000	494.000	600.200	596.000	494.800	600.200	596.700	496.300	600.200
BT	597.200	497.800	600.200	596.700	498.600	600.200	596.000	501.600	600.200	596.700
BT	502.400	600.200	597.400	503.900	600.200	597.900	505.400	600.200	597.400	506.200
BT	600.200	596.700	515.000	600.200	0.000	600.000	600.500	0.000	700.000	600.500
BT	0.000	800.000	600.800	0.000	900.000	600.500	0.000	1000.000	600.800	0.000

FARM CULVERT NO.1 BRIDGE SECTION 10 (J&A) SECT.J

X1	20831.000	0.000	0.000	0.000	21.000	21.000	21.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	574.000	0.000	0.000	0.000	0.000
NC	.060	.050	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	20832.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	574.000	0.000	0.000	0.000	0.000

VALLEY SECTION 11 (J&A) SECT.K

X1	22320.000	17.000	500.000	526.000	1488.000	1488.000	1488.000	0.000	0.000	0.000
GR	599.600	0.000	599.700	100.000	599.400	200.000	599.500	300.000	599.600	400.000
GR	599.200	450.000	599.200	500.000	594.600	507.000	593.400	513.000	594.700	518.000
GR	599.100	526.000	599.000	550.000	599.200	600.000	599.500	700.000	599.700	800.000
GR	599.600	900.000	599.900	1000.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	22557.000	32.000	495.000	505.200	237.000	237.000	237.000	0.000	0.000	0.000
GR	599.900	0.000	599.700	100.000	599.900	200.000	600.400	300.000	600.200	400.000
GR	600.300	450.000	600.300	486.000	600.400	495.000	598.400	495.000	596.400	495.000
GR	595.700	495.800	595.200	497.300	595.700	498.800	596.400	499.600	598.400	499.600
GR	600.400	499.600	600.400	500.600	598.300	500.600	596.300	500.600	595.600	501.400
GR	595.100	502.900	595.600	504.400	596.300	505.200	598.300	505.200	600.400	505.200
GR	599.900	513.000	599.000	530.000	599.400	600.000	599.900	700.000	599.600	800.000
GR	599.600	900.000	599.900	1000.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.050	.050	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	22555.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	24.000	0.000	599.900	0.000	100.000	599.700	0.000	200.000	599.900	0.000
BT	300.000	600.400	0.000	400.000	600.200	0.000	450.000	600.300	0.000	486.000
BT	600.300	0.000	495.000	600.400	598.400	495.800	600.400	599.100	497.300	600.400
BT	599.600	498.300	600.400	599.100	499.600	600.400	598.400	500.600	600.400	598.300
BT	501.400	600.400	599.000	502.900	600.400	599.500	504.400	600.400	599.000	505.200
BT	600.400	598.300	513.000	599.900	0.000	530.000	599.000	0.000	600.000	599.400
BT	0.000	700.000	599.900	0.000	800.000	599.500	0.000	900.000	599.600	0.000
BT	1000.000	599.900	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

FARM CULVERT NO.2 BRIDGE SECTION 11-A (J&A) SECT.L

X1	22583.000	0.000	0.000	0.000	25.000	25.000	25.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NC	.060	.060	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	22584.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X1	23526.000	19.000	497.000	503.000	942.000	942.000	942.000	0.000	0.000	0.000

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GR   602.100     0.000   601.200   100.000   601.000   200.000   601.000   300.000   601.100   400.000
GR   599.000   475.000   599.600   492.000   599.800   497.000   596.500   497.000   596.200   500.000
GR   596.700   503.000   599.800   503.000   599.800   503.000   599.300   532.000   600.000   600.000
GR   600.900   700.000   600.400   800.000   600.400   900.000   600.500  1000.000     0.000     0.000
NC      .050      .050      .035     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1 23527.000     0.000     0.000     0.000     1.000     1.000     1.000     0.000     0.000     0.000
BT    16.000     0.000   602.100     0.000   100.000   601.200     0.000   200.000   601.000     0.000
BT   300.000   601.000     0.000   400.000   601.100     0.000   475.000   599.000     0.000   492.000
BT   599.600     0.000   497.000   599.800   599.100   503.000   599.800   599.100   508.000   599.800
BT     0.000   532.000   599.300     0.000   600.000   600.000     0.000   700.000   600.900     0.000
BT   800.000   600.400     0.000   900.000   600.400     0.000  1000.000   600.500     0.000     0.000

                 FARM CULVERT NO.3  BRIDGE SECTION 12 (J&A)        SECT.M

X1 23542.000     0.000     0.000     0.000    15.000    15.000    15.000     0.000     0.000     0.000
X2     0.000     0.000     0.000     0.000     0.000     0.000     1.000     0.000     0.000     0.000
NC      .060      .060      .042     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1 23543.000     0.000     0.000     0.000     1.000     1.000     1.000     0.000     0.000     0.000
QT     4.000   180.000   265.000   290.000   410.000     0.000     0.000     0.000     0.000     0.000

                 VALLEY SECTION 13 (J&A)                           SECT.N

X1 24745.000    17.000   500.000   525.000   700.000  1250.000  1202.000     0.000     0.000     0.000
GR   601.800     0.000   601.300   100.000   600.900   200.000   600.900   300.000   600.700   400.000
GR   601.000   450.000   600.300   500.000   597.000   509.000   596.700   512.000   597.200   517.000
GR   600.700   525.000   600.400   550.000   600.400   600.000   599.900   700.000   601.000   800.000
GR   600.600   900.000   600.300  1000.000     0.000     0.000     0.000     0.000     0.000     0.000
EJ     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
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*PROF 1

CCHV=     .300 CEHV=      .500
*SECNO 10220.000
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


  10220.00      7.14    593.74      0.00    593.74    593.77       .03      0.00      0.00    594.80
     300.         0.      300.        0.        0.      226.        0.        0.        0.    595.40
     0.00       0.00      1.33      0.00      .040      .045      .050     0.000    586.60   1003.16
  .000243         0.        0.        0.         0         0         0      0.00     52.58   1055.74


*SECNO 10519.000
  10519.00      6.79    593.69      0.00      0.00    593.88       .19       .03       .08    599.90
     325.         0.      325.        0.        0.       92.        0.        0.        0.    599.90
      .01       0.00      3.52      0.00      .040      .020      .040      .020    585.90    500.00
  .000433        99.       99.       99.         2         0         0      0.00     14.00    514.00


*SECNO 10520.000
  10520.00      6.79    593.69      0.00      0.00    593.88       .19       .00       .00    599.90
     325.         0.      325.        0.        0.       92.        0.        0.        0.    599.90
      .01       0.00      3.52      0.00      .040      .020      .040      .020    585.90    500.00
  .000433         1.        1.        1.         0         0         0      0.00     14.00    514.00



SPECIAL BRIDGE

SB  XK          XKOR        COFQ       RDLEN       BWC         BWP         BAREA       SS          ELCHU       ELCHD
     0.00        2.01        3.05       0.00       13.50        0.00       81.00        0.00      585.90      586.90


*SECNO 10591.000
PRESSURE FLOW

  EGPRS       EGLWC         H3        QWEIR        QPR         BAREA    TRAPEZOID       ELLC        ELTRD
                                                                          AREA
    594.19      593.88       0.00         0.        325.         81.        81.      592.90      599.70



                                 HALL ROAD (M-59) BRIDGE SECTION 1 (J&A)          SECT.A

  10591.00      7.12    594.02      0.00      0.00    594.19       .17       .31      0.00    599.90
     325.         0.      325.        0.        0.       97.        0.        1.        0.    599.90
      .01       0.00      3.36      0.00      .040      .020      .040      .020    585.90    500.00
  .000380        71.       71.       71.         2         0         0      0.00     14.00    514.00


*SECNO 10592.000
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


  10592.00      7.12    594.02      0.00      0.00    594.19       .17       .00       .00    599.90
     325.         0.      325.        0.        0.       97.        0.        1.        0.    599.90
      .01       0.00      3.36      0.00      .042      .036      .042      .020    586.90    500.00
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 .001231        1.         1.         1.          0          0          0       0.00      14.00     514.00

 *SECNO 10641.000

                          VALLEY SECTION 2 (J&A)                             SECT.B

   10641.00       7.48     594.18       0.00       0.00     594.26        .08        .03        .03     595.50
      325.          0.       325.         0.         0.       148.         0.         1.         0.      595.70
        .02       0.00       2.20       0.00       .042       .036       .042       .023     586.70     502.15
    .000416        49.        49.        49.          2          0          0       0.00      30.14     532.29

 *SECNO 10969.000
   10969.00       7.74     594.34       0.00       0.00     594.50        .16        .21        .04     595.60
      325.          0.       325.         0.         0.       100.         0.         2.         0.      595.80
        .05       0.00       3.24       0.00       .042       .036       .042       .031     586.60     143.10
    .001053       328.       328.       328.          2          0          0       0.00      13.80     156.90

 *SECNO 10970.000

 3370 NORMAL BRIDGE,NRD= 12 MIN ELTRD=  595.50 MAX ELLC=  595.20

   10970.00       7.72     594.32       0.00       0.00     594.53        .21        .00        .02     595.60
      325.          0.       325.         0.         0.        89.         0.         2.         0.      595.80
        .05       0.00       3.65       0.00       .042       .033       .042       .031     586.60     143.10
    .001678         1.         1.         1.          2          0          0     -10.98      13.80     156.90

 *SECNO 11006.000

 3370 NORMAL BRIDGE,NRD= 12 MIN ELTRD=  595.50 MAX ELLC=  595.20

                          PRIVATE CULVERT  BRIDGE SECTION 3.1 (AE&H)         SECT.C

                          13'-11" X 8'7" MULTIPLATE PIPE ARCH

   11006.00       7.78     594.38       0.00       0.00     594.59        .20        .06        .00     595.60
      325.          0.       325.         0.         0.        90.         0.         2.         0.      595.80
        .05       0.00       3.63       0.00       .042       .033       .042       .031     586.60     143.10
    .001656        36.        36.        36.          1          0          0     -11.28      13.80     156.90

 *SECNO 11007.000
      SECNO      DEPTH      CWSEL      CRIWS      WSELK         EG         HV         HL      OLOSS  BANK ELEV          loss = .15ft ✓
          Q       QLOB        QCH       QROB       ALOB        ACH       AROB        VOL        TWA  LEFT/RIGHT
       TIME       VLOB        VCH       VROB        XNL       XNCH        XNR        WTN      ELMIN       SSTA
      SLOPE      XLOBL       XLCH      XLOBR     ITRIAL        IDC      ICONT      CORAR     TOPWID      ENDST

   11007.00       7.85     594.45       0.00       0.00     594.60        .16        .00        .01     595.60
      325.          0.       325.         0.         0.       102.         0.         2.         0.      595.80
        .05       0.00       3.19       0.00       .042       .036       .042       .031     586.60     143.10
    .001015         1.         1.         1.          2          0          0       0.00      13.80     156.90

                                                        A = 93ft²

 *SECNO 12655.000

                          VALLEY SECTION 4 (J&A)                             SECT.D

   12655.00       7.09     595.29       0.00       0.00     595.32        .03        .68        .04     597.80
      325.          0.       325.         0.         0.       225.         0.         8.         2.      598.30
        .37       0.00       1.45       0.00       .040       .037       .042       .035     588.20      61.12
```

.000222	1648.	1648.	1648.	3	0	0	0.00	57.85	115.97

*SECNO 13568.000

13568.00	6.93	595.63	0.00	0.00	595.86	.23	.44	.10	597.60
325.	0.	325.	0.	0.	84.	0.	11.	2.	597.60
.43	0.00	3.86	0.00	.040	.037	.042	.036	588.70	93.60
.001757	913.	913.	913.	2	0	0	0.00	12.80	106.40

*SECNO 13569.000

3370 NORMAL BRIDGE,NRD= 11 MIN ELTRD= 597.60 MAX ELLC= 597.00 8.3

13'x8.5'

13569.00	6.91	595.61	0.00	0.00	595.89	.28	.00	.03	597.60
325.	0.	325.	0.	0.	76.	0.	11.	2.	597.60
.43	0.00	4.26	0.00	.040	.033	.040	.036	588.70	93.60
.002205	1.	1.	1.	2	0	0	-7.70	12.80	106.40

*SECNO 13672.000

3370 NORMAL BRIDGE,NRD= 11 MIN ELTRD= 597.60 MAX ELLC= 597.00

A=24

CHATEAU THEIRRY ROAD BRIDGE SECTION 5 (J&A) SECT.E

13672.00	7.17	595.87	0.00	0.00	596.13	.27	.24	.00	597.60
325.	0.	325.	0.	0.	79.	0.	11.	2.	597.60
.44	0.00	4.13	0.00	.040	.033	.040	.036	588.70	93.60
.002458	103.	103.	103.	2	0	0	-8.71	12.80	106.40

*SECNO 13673.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
13673.00	7.24	595.94	0.00	0.00	596.15	.21	.00	.02	597.60
325.	0.	325.	0.	0.	88.	0.	11.	2.	597.60
.44	0.00	3.68	0.00	.060	.040	.060	.036	588.70	93.60
.001822	1.	1.	1.	2	0	0	0.00	12.80	106.40

*SECNO 14950.000

VALLEY SECTION 6 (J&A) SECT.F

14950.00	4.48	597.38	0.00	0.00	597.42	.04	1.22	.05	596.00
320.	46.	192.	82.	94.	92.	147.	17.	9.	595.60
.68	.49	2.07	.56	.060	.040	.060	.037	592.90	328.71
.000581	1277.	1277.	1277.	3	0	0	0.00	412.03	740.74

...TION

SEE

... COMMENTS

*SECNO 17320.000

3280 CROSS SECTION 17320.00 EXTENDED .31 FEET

See revision in folder at front of output

VALLEY SECTION 7 (J&A) SECT.G

17320.00	4.40	598.40	0.00	0.00	598.42	.02	.99	.01	597.40
320.	97.	132.	91.	268.	88.	228.	40.	43.	597.30
1.42	.36	1.50	.40	.060	.040	.060	.039	594.00	0.00

.000355 2600. 2370. 1600. 4 0 0 0.00 1000.00 1000.00

*SECNO 17919.000

3265 DIVIDED FLOW

3280 CROSS SECTION 17919.00 EXTENDED .09 FEET

17919.00	5.09	598.79	0.00	0.00	598.86	.07	.41	.03	599.30
320.	21.	225.	74.	53.	89.	133.	46.	55.	599.30
1.50	.40	2.53	.56	.060	.040	.060	.039	593.70	0.00
.001910	599.	599.	599.	2	0	0	0.00	721.51	997.48

*SECNO 17920.000

3265 DIVIDED FLOW

3280 CROSS SECTION 17920.00 EXTENDED .13 FEET

3370 NORMAL BRIDGE,NRD= 25 MIN ELTRD= 598.30 MAX ELLC= 597.40

17920.00	5.13	598.83	0.00	0.00	598.87	.04	.00	.01	599.30
320.	46.	127.	147.	64.	53.	147.	46.	55.	599.30
1.50	.72	2.43	1.00	.050	.033	.050	.039	593.70	0.00
.003784	1.	1.	1.	2	0	0	-37.11	764.96	1000.00

*SECNO 17952.000

3265 DIVIDED FLOW

3280 CROSS SECTION 17952.00 EXTENDED .24 FEET

$Q_{culverts} \approx 100$ cfs @ $\Delta = .13$

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

$\Delta = .1$

3370 NORMAL BRIDGE,NRD= 25 MIN ELTRD= 598.30 MAX ELLC= 597.40

wie low in overbanks

21 MILE ROAD BRIDGE SECTION 8 (J&A) SECT.H

17952.00	5.24	598.94	0.00	0.00	598.95	.02	.08	.01	599.30
320.	66.	91.	163.	107.	53.	197.	46.	55.	599.30
1.51	.62	1.73	.83	.050	.033	.050	.039	593.70	0.00
.001956	32.	32.	32.	2	0	0	-39.17	563.27	1000.00

$\Rightarrow \Delta = .33$ @ 176 cfs

*SECNO 17953.000

3265 DIVIDED FLOW

3280 CROSS SECTION 17953.00 EXTENDED .25 FEET

17953.00	5.24	598.94	0.00	0.00	598.97	.03	.00	.01	599.30
320.	42.	176.	102.	109.	92.	198.	46.	55.	599.30

```
    1.51       .39     1.92      .52      .060      .040      .060      .039    593.70      0.00
  .001088       1.       1.       1.        0         0         0      0.00    864.28   1000.00

 *SECNO 19405.000
 3280 CROSS SECTION  19405.00 EXTENDED       .85 FEET

                   VALLEY SECTION 9 (J&A)                                SECT.I

  19405.00      6.04    599.54      0.00      0.00    599.56       .02       .59       .00    597.90
      320.      112.      171.       36.      344.      120.      169.       63.       86.    593.40
      1.96       .33      1.42       .21      .060      .040      .060      .039    593.50      0.00
   .000209     1452.     1452.     1452.        4         0         0      0.00   1000.00   1000.00

 *SECNO 20809.000

 3265 DIVIDED FLOW

 3280 CROSS SECTION  20809.00 EXTENDED       .19 FEET

  20809.00      7.49    600.29      0.00      0.00    600.44       .15       .81       .07    600.50
      320.       93.      226.        1.      101.       62.        2.       76.      108.    600.20
      2.09       .93      3.66       .27      .060      .040      .060      .039    592.80      0.00
   .004923     1404.     1404.     1404.        2         0         0      0.00    334.96    540.82

 *SECNO 20810.000

 3265 DIVIDED FLOW

 3280 CROSS SECTION  20810.00 EXTENDED       .31 FEET

 3370 NORMAL BRIDGE,NRD= 23 MIN ELTRD=  599.50 MAX ELLC=  597.90

  20810.00      7.61    600.41      0.00      0.00    600.47       .06       .01       .03    600.50
      320.      223.       91.        5.      135.       35.        8.       76.      108.    600.20
      2.09      1.66      2.64       .68      .040      .030      .040      .039    592.80      0.00
   .005373        1.        1.        1.        4         0         0    -28.60    381.42    573.46

 *SECNO 20831.000

 3265 DIVIDED FLOW

 3280 CROSS SECTION  20831.00 EXTENDED       .42 FEET

     SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS  BANK ELEV
     Q          QLOB       QCH      QROB      ALOB       ACH      AROB       VOL       TWA  LEFT/RIGHT
     TIME       VLOB       VCH      VROB       XNL      XNCH       XNR       WTN     ELMIN      SSTA
     SLOPE     XLOBL      XLCH     XLOBR    ITRIAL       IDC     ICONT     CORAR    TOPWID     ENDST

 3370 NORMAL BRIDGE,NRD= 23 MIN ELTRD=  599.50 MAX ELLC=  597.90

 3470 ENCROACHMENT STATIONS=        .0      574.0  TYPE=      1  TARGET=      573.999

                   FARM CULVERT NO.1  BRIDGE SECTION 10 (J&A)      SECT.J
```

$1+.5+\frac{29(.03)^2 30}{1.13^{4/3}} = 2.17$

$\frac{(.15)64.4}{2.17}$ 15.9

$Q_{cul} = 67$

750 ... .08

```
 20831.00     7.72   600.52     0.00     0.00   600.56      .04      .08      .01   600.50
     320.     235.      73.      12.     169.      36.      15.      76.     108.   600.20
     2.10     1.39     2.04      .77     .040     .030     .040     .039   592.80      .00
  .003057      21.      21.      21.        0        0        0   -28.60   404.57   574.00

*SECNO 20832.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=       .0    574.0  TYPE=      1  TARGET=      573.999
 20832.00     7.71   600.51     0.00     0.00   600.57      .06      .00      .01   600.50
     320.     142.     171.       7.     170.      65.      15.      76.     108.   600.20
     2.10      .83     2.65      .46     .060     .040     .060     .039   592.80      .00
  .002453       1.       1.       1.        1        0        0     0.00   405.07   574.00

*SECNO 22320.000
3280 CROSS SECTION  22320.00 EXTENDED      1.18 FEET

              VALLEY SECTION 11 (J&A)                               SECT.K

 22320.00     7.38   600.78     0.00     0.00   600.78      .00      .19      .02   599.20
     320.     120.      87.     114.     641.     133.     604.     104.     132.   599.10
     3.42      .19      .65      .19     .060     .040     .060     .039   593.40     0.00
  .000040    1488.    1488.    1488.        4        0        0     0.00  1000.00  1000.00

*SECNO 22557.000
3280 CROSS SECTION  22557.00 EXTENDED       .90 FEET

 22557.00     5.70   600.80     0.00     0.00   600.80      .00      .02      .00   600.40
     320.      92.      31.     197.     363.      48.     583.     111.     137.   600.40
     3.61      .25      .64      .34     .060     .040     .060     .039   595.10     0.00
  .000145     237.     237.     237.        2        0        0     0.00  1000.00  1000.00

*SECNO 22558.000
3280 CROSS SECTION  22558.00 EXTENDED       .90 FEET

3370 NORMAL BRIDGE,NRD= 24 MIN ELTRD=  599.00 MAX ELLC=  599.60
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[illegible] sub

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 22658.00     5.70   600.80     0.00     0.00   600.80      .00      .00      .00   600.40
     320.      98.      14.     208.     363.      36.     583.     111.     137.   600.40
     3.61      .27      .38      .36     .050     .035     .050     .039   595.10     0.00
  .000113       1.       1.       1.        0        0        0   -12.04  1000.00  1000.00

*SECNO 22583.000
3280 CROSS SECTION  22583.00 EXTENDED       .90 FEET

   SECNO    DEPTH    CWSEL    CRIWS    WSELK       EG       HV       HL    OLOSS  BANK ELEV
       Q     QLOB      QCH     QROB     ALOB      ACH     AROB      VOL      TWA  LEFT/RIGHT
    TIME     VLOB      VCH     VROB      XNL     XNCH      XNR      WTN    ELMIN     SSTA
   SLOPE    XLOBL     XLCH    XLOBR   ITRIAL      IDC    ICONT    CORAR   TOPWID    ENDST
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3370 NORMAL BRIDGE,NRD= 24 MIN ELTRD=  599.00 MAX ELLC=  599.60

               FARM CULVERT NO.2  BRIDGE SECTION 11-A (J&A)     SECT.L

   22583.00      5.70   600.80     0.00     0.00   600.80      .00      .00      .00   600.40
      320.        98.      14.     208.     365.      36.     585.     111.     138.   600.40
      3.63        .27      .38      .36     .050     .035     .050     .039   595.10     0.00
    .000112       25.      25.      25.        0        0        0   -12.04  1000.00  1000.00

*SECNO 22584.000
3280 CROSS SECTION  22584.00 EXTENDED       .90 FEET

   22584.00      5.70   600.80     0.00     0.00   600.80      .00      .00      .00   600.40
      320.        92.      31.     197.     365.      48.     585.     111.     138.   600.40
      3.63        .25      .64      .34     .060     .040     .060     .039   595.10     0.00
    .000143        1.       1.       1.        0        0        0     0.00  1000.00  1000.00

*SECNO 23526.000

3265 DIVIDED FLOW

3280 CROSS SECTION  23526.00 EXTENDED       .54 FEET

   23526.00      4.84   601.04     0.00     0.00   601.05      .01      .25      .00   599.80
      320.        78.      44.     198.     116.      28.     358.     127.     157.   599.80
      3.99        .67     1.57      .55     .060     .040     .060     .039   596.20   179.37
    .000613      942.     942.     942.        2        0        0     0.00   759.79  1000.00

*SECNO 23527.000

3265 DIVIDED FLOW

3280 CROSS SECTION  23527.00 EXTENDED       .54 FEET

3370 NORMAL BRIDGE,NRD= 16 MIN ELTRD=  599.00 MAX ELLC=  599.10

   23527.00      4.85   601.05     0.00     0.00   601.05      .01      .00      .00   599.80
      320.        84.      22.     214.     116.      24.     355.     127.     157.   599.80
      3.99        .72      .92      .60     .050     .035     .050     .039   596.20   179.16
    .000495        1.       1.       1.        0        0        0    -4.20   760.43  1000.00

*SECNO 23542.000

3265 DIVIDED FLOW

3280 CROSS SECTION  23542.00 EXTENDED       .55 FEET

3370 NORMAL BRIDGE,NRD= 16 MIN ELTRD=  599.00 MAX ELLC=  599.10

               FARM CULVERT NO.3  BRIDGE SECTION 12 (J&A)      SECT.M

   23542.00      4.85   601.05     0.00     0.00   601.06      .01      .01      .00   599.80
      320.        84.      21.     215.     120.      24.     365.     123.     157.   599.80
      4.00        .70      .91      .59     .050     .035     .050     .039   596.20   172.87
```

.000474	15.	15.	15.	0	0	0	-4.20	779.76	1000.00

*SECNO 23543.000

3265 DIVIDED FLOW

3280 CROSS SECTION 23543.00 EXTENDED .55 FEET

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
23543.00	4.85	601.05	0.00	0.00	601.06	.01	.00	.00	599.80
320.	73.	41.	201.	120.	28.	364.	128.	157.	599.80
4.00	.65	1.48	.55	.050	.042	.060	.039	596.20	172.96
.000595	1.	1.	1.	0	0	0	0.00	779.47	1000.00

*SECNO 24745.000

3280 CROSS SECTION 24745.00 EXTENDED 1.12 FEET

VALLEY SECTION 13 (JSA) SECT.N

24745.00	4.72	601.42	0.00	0.00	601.43	.01	.36	.00	600.30
290.	50.	84.	155.	213.	81.	454.	144.	177.	600.70
4.59	.23	1.04	.34	.060	.042	.060	.040	596.70	76.81
.000195	700.	1202.	1250.	2	0	0	0.00	923.19	1000.00

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Macomb Twp.

3) WATERCOURSE: Miller Drain

4) DOCUMENT TYPE: 100 year floodplain

00BREAK00

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$       $     $$      $$$$$$   $$$$$$$$   $$$$$ $   $$$$$$    $$$$$$
$$     $$    $$$$     $$    $$      $$    $$      $   $$      $$  $$      $$
$$$   $$$   $$  $$    $$            $$    $$    $$$   $$      $$  $$
$$$$$$$$$  $$    $$   $$            $$    $$  $ $$   $$      $$  $$$$$$$
$$ $$ $$   $$    $$   $$            $$    $$ $$ $$   $$      $$  $$      $$
$$     $$  $$$$$$$$   $$            $$    $$ $  $$   $$      $$  $$      $$
$$     $$  $$    $$   $$            $$    $$$   $$   $$  $  $$  $$      $$
$$     $$  $$    $$   $$     $$  $$ $$    $     $$   $$    $$    $$      $$
$$     $$  $$    $$    $$$$$$    $$$      $ $$$$$     $$$$$ $    $$$$$$
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MACJ006 JANDA 04/09/79 16.36.53 7600 JO

MILLER DRAIN
J&A FILE No. 5850-03
MACOMB TWP. FIS
100 YEAR FLOOD
"NATURAL FLOODWAY"

CAUTION
SEE
ATTACHED COMMENTS

Profile Revised from
XSEC 13913 → 16185
See analysis in folder at front of analysis
BEM 3/13/92

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*****************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
*****************************************************


C
T1            MACOMB TWP. FIS J&A FILE NO. 5850-03-1
T2            100 YEAR FLOOD
T3            MILLER DRAIN

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.        4.        0.        0.  0.000000      0.00      0.0       0.  593.740     0.000

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     1.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

NC       .040      .050      .045      .300      .500     0.000     0.000     0.000     0.000     0.000
QT      4.000   180.000   265.000   300.000   415.000     0.000     0.000     0.000     0.000     0.000

X1  10220.000    24.000  1000.000  1060.000     0.000     0.000     0.000     0.000     0.000     0.000
GR    599.500     0.000   599.600   100.000   598.400   200.000   598.800   300.000   598.100   400.000
GR    598.200   500.000   599.200   600.000   598.500   700.000   597.500   800.000   596.000   900.000
GR    596.000   960.000   594.800  1000.000   583.100  1020.000   587.600  1023.000   586.600  1029.000
GR    587.600  1040.000   595.400  1060.000   597.000  1100.000   596.700  1200.000   595.800  1300.000
GR    596.500  1400.000   596.400  1500.000   597.800  1600.000   599.700  1687.000     0.000     0.000
NC       .040      .040      .020     0.000     0.000     0.000     0.000     0.000     0.000     0.000
QT      4.000   205.000   300.000   325.000   465.000     0.000     0.000     0.000     0.000     0.000


X1  10519.000    15.000   500.000   514.000    99.000    99.000    99.000     0.000     0.000     0.000
GR    599.700     0.000   599.800   100.000   599.800   200.000   599.700   300.000   599.800   400.000
GR    599.900   500.000   587.300   500.000   586.900   507.000   587.300   514.000   599.900   514.000
GR    599.900   600.000   599.700   700.000   599.700   800.000   599.800   900.000   599.700  1000.000


X1  10520.000     0.000     0.000     0.000     1.000     1.000     1.000     0.000     0.000     0.000
SB      0.000     2.010     3.050     0.000    13.500     0.000    51.000     0.000   586.900   586.900


              HALL ROAD (M-59) BRIDGE SECTION 1 (J&A)          SECT.A

X1  10591.000     0.000     0.000     0.000    71.000    71.000    71.000     0.000     0.000     0.000
X2      0.000     0.000     1.000   592.900   599.700     0.000     0.000     0.000     0.000     0.000
BT     12.000     0.000   599.700     0.000   100.000   599.800     0.000   200.000   599.800     0.000
BT    300.000   599.700     0.000   400.000   599.800     0.000   500.000   599.900   592.900   514.000
BT    599.900   592.900   600.000   599.800     0.000   700.000   599.700     0.000   800.000   599.700
BT      0.000   900.000   599.800     0.000  1000.000   599.700     0.000     0.000     0.000     0.000
NC       .042      .042      .036     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1  10592.000     0.000     0.000     0.000     1.000     1.000     1.000     0.000     0.000     0.000


              VALLEY SECTION 2 (J&A)                           SECT.B

X1  10641.000    15.000   500.000   534.000    49.000    49.000    49.000     0.000     0.000     0.000
GR    597.700     0.000   598.700   100.000   598.800   200.000   598.000   300.000   597.300   400.000
```

CAUTION
SEE
ATTACHED COMMENTS

X SEC on Clinton From FIS, Clinton Twp
Start n, WSEL from FIS

GR	595.500	500.000	535.900	[illegible]	536.700	519.000	[illegible]	[illegible]	595.700	[illegible]
GR	594.600	600.000	596.100	700.000	597.000	800.000	596.800	900.000	596.800	1000.000
X1	10969.000	16.000	143.100	156.900	328.000	328.000	328.000	0.000	0.000	0.000
GR	597.100	0.000	595.500	100.000	595.600	143.100	590.600	143.100	588.200	143.100
GR	587.200	144.700	586.900	146.900	586.600	150.000	586.900	153.100	587.200	155.300
GR	588.200	156.900	590.600	156.900	595.800	156.900	595.600	250.000	596.200	350.000
GR	596.700	450.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.042	.042	.033	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	10970.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	12.000	0.000	597.100	0.000	100.000	595.500	0.000	143.100	595.600	590.600
BT	144.700	595.600	593.000	146.900	595.700	594.600	150.000	595.700	595.200	153.100
BT	595.700	594.600	155.300	595.800	593.000	156.900	595.800	590.600	250.000	595.600
BT	0.000	350.000	596.200	0.000	450.000	596.700	0.000	0.000	0.000	0.000

PRIVATE CULVERT BRIDGE SECTION 3.1 (AE89) SECT.C

13'-11" X 8'7" MULTIPLATE PIPE ARCH

X1	11006.000	0.000	0.000	0.000	36.000	36.000	36.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NC	.042	.042	.036	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	11007.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
NC	.040	.042	.037	0.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION 4 (J8A) SECT.D

X1	12655.000	9.000	50.000	128.000	1648.000	1648.000	1648.000	0.000	0.000	0.000
GR	598.600	0.000	597.800	50.000	589.900	85.000	588.300	90.000	588.200	94.000
GR	588.400	98.000	589.300	101.000	598.300	123.000	598.500	150.000	0.000	0.000
X1	13563.000	13.000	93.600	106.400	913.000	913.000	913.000	0.000	0.000	0.000
GR	598.800	0.000	597.600	93.600	590.800	93.600	589.700	94.000	588.900	96.000
GR	588.800	98.000	588.700	100.000	588.300	102.000	588.900	104.000	589.700	106.000
GR	590.800	106.400	597.600	106.400	598.300	200.000	0.000	0.000	0.000	0.000
NC	.040	.040	.033	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	13569.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	11.000	0.000	598.300	0.000	93.600	597.600	590.800	94.000	597.600	593.200
BT	96.000	597.600	595.800	98.000	597.600	595.700	100.000	597.600	597.000	102.000
BT	597.600	596.700	104.000	597.600	595.300	105.000	597.600	593.200	106.400	597.600
BT	590.800	200.000	598.300	0.000	0.000	0.000	0.000	0.000	0.000	0.000

CAUTION

ATTACH... ...NTS

CHATEAU THEIRRY ROAD BRIDGE SECTION 5 (J8A) SECT.E

X1	13672.000	0.000	0.000	0.000	103.000	103.000	103.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NC	.060	.060	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	13673.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
QT	4.000	200.000	295.000	320.000	465.000	0.000	0.000	0.000	0.000	0.000

See Revision in folder at front of output

VALLEY SECTION 6 (J8A) SECT.F

X1	14950.000	15.000	500.000	525.000	1277.000	1277.000	1277.000	0.000	0.000	0.000
GR	598.400	0.000	598.000	100.000	597.700	200.000	597.500	300.000	597.100	400.000
GR	596.000	500.000	593.100	506.000	592.900	513.000	593.300	520.000	595.600	525.000
GR	596.700	600.000	597.100	700.000	597.800	800.000	599.100	900.000	598.300	1000.000

VALLEY SECTION 7 (J&A) SECT.G

X1	17320.000	16.000	500.000	527.000	2600.000	1600.000	2370.000	0.000	0.000	0.000
GR	598.100	0.000	598.300	100.000	598.200	200.000	597.300	300.000	597.800	400.000
GR	597.400	500.000	594.300	509.000	594.000	514.000	594.300	520.000	597.300	527.000
GR	597.100	550.000	597.200	600.000	598.000	700.000	598.200	800.000	598.300	900.000
GR	598.300	1000.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	17919.000	37.000	488.300	511.700	599.000	599.000	599.000	0.000	0.000	0.000
GR	598.700	0.000	598.400	100.000	598.700	200.000	598.800	300.000	598.900	400.000
GR	599.300	488.300	595.300	488.300	594.300	488.300	593.800	489.300	593.800	491.300
GR	593.300	493.300	594.300	494.300	595.300	494.300	599.300	494.300	599.300	497.000
GR	595.200	497.000	594.200	497.000	593.700	498.000	593.700	500.000	593.700	502.000
GR	594.200	503.000	595.200	503.000	599.300	503.000	599.300	505.700	595.300	505.700
GR	594.300	505.700	593.300	506.700	593.300	508.700	593.300	510.700	594.300	511.700
GR	595.300	511.700	599.300	511.700	598.700	600.000	598.300	700.000	598.300	800.000
GR	598.500	900.000	598.800	1000.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.050	.050	.033	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	17920.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	25.000	0.000	598.700	0.000	100.000	598.400	0.000	200.000	598.700	0.000
BT	300.000	598.800	0.000	400.000	598.900	0.000	488.300	599.300	595.300	489.300
BT	599.300	596.900	491.300	599.300	597.400	493.300	599.300	596.900	494.300	599.300
BT	595.300	497.000	599.300	595.200	498.000	599.300	596.800	500.000	599.300	597.300
BT	502.000	599.300	596.800	503.000	599.300	595.200	505.700	599.300	595.300	506.700
BT	599.300	596.900	508.700	599.300	597.400	510.700	599.300	596.900	511.700	599.300
BT	595.300	600.000	598.700	0.000	700.000	598.300	0.000	800.000	598.300	0.000
BT	900.000	598.500	0.000	1000.000	598.800	0.000	0.000	0.000	0.000	0.000

21 MILE ROAD BRIDGE SECTION 8 (J&A) SECT.H

X1	17952.000	0.000	0.000	0.000	32.000	32.000	32.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NC	.060	.060	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	17953.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000

VALLEY SECTION 9 (J&A) SECT.I

X1	19405.000	16.000	500.000	525.000	1452.000	1452.000	1452.000	0.000	0.000	0.000
GR	598.700	0.000	598.300	100.000	599.300	200.000	599.400	300.000	598.500	400.000
GR	597.900	500.000	594.100	505.000	593.500	512.000	594.100	520.000	598.400	525.000
GR	599.000	560.000	599.100	600.000	599.500	700.000	599.400	800.000	599.100	900.000
GR	598.900	1000.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	20809.000	31.000	494.000	506.200	1404.000	1404.000	1404.000	0.000	0.000	0.000
GR	600.100	0.000	600.100	100.000	599.500	200.000	601.900	325.000	599.600	400.000
GR	601.300	460.000	600.500	485.000	600.500	494.000	596.000	494.000	594.000	494.000
GR	593.300	494.800	592.800	496.300	593.300	497.800	594.000	498.500	596.000	498.600
GR	600.200	498.600	600.200	501.600	596.700	501.600	594.700	501.600	594.000	502.400
GR	593.500	503.900	594.000	505.400	594.700	506.200	596.700	506.200	600.200	506.200
GR	600.200	515.000	600.500	600.000	600.500	700.000	600.800	800.000	600.500	900.000
GR	600.800	1000.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.040	.040	.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	20810.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	23.000	0.000	600.100	0.000	100.000	600.100	0.000	200.000	599.500	0.000
BT	325.000	601.900	0.000	400.000	599.600	0.000	460.000	601.300	0.000	485.000
BT	600.500	0.000	494.000	600.200	596.000	494.800	600.200	596.700	496.300	600.200
BT	597.200	497.800	600.200	596.700	498.600	600.200	596.000	501.500	600.200	596.700
BT	502.400	600.200	597.400	503.900	600.200	597.900	505.400	600.200	597.400	506.200
BT	600.200	596.700	515.000	600.200	0.000	600.000	600.500	0.000	700.000	600.500
BT	0.000	300.000	600.300	0.000	900.000	600.500	0.000	1000.000	600.800	0.000
			FARM CULVERT NO.1	BRIDGE SECTION 10 (J&A)		SECT.J				
X1	20831.000	0.000	0.000	0.000	21.000	21.000	21.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	574.000	0.000	0.000	0.000	0.000
NC	.060	.050	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	20832.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	574.000	0.000	0.000	0.000	0.000
			VALLEY SECTION 11 (J&A)			SECT.K				
X1	22320.000	17.000	500.000	526.000	1488.000	1488.000	1488.000	0.000	0.000	0.000
GR	599.600	0.000	599.700	100.000	599.400	200.000	599.500	300.000	599.600	400.000
GR	599.200	450.000	599.200	500.000	594.600	507.000	593.400	513.000	594.700	518.000
GR	599.100	526.000	599.000	550.000	599.200	600.000	599.500	700.000	599.700	800.000
GR	599.600	900.000	599.900	1000.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	22557.000	32.000	495.000	505.200	237.000	237.000	237.000	0.000	0.000	0.000
GR	599.900	0.000	599.700	100.000	599.900	200.000	600.400	300.000	600.200	400.000
GR	600.300	450.000	600.300	486.000	600.400	495.000	598.400	495.000	596.400	495.000
GR	595.700	495.300	595.200	497.300	595.700	498.300	596.400	499.600	598.400	499.600
GR	600.400	499.600	600.400	500.600	598.300	500.600	596.300	500.600	595.600	501.400
GR	595.100	502.900	595.600	504.400	596.300	505.200	598.300	505.200	600.400	505.200
GR	599.900	513.000	599.000	530.000	599.400	600.000	599.900	700.000	599.600	800.000
GR	599.600	900.000	599.900	1000.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.050	.050	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	22555.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	24.000	0.000	599.900	0.000	100.000	599.700	0.000	200.000	599.900	0.000
BT	300.000	600.400	0.000	400.000	600.200	0.000	450.000	600.300	0.000	486.000
BT	600.300	0.000	495.000	600.400	598.400	495.800	600.400	599.100	497.300	600.400
BT	599.600	498.300	600.400	599.100	499.600	600.400	598.400	500.600	600.400	598.300
BT	501.400	600.400	599.000	502.900	600.400	599.500	504.400	600.400	599.000	505.200
BT	600.400	598.300	513.000	599.900	0.000	530.000	599.000	0.000	600.000	599.400
BT	0.000	700.000	599.900	0.000	800.000	599.500	0.000	900.000	599.600	0.000
BT	1000.000	599.900	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
			FARM CULVERT NO.2	BRIDGE SECTION 11-A (J&A)		SECT.L				
X1	22583.000	0.000	0.000	0.000	25.000	25.000	25.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NC	.060	.060	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	22584.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X1	23526.000	19.000	497.000	503.000	942.000	942.000	942.000	0.000	0.000	0.000

GR	602.1[illegible]	0.[illegible]	601.200	100.0[illegible]	601.000	200.000	601.[illegible]	300.000	601.[illegible]	400.[illegible]
GR	599.000	475.000	599.600	492.000	599.800	497.000	596.500	497.000	596.200	500.000
GR	596.700	503.000	599.800	503.000	599.800	503.000	599.300	532.000	600.000	600.000
GR	600.900	700.000	600.400	800.000	600.400	900.000	600.500	1000.000	0.000	0.000
NC	.050	.050	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	23527.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	16.000	0.000	602.100	0.000	100.000	601.200	0.000	200.000	601.000	0.000
BT	300.000	601.000	0.000	400.000	601.100	0.000	475.000	599.000	0.000	492.000
BT	599.600	0.000	497.000	599.800	599.100	503.000	599.800	599.100	508.000	599.800
BT	0.000	532.000	599.300	0.000	600.000	600.000	0.000	700.000	600.900	0.000
BT	800.000	600.400	0.000	900.000	600.400	0.000	1000.000	600.500	0.000	0.000

FARM CULVERT NO.3 BRIDGE SECTION 12 (J&A) SECT.M

X1	23542.000	0.000	0.000	0.000	15.000	15.000	15.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NC	.060	.060	.042	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	23543.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
QT	4.000	180.000	265.000	290.000	410.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION 13 (J&A) SECT.N

X1	24745.000	17.000	500.000	525.000	700.000	1250.000	1202.000	0.000	0.000	0.000
GR	601.800	0.000	601.300	100.000	600.900	200.000	600.900	300.000	600.700	400.000
GR	601.000	450.000	600.300	500.000	597.000	509.000	596.700	512.000	597.200	517.000
GR	600.700	525.000	600.400	550.000	600.400	600.000	599.900	700.000	601.000	800.000
GR	600.600	900.000	600.300	1000.000	0.000	0.000	0.000	0.000	0.000	0.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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*PROF 1

CCHV=     .300 CEHV=      .500
*SECNO 10220.000
     SECNO       DEPTH      CWSEL      CRIWS      WSELK       EG         HV         HL        OLOSS    BANK ELEV
     Q           QLOB       QCH        QROB       ALOB        ACH        AROB       VOL       TWA     LEFT/RIGHT
     TIME        VLOB       VCH        VROB       XNL         XNCH       XNR        WTN       ELMIN       SSTA
     SLOPE       XLOBL      XLCH       XLOBR      ITRIAL      IDC        ICONT      CORAR     TOPWID      ENDST


   10220.00      7.14     593.74       0.00     593.74     593.77        .03       0.00       0.00     594.50
       300.        0.       300.         0.         0.       226.         0.         0.         0.     595.40
       0.00      0.00       1.33       0.00       .040       .045       .050      0.000     586.60    1003.16
    .000243        0.         0.         0.          0          0          0       0.00      52.58    1055.74


*SECNO 10519.000
   10519.00      6.79     593.69       0.00       0.00     593.88        .19        .03        .08     599.90
       325.        0.       325.         0.         0.        92.         0.         0.         0.     599.90
        .01      0.00       3.52       0.00       .040       .020       .040       .020     586.90     500.00
    .000433       99.        99.        99.          2          0          0       0.00      14.00     514.00


*SECNO 10520.000
   10520.00      6.79     593.69       0.00       0.00     593.88        .19        .00        .00     599.90
       325.        0.       325.         0.         0.        92.         0.         0.         0.     599.90
        .01      0.00       3.52       0.00       .040       .020       .040       .020     586.90     500.00
    .000433        1.         1.         1.          0          0          0       0.00      14.00     514.00



SPECIAL BRIDGE

SB   XK           XKOR        COFQ        RDLEN        BWC         BWP         BAREA        SS          ELCHU        ELCHD
       0.00        2.01        3.05        0.00       13.50        0.00        81.00        0.00       586.90       586.90

*SECNO 10591.000
PRESSURE FLOW


  EGPRS        EGLWC         H3          QWEIR         QPR         BAREA     TRAPEZOID       ELLC        ELTRD
                                                                             AREA
     594.19       593.88        0.00          0.         325.         81.         81.      592.90      599.70



                                HALL ROAD (M-59) BRIDGE SECTION 1 (J&A)           SECT.A

   10591.00      7.12     594.02       0.00       0.00     594.19        .17        .31       0.00     599.90
       325.        0.       325.         0.         0.        97.         0.         1.         0.     599.90
        .01      0.00       3.36       0.00       .040       .020       .040       .020     586.90     500.00
    .000380       71.        71.        71.          2          0          0       0.00      14.00     514.00


*SECNO 10592.000
     SECNO       DEPTH      CWSEL      CRIWS      WSELK       EG         HV         HL        OLOSS    BANK ELEV
     Q           QLOB       QCH        QROB       ALOB        ACH        AROB       VOL       TWA     LEFT/RIGHT
     TIME        VLOB       VCH        VROB       XNL         XNCH       XNR        WTN       ELMIN       SSTA
     SLOPE       XLOBL      XLCH       XLOBR      ITRIAL      IDC        ICONT      CORAR     TOPWID      ENDST


   10592.00      7.12     594.02       0.00       0.00     594.19        .17        .00        .00     599.90
       325.        0.       325.         0.         0.        97.         0.         1.         0.     599.90
        .01      0.00       3.36       0.00       .042       .036       .042       .020     586.90     500.00
```

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 .001231        1.        1.        1.        0         0         0      0.00     1..00     314.00

 *SECNO 10641.000

                    VALLEY SECTION 2 (J&A)                            SECT.B

   10641.00      7.48    594.18      0.00      0.00    594.26       .08       .03       .03     595.50
       325.        0.      325.        0.        0.      148.        0.        1.        0.      595.70
        .02      0.00      2.20      0.00      .042      .036      .042      .023    586.70     502.15
    .000416       49.       49.       49.         2         0         0      0.00     30.14     532.29

 *SECNO 10969.000
   10969.00      7.74    594.34      0.00      0.00    594.50       .16       .21       .04     595.60
       325.        0.      325.        0.        0.      100.        0.        2.        0.      595.80
        .05      0.00      3.24      0.00      .042      .036      .042      .031    586.60     143.10
    .001053      328.      328.      328.         2         0         0      0.00     13.80     156.90

 *SECNO 10970.000

 3370 NORMAL BRIDGE,NRD= 12 MIN ELTRD=   595.50 MAX ELLC=   595.20

   10970.00      7.72    594.32      0.00      0.00    594.53       .21       .00       .02     595.60
       325.        0.      325.        0.        0.       89.        0.        2.        0.      595.80
        .05      0.00      3.65      0.00      .042      .033      .042      .031    586.60     143.10
    .001678        1.        1.        1.         2         0         0    -10.98     13.80     156.90

 *SECNO 11006.000

 3370 NORMAL BRIDGE,NRD= 12 MIN ELTRD=   595.50 MAX ELLC=   595.20

                    PRIVATE CULVERT  BRIDGE SECTION 3.1 (AE&H)        SECT.C

                    13'-11" X 8'7" MULTIPLATE PIPE ARCH

   11006.00      7.78    594.38      0.00      0.00    594.59       .20       .06       .00     595.60
       325.        0.      325.        0.        0.       90.        0.        2.        0.      595.80
        .05      0.00      3.63      0.00      .042      .033      .042      .031    586.60     143.10
    .001656       36.       36.       36.         1         0         0    -11.28     13.80     156.90

 *SECNO 11007.000
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV        loss = 1ft V
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

   11007.00      7.85    594.45      0.00      0.00    594.60       .16       .00       .01     595.60
       325.        0.      325.        0.        0.      102.        0.        2.        0.      595.80
        .05      0.00      3.19      0.00      .042      .036      .042      .031    586.60     143.10
    .001015        1.        1.        1.         2         0         0      0.00     13.80     156.90
                                                   A = 93ft²

 *SECNO 12655.000

                    VALLEY SECTION 4 (J&A)                            SECT.D

   12655.00      7.09    595.29      0.00      0.00    595.32       .03       .68       .04     597.80
       325.        0.      325.        0.        0.      225.        0.        8.        2.      598.30
        .37      0.00      1.45      0.00      .040      .037      .042      .035    588.20      61.12
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 [illegible]

 *SECNO 13568.000
  13568.00     6.93    595.63     0.00     0.00   595.86      .23      .44      .10   597.60
      325.       0.      325.       0.       0.      84.       0.      11.       2.    597.60
       .43     0.00      3.86     0.00     .040     .037     .042     .036   588.70    93.60
   .001757     913.      913.     913.        2        0        0     0.00    12.80   106.40

 *SECNO 13569.000

 3370 NORMAL BRIDGE,NRD= 11 MIN ELTRD=  597.60 MAX ELLC=  597.00   8.3                  13×8.5

  13569.00     6.91    595.61     0.00     0.00   595.89      .28      .00      .03   597.60
      325.       0.      325.       0.       0.      76.       0.      11.       2.    597.60
       .43     0.00      4.26     0.00     .040     .033     .040     .036   588.70    93.60
   .002205       1.        1.       1.        2        0        0    -7.70    12.80   106.40

 *SECNO 13672.000

 3370 NORMAL BRIDGE,NRD= 11 MIN ELTRD=  597.60 MAX ELLC=  597.00

                                                                                   A=24
                  CHATEAU THEIRRY ROAD  BRIDGE SECTION 5 (J&A)     SECT.E

  13672.00     7.17    595.87     0.00     0.00   596.13      .27      .24      .00   597.60
      325.       0.      325.       0.       0.      79.       0.      11.       2.    597.60
       .44     0.00      4.13     0.00     .040     .033     .040     .036   588.70    93.60
   .002458     103.      103.     103.        2        0        0    -8.71    12.80   106.40

 *SECNO 13673.000
    SECNO     DEPTH     CWSEL    CRIWS    WSELK      EG       HV       HL      OLOSS   BANK ELEV
    Q         QLOB      QCH      QROB     ALOB      ACH      AROB     VOL      TWA   LEFT/RIGHT
    TIME      VLOB      VCH      VROB     XNL       XNCH     XNR      WTN      ELMIN     SSTA
    SLOPE     XLOBL     XLCH     XLOBR    ITRIAL    IDC      ICONT    CORAR    TOPWID    ENDST

  13673.00     7.24    595.94     0.00     0.00   596.15      .21      .00      .02   597.60
      325.       0.      325.       0.       0.      88.       0.      11.       2.    597.60
       .44     0.00      3.69     0.00     .060     .040     .060     .036   588.70    93.60
   .001822       1.        1.       1.        2        0        0     0.00    12.80   106.40

 *SECNO 14950.000

                  VALLEY SECTION 6 (J&A)                          SECT.F

  14950.00     4.48    597.38     0.00     0.00   597.42      .04     1.22      .05   596.00
      320.      46.      192.      82.      94.      92.     147.      17.       9.    595.60
       .68      .49      2.07      .56     .060     .040     .060     .037   592.90   328.71
   .000581    1277.     1277.    1277.        3        0        0     0.00   412.03   740.74

                                                                        See revision in folder at
 *SECNO 17320.000                                                       front of output
 3280 CROSS SECTION  17320.00 EXTENDED        .31 FEET

                  VALLEY SECTION 7 (J&A)'                         SECT.G

  17320.00     4.40    598.40     0.00     0.00   598.42      .02      .99      .01   597.40
      320.      97.      132.      91.     268.      88.     228.      40.      43.    597.30
      1.42      .36      1.50      .40     .060     .040     .060     .039   594.00     0.00
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 .000355     2000.     2370.     1000.          .          0          0       0.00    100.00    1000.00

*SECNO 17919.000

3265 DIVIDED FLOW

3280 CROSS SECTION  17919.00 EXTENDED        .09 FEET

  17919.00      5.09    598.79      0.00      0.00    598.86       .07       .41       .03    599.30
      320.       21.      225.       74.       53.       89.      133.       46.       55.    599.30
      1.50       .40      2.53       .56      .060      .040      .060      .039    593.70      0.00
   .001910      599.      599.      599.         2         0         0      0.00    721.51    997.48

*SECNO 17920.000

3265 DIVIDED FLOW

3280 CROSS SECTION  17920.00 EXTENDED        .13 FEET

3370 NORMAL BRIDGE,NRD= 25 MIN ELTRD=  598.30 MAX ELLC=  597.40

  17920.00      5.13    598.83      0.00      0.00    598.87       .04       .00       .01    599.30
      320.       46.      127.      147.       64.       53.      147.       46.       55.    599.30
      1.50       .72      2.43      1.00      .050      .033      .050      .039    593.70      0.00
   .003784        1.        1.        1.         2         0         0    -37.11    764.96   1000.00

*SECNO 17952.000

3265 DIVIDED FLOW

3280 CROSS SECTION  17952.00 EXTENDED        .24 FEET
                                                                               Q_CULVERTS ≈ 100 cFs @ Δ=.13
   SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB        ACH      AROB       VOL       TWA  LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL         XNCH      XNR       WTN     ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL      IDC     ICONT     CORAR    TOPWID     ENDST
                                                                               Δ=.1

3370 NORMAL BRIDGE,NRD= 25 MIN ELTRD=  598.30 MAX ELLC=  597.40               wie low in overbanks

                21 MILE ROAD  BRIDGE SECTION 8 (J&A)           SECT.H

  17952.00      5.24    598.94      0.00      0.00    598.95       .02       .08       .01    599.30
      320.       66.       91.      163.      107.       53.      197.       46.       55.    599.30
      1.51       .62      1.73       .83      .050      .033      .050      .039    593.70      0.00   => Δ=.33 @ 176 cFs
   .001956       32.       32.       32.         2         0         0    -39.17    563.27   1000.00

*SECNO 17953.000

3265 DIVIDED FLOW

3280 CROSS SECTION  17953.00 EXTENDED        .25 FEET

  17953.00      5.24    598.94      0.00      0.00    598.97       .03       .00       .01    599.30
      320.       42.      176.      102.      109.       92.      198.       46.       55.    599.30
```

```
    1.31        .37       1.92        .32       .060       .040       .060       .039     593.70       0.00
 .001088         1.         1.         1.          0          0          0       0.00     864.28    1000.00

*SECNO 19405.000
3280 CROSS SECTION  19405.00 EXTENDED         .85 FEET

                 VALLEY SECTION 9 (J&A)                              SECT.I

 19405.00       6.04     599.54       0.00       0.00     599.56        .02        .59        .00     597.90
     320.       112.       171.        36.       344.       120.       159.        63.        86.     593.40
     1.96        .33       1.42        .21       .060       .040       .060       .039     593.50       0.00
 .000209       1452.      1452.      1452.          4          0          0       0.00    1000.00    1000.00

*SECNO 20809.000

3265 DIVIDED FLOW

3280 CROSS SECTION  20809.00 EXTENDED         .19 FEET

 20809.00       7.49     600.29       0.00       0.00     600.44        .15        .81        .07     600.50
     320.        93.       226.         1.       101.        62.         2.        76.       108.     600.20
     2.09        .93       3.66        .27       .060       .040       .060       .039     592.80       0.00
 .004923       1404.      1404.      1404.          2          0          0       0.00     334.96     540.82

*SECNO 20810.000

3265 DIVIDED FLOW

3280 CROSS SECTION  20810.00 EXTENDED         .31 FEET

3370 NORMAL BRIDGE,NRD= 23 MIN ELTRD=  599.50 MAX ELLC=  597.90

 20810.00       7.61     600.41       0.00       0.00     600.47        .06        .01        .03     600.50
     320.       223.        91.         5.       135.        35.         8.        76.       108.     600.20
     2.09       1.66       2.64        .68       .040       .030       .040       .039     592.80       0.00
 .005373         1.         1.         1.          4          0          0     -28.60     381.42     573.46

*SECNO 20831.000

3265 DIVIDED FLOW

3280 CROSS SECTION  20831.00 EXTENDED         .42 FEET

   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST

3370 NORMAL BRIDGE,NRD= 23 MIN ELTRD=  599.50 MAX ELLC=  597.90

3470 ENCROACHMENT STATIONS=         .0      574.0  TYPE=      1  TARGET=      573.999

                 FARM CULVERT NO.1  BRIDGE SECTION 10 (J&A)          SECT.J
```

$1+.5+\frac{29(.03)^2 30}{1.13^{4/3}} = 2.17$

$\sqrt{\frac{(.15)64.4}{2.17}}$ 15.9

$Q_{cul} = 67$

[illegible] = 1.08

```
 20831.00     7.72   600.52     0.00     0.00   600.56      .04      .08      .01   600.50
     320.     235.      73.      12.     169.      36.      15.      76.     108.   600.20
     2.10     1.39     2.04      .77     .040     .030     .040     .039   592.80      .00
  .003057      21.      21.      21.        0        0        0   -28.60   404.57   574.00

 *SECNO 20832.000

 3265 DIVIDED FLOW


 3470 ENCROACHMENT STATIONS=         .0    574.0   TYPE=      1  TARGET=      573.999
 20832.00     7.71   600.51     0.00     0.00   600.57      .06      .00      .01   600.50
     320.     142.     171.       7.     170.      65.      15.      76.     108.   600.20
     2.10      .85     2.65      .46     .060     .040     .060     .039   592.80      .00
  .002453       1.       1.       1.        1        0        0     0.00   405.07   574.00

 *SECNO 22320.000
 3280 CROSS SECTION   22320.00 EXTENDED      1.18 FEET


           VALLEY SECTION 11 (JXA)                             SECT.K

 22320.00     7.38   600.78     0.00     0.00   600.78      .00      .19      .02   599.20
     320.     120.      87.     114.     641.     133.     604.     104.     132.   599.10
     3.42      .19      .65      .19     .060     .040     .060     .039   593.40     0.00
  .000040    1488.    1488.    1488.        4        0        0     0.00  1000.00  1000.00


 *SECNO 22557.000
 3280 CROSS SECTION   22557.00 EXTENDED       .90 FEET


 22557.00     5.70   600.80     0.00     0.00   600.80      .00      .02      .00   600.40
     320.      92.      31.     197.     363.      48.     583.     111.     137.   600.40
     3.61      .25      .64      .34     .060     .040     .060     .039   595.10     0.00
  .000145     237.     237.     237.        2        0        0     0.00  1000.00  1000.00


 *SECNO 22558.000
 3280 CROSS SECTION   22558.00 EXTENDED       .90 FEET


 3370 NORMAL BRIDGE,NRD= 24 MIN ELTRD=  599.00 MAX ELLC=  599.60

 22558.00     5.70   600.80     0.00     0.00   600.80      .00      .00      .00   600.40
     320.      98.      14.     208.     363.      36.     583.     111.     137.   600.40
     3.61      .27      .38      .36     .050     .035     .050     .039   595.10     0.00
  .000113       1.       1.       1.        0        0        0   -12.04  1000.00  1000.00


 *SECNO 22583.000
 3280 CROSS SECTION   22583.00 EXTENDED       .90 FEET


    SECNO    DEPTH    CWSEL    CRIWS    WSELK      EG       HV       HL     OLOSS   BANK ELEV
      Q      QLOB      QCH     QROB     ALOB      ACH     AROB      VOL      TWA   LEFT/RIGHT
    TIME     VLOB      VCH     VROB      XNL     XNCH      XNR      WTN    ELMIN      SSTA
   SLOPE    XLOBL     XLCH    XLOBR   ITRIAL      IDC    ICONT    CORAR   TOPWID     ENDST
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3370 NORMAL BRIDGE,NRD= 24 MIN ELTRD= 599.00 MAX ELLC= 599.60

                     FARM CULVERT NO.2  BRIDGE SECTION 11-A (J&A)     SECT.L

   22583.00     5.70   600.80     0.00     0.00   600.80      .00      .00      .00   600.40
        320.     98.      14.     208.     365.      36.     585.     111.     138.   600.40
       3.63      .27      .38      .36     .050     .035     .050     .039   595.10     0.00
    .000112      25.      25.      25.        0        0        0   -12.04  1000.00  1000.00

*SECNO 22584.000
3280 CROSS SECTION  22584.00 EXTENDED        .90 FEET

   22584.00     5.70   600.80     0.00     0.00   600.80      .00      .00      .00   600.40
        320.     92.      31.     197.     365.      48.     585.     111.     138.   600.40
       3.63      .25      .64      .34     .060     .040     .060     .039   595.10     0.00
    .000143       1.       1.       1.        0        0        0     0.00  1000.00  1000.00

*SECNO 23526.000

3265 DIVIDED FLOW

3280 CROSS SECTION  23526.00 EXTENDED        .54 FEET

   23526.00     4.84   601.04     0.00     0.00   601.05      .01      .25      .00   599.80
        320.     78.      44.     198.     116.      23.     358.     127.     157.   599.80
       3.99      .67     1.57      .55     .060     .040     .060     .039   596.20   179.37
    .000613     942.     942.     942.        2        0        0     0.00   759.79  1000.00

*SECNO 23527.000

3265 DIVIDED FLOW

3280 CROSS SECTION  23527.00 EXTENDED        .54 FEET

3370 NORMAL BRIDGE,NRD= 16 MIN ELTRD=  599.00 MAX ELLC=  599.10

   23527.00     4.85   601.05     0.00     0.00   601.05      .01      .00      .00   599.80
        320.     84.      22.     214.     116.      24.     355.     127.     157.   599.80
       3.99      .72      .92      .60     .050     .035     .050     .039   596.20   179.16
    .000495       1.       1.       1.        0        0        0    -4.20   760.43  1000.00

*SECNO 23542.000

3265 DIVIDED FLOW

3280 CROSS SECTION  23542.00 EXTENDED        .55 FEET

3370 NORMAL BRIDGE,NRD= 16 MIN ELTRD=  599.00 MAX ELLC=  599.10

                     FARM CULVERT NO.3  BRIDGE SECTION 12 (J&A)       SECT.M             5.6

   23542.00     4.85   601.05     0.00     0.00   601.06      .01      .01      .00   599.80
        320.     84.      21.     215.     120.      24.     365.     123.     157.   599.80
       4.00      .70      .91      .59     .050     .035     .050     .039   596.20   172.87
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 .000472     15.      15.      15.       0        0           -.02    779.70   1000.  0

*SECNO 23543.000

3265 DIVIDED FLOW

3280 CROSS SECTION  23543.00 EXTENDED       .55 FEET

    SECNO      DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q          QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
    TIME       VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
    SLOPE      XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

  23543.00      4.85    601.05      0.00      0.00    601.06       .01       .00       .00    599.80
       320.      73.       41.      201.      120.       28.      364.      128.      157.    599.80
      4.00       .65      1.48       .55      .060      .042      .060      .039    596.20    172.96
   .000595        1.        1.        1.         0         0         0      0.00    779.47   1000.00

*SECNO 24745.000
3280 CROSS SECTION  24745.00 EXTENDED      1.12 FEET

                VALLEY SECTION 13 (JSA)                                  SECT.N

  24745.00      4.72    601.42      0.00      0.00    601.43       .01       .36       .00    600.30
       290.      50.       84.      156.      213.       81.      454.      144.      177.    600.70
      4.59       .23      1.04       .34      .060      .042      .060      .040    596.70     76.81
   .000195      700.     1202.     1250.         2         0         0      0.00    923.19   1000.00
```

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Macomb Twp

3) WATERCOURSE: Miller Drain

4) DOCUMENT TYPE: 100 year floodplain revised w/ improvements

00BREAK00

THIS RUN EXECUTED 01-20-89

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**************************************************
 HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
 ERROR CORR -  01,02,03,04,05,06
 MODIFICATION -  50,51,52,53,54,55,56
 IBM-PC-XT VERSION AUGUST 1985
**************************************************
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T1 BACKWATER ANALYSIS MILLER BY Anderson Eckstein &Westrick
T2 MILLER DRAIN
T3 FLOOD PLAIN IMPROVEMENTS

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	2.	0.	0.	.000000	.00	.0	0.	593.640	.000

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	1.000	.000	-1.000	.000	.000	.000	.000	.000	.000	.000

NC	.040	.042	.037	.300	.500	.000	.000	.000	.000	.000
QT	4.000	205.000	300.000	325.000	465.000	.000	.000	.000	.000	.000
X1	12655.000	9.000	50.000	128.000	.000	.000	.000	.000	.000	.000
GR	598.600	.000	597.800	50.000	589.900	85.000	588.300	90.000	588.200	94.000
GR	588.400	98.000	589.300	101.000	598.300	128.000	598.500	150.000	.000	.000
X1	13568.000	13.000	93.600	106.400	913.000	913.000	913.000	.000	.000	.000
GR	598.800	.000	597.600	93.600	590.800	93.600	589.700	94.000	588.900	96.000
GR	588.800	98.000	588.700	100.000	588.800	102.000	588.900	104.000	589.700	106.000
GR	590.800	106.400	597.600	106.400	598.300	200.000	.000	.000	.000	.000
NC	.040	.040	.033	.000	.000	.000	.000	.000	.000	.000
X1	13569.000	.000	.000	.000	1.000	1.000	1.000	.000	.000	.000
BT	11.000	.000	598.800	.000	93.600	597.600	590.800	94.000	597.600	593.200
BT	96.000	597.600	595.800	98.000	597.600	596.700	100.000	597.600	597.000	102.000
BT	597.600	596.700	104.000	597.600	595.800	106.000	597.600	593.200	106.400	597.600
BT	590.800	200.000	598.300	.000	.000	.000	.000	.000	.000	.000
X1	13672.000	.000	.000	.000	103.000	103.000	103.000	.000	.000	.000
X2	.000	.000	.000	.000	.000	.000	1.000	.000	.000	.000
NC	.060	.060	.040	.000	.000	.000	.000	.000	.000	.000
X1	13673.000	.000	.000	.000	1.000	1.000	1.000	.000	.000	.000
X1	13913.000	6.000	.000	89.000	240.000	240.000	240.000	.000	.000	.000
GR	599.000	.000	594.000	24.000	586.720	45.000	586.720	54.000	595.000	80.000
GR	597.050	89.000	.000	.000	.000	.000	.000	.000	.000	.000

NOTE: This analysis has assumed that the dredged portion of the low flow channel will not be filled in with sediment.
IF XSEC's are to be used it is suggested flow area below 588.7 be deleted at XSEC 13913, with similar deletions up to XSEC 16185.
Impact on 100-yr stage is minimal BEM

X1	14126.000	8.000	.000	132.000	213.000	213.000	213.000	.000	.000	.000
GR	596.800	.000	591.830	20.000	590.830	50.000	586.830	62.000	586.830	70.000
GR	590.830	82.000	591.830	112.000	596.420	132.000	.000	.000	.000	.000
NC	.060	.060	.040	.000	.000	.000	.000	.000	.000	.000
X1	14506.000	8.000	.000	120.000	425.000	330.000	380.000	.000	.000	.000
GR	596.850	.000	593.350	14.000	591.010	44.000	587.010	56.000	587.010	64.000
GR	591.010	76.000	593.350	106.000	596.850	120.000	.000	.000	.000	.000
QT	4.000	200.000	295.000	320.000	465.000	.000	.000	.000	.000	.000
X1	14725.000	8.000	.000	120.000	200.000	235.000	219.000	.000	.000	.000
GR	597.060	.000	593.560	14.000	591.130	44.000	587.130	56.000	587.130	64.000
GR	591.130	76.000	593.560	106.000	597.060	120.000	.000	.000	.000	.000
X1	14925.000	8.000	.000	120.000	150.000	260.000	200.000	.000	.000	.000
GR	597.200	.000	593.700	14.000	591.230	44.000	587.230	56.000	587.230	64.000
GR	591.230	76.000	593.700	106.000	597.200	120.000	.000	.000	.000	.000
QT	4.000	200.000	295.000	320.000	465.000	.000	.000	.000	.000	.000
X1	14950.000	8.000	.000	120.000	25.000	25.000	25.000	.000	.000	.000
GR	597.750	.000	594.250	14.000	591.750	44.000	587.750	56.000	587.750	64.000
GR	591.750	76.000	594.250	106.000	597.750	120.000	.000	.000	.000	.000
X1	15315.000	8.000	.000	120.000	385.000	195.000	365.000	.000	.000	.000
GR	597.430	.000	593.930	14.000	591.430	44.000	587.430	56.000	587.430	64.000
GR	591.430	76.000	593.930	106.000	597.430	120.000	.000	.000	.000	.000
X1	15671.000	8.000	.000	120.000	390.000	270.000	356.000	.000	.000	.000
GR	597.620	.000	594.120	14.000	591.600	44.000	587.600	56.000	587.600	64.000
GR	591.600	76.000	594.120	106.000	597.620	120.000	.000	.000	.000	.000
X1	16071.000	8.000	.000	120.000	410.000	380.000	400.000	.000	.000	.000
GR	597.840	.000	594.340	14.000	591.800	44.000	587.800	56.000	587.800	64.000
GR	591.800	76.000	594.340	106.000	597.840	120.000	.000	.000	.000	.000
X1	16185.000	8.000	.000	120.000	150.000	85.000	114.000	.000	.000	.000
GR	597.900	.000	594.400	14.000	591.860	44.000	587.860	56.000	587.860	64.000
GR	591.860	76.000	594.400	106.000	597.900	120.000	.000	.000	.000	.000
NC	.060	.060	.040	.600	1.000	.000	.000	.000	.000	.000
X1	16285.000	4.000	.000	49.700	100.000	100.000	100.000	.000	.000	.000
GR	597.950	.000	591.000	20.850	591.000	28.850	597.950	49.700	.000	.000
X1	16385.000	8.000	303.000	326.000	100.000	100.000	100.000	.000	.000	.000
GR	598.000	.000	597.000	263.000	596.000	303.000	593.000	311.000	593.000	322.000
GR	596.000	326.000	597.000	358.000	598.000	417.000	.000	.000	.000	.000
X1	17320.000	16.000	500.000	527.000	720.000	900.000	935.000	.000	.000	.000
GR	598.100	.000	598.300	100.000	598.200	200.000	597.300	300.000	597.800	400.000
GR	597.400	500.000	594.300	509.000	594.000	514.000	594.300	520.000	597.300	527.000
GR	597.100	550.000	597.200	600.000	598.000	700.000	598.200	800.000	598.300	900.000
GR	598.300	1000.000	.000	.000	.000	.000	.000	.000	.000	.000
EJ	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST


*PROF 1

CCHV=    .300 CEHV=    .500
*SECNO 12655.000
 12655.00      5.44    593.64       .00    593.64    593.67       .03       .00       .00    597.80
     205.        0.      205.        0.        0.      139.        0.        0.        0.    598.30
      .00       .00      1.47       .00      .040      .037      .042      .000    588.20     68.43
  .000317        0.        0.        0.         0         0         0       .00     45.59    114.02


*SECNO 13568.000
 13568.00      5.41    594.11       .00       .00    594.27       .16       .53       .06    597.60
     205.        0.      205.        0.        0.       65.        0.        2.        1.    597.60
      .08       .00      3.16       .00      .040      .037      .042      .000    588.70     93.60
  .001404      913.      913.      913.         2         0         0       .00     12.80    106.40


*SECNO 13569.000

3370 NORMAL BRIDGE,NRD= 11 MIN ELTRD=  597.60 MAX ELLC=  597.00

 13569.00      5.41    594.11       .00       .00    594.27       .17       .00       .01    597.60
     205.        0.      205.        0.        0.       63.        0.        2.        1.    597.60
      .08       .00      3.28       .00      .040      .033      .040      .000    588.70     93.60
  .001305        1.        1.        1.         0         0         0     -2.33     12.80    106.40


*SECNO 13672.000

3370 NORMAL BRIDGE,NRD= 11 MIN ELTRD=  597.60 MAX ELLC=  597.00

 13672.00      5.55    594.25       .00       .00    594.41       .16       .13       .00    597.60
     205.        0.      205.        0.        0.       64.        0.        2.        1.    597.60
      .09       .00      3.21       .00      .040      .033      .040      .000    588.70     93.60
  .001236      103.      103.      103.         0         0         0     -2.64     12.80    106.40


*SECNO 13673.000
 13673.00      5.56    594.26       .00       .00    594.41       .15       .00       .00    597.60
     205.        0.      205.        0.        0.       67.        0.        2.        1.    597.60
      .09       .00      3.07       .00      .060      .040      .060      .000    588.70     93.60
  .001521        1.        1.        1.         1         0         0       .00     12.80    106.40
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THIS RUN EXECUTED 01-20-89

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 HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
 ERROR CORR -  01,02,03,04,05,06
 MODIFICATION -  50,51,52,53,54,55,56
 IBM-PC-XT VERSION AUGUST 1985
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T1
T2
T3

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-10.	4.	0.	0.	.000000	.00	.0	0.	595.290	.000

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	3.000	.000	-1.000	.000	.000	.000	.000	.000	.000	.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*PROF 3

CCHV= .300 CEHV= .500

*SECNO 12655.000

12655.00	7.09	595.29	.00	595.29	595.32	.03	.00	.00	597.80
325.	0.	325.	0.	0.	225.	0.	0.	0.	598.30
.00	.00	1.45	.00	.040	.037	.042	.000	588.20	61.12
.000222	0.	0.	0.	0	0	0	.00	57.85	118.97

*SECNO 13568.000

13568.00	6.93	595.63	.00	.00	595.86	.23	.44	.10	597.60
325.	0.	325.	0.	0.	84.	0.	3.	1.	597.60
.07	.00	3.86	.00	.040	.037	.042	.000	588.70	93.60
.001757	913.	913.	913.	2	0	0	.00	12.80	106.40

*SECNO 13569.000

3370 NORMAL BRIDGE,NRD= 11 MIN ELTRD= 597.60 MAX ELLC= 597.00

13569.00	6.91	595.61	.00	.00	595.89	.28	.00	.02	597.60
325.	0.	325.	0.	0.	77.	0.	3.	1.	597.60
.07	.00	4.24	.00	.040	.033	.040	.000	588.70	93.60
.002055	1.	1.	1.	2	0	0	-7.36	12.80	106.40

*SECNO 13672.000

3370 NORMAL BRIDGE,NRD= 11 MIN ELTRD= 597.60 MAX ELLC= 597.00

13672.00	7.13	595.83	.00	.00	596.10	.27	.21	.00	597.60
325.	0.	325.	0.	0.	78.	0.	3.	1.	597.60
.07	.00	4.14	.00	.040	.033	.040	.000	588.70	93.60
.001965	103.	103.	103.	2	0	0	-8.41	12.80	106.40

*SECNO 13673.000

13673.00	7.21	595.91	.00	.00	596.12	.21	.00	.02	597.60
325.	0.	325.	0.	0.	88.	0.	3.	1.	597.60
.07	.00	3.70	.00	.060	.040	.060	.000	588.70	93.60
.001847	1.	1.	1.	2	0	0	.00	12.80	106.40

I FI

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
*SECNO 13913.000									
13913.00	9.49	596.21	.00	.00	596.23	.01	.05	.06	599.00
325.	0.	325.	0.	0.	363.	0.	5.	587.7 1.	597.05
.15	.00	.90	.00	.060	.040	.060	.000	586.72	13.37
.000071	240.	240.	240.	2	0	0	.00	71.95	85.33
*SECNO 14126.000									
14126.00	9.40	596.23	.00	.00	596.24	.00	.01	.00	596.80
325.	0.	325.	0.	0.	628.	0.	7.	588.8 1.	~~596.42~~
.26	.00	.52	.00	.060	.040	.060	.000	586.83	2.28
.000024	213.	213.	213.	2	0	0	.00	128.90	131.18
*SECNO 14506.000									
14506.00	9.23	596.24	.00	.00	596.25	.01	.01	.00	596.85
325.	0.	325.	0.	0.	526.	0.	12.	589 3.	596.85
.43	.00	.62	.00	.060	.040	.060	.000	587.01	2.40
.000038	425.	380.	330.	0	0	0	.00	115.21	117.60
*SECNO 14725.000									
14725.00	9.12	596.25	.00	.00	596.26	.01	.01	.00	597.06
320.	0.	320.	0.	0.	507.	0.	15.	589.1 3.	597.06
.53	.00	.63	.00	.060	.040	.060	.000	587.13	3.24
.000040	200.	219.	235.	0	0	0	.00	113.52	116.76
*SECNO 14925.000									
14925.00	9.03	596.26	.00	.00	596.27	.01	.01	.00	597.20
320.	0.	320.	0.	0.	495.	0.	17.	589.2 4.	597.20
.61	.00	.65	.00	.060	.040	.060	.000	587.23	3.76
.000043	150.	200.	260.	0	0	0	.00	112.47	116.24
*SECNO 14950.000									
14950.00	8.51	596.26	.00	.00	596.27	.01	.00	.00	597.75
320.	0.	320.	0.	0.	436.	0.	17.	589.7 4.	597.75
.62	.00	.73	.00	.060	.040	.060	.000	587.75	5.96
.000062	25.	25.	25.	0	0	0	.00	108.08	114.04

A

will likely fill in with sediment use X3.2 to eliminate flow area

B

C

D

E

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
*SECNO 15315.000									
15315.00	8.85	596.28	.00	.00	596.29	.01	.02	.00	597.43
320.	0.	320.	0.	0.	473.	0.	21.	590 5.	597.43
.77	.00	.68	.00	.060	.040	.060	.000	587.43	4.61
.000049	385.	365.	195.	0	0	0	.00	110.77	115.39
*SECNO 15671.000									
15671.00	8.70	596.30	.00	.00	596.31	.01	.02	.00	597.62
320.	0.	320.	0.	0.	456.	0.	25.	590.3 6.	597.62
.91	.00	.70	.00	.060	.040	.060	.000	587.60	5.28
.000055	390.	356.	270.	0	0	0	.00	109.44	114.72
*SECNO 16071.000									
16071.00	8.52	596.32	.00	.00	596.33	.01	.02	.00	597.84
320.	0.	320.	0.	0.	435.	0.	29.	590.7 7.	597.84
1.07	.00	.74	.00	.060	.040	.060	.000	587.80	6.08
.000062	410.	400.	380.	0	0	0	.00	107.84	113.92
*SECNO 16185.000									
16185.00	8.47	596.33	.00	.00	596.34	.01	.01	.00	597.90
320.	0.	320.	0.	0.	430.	0.	30.	590.8 7.	597.90
1.11	.00	.74	.00	.060	.040	.060	.000	587.86	6.28
.000065	150.	114.	85.	0	0	0	.00	107.44	113.72
CCHV= .600 CEHV= 1.000									
*SECNO 16285.000									
16285.00	5.35	596.35	.00	.00	596.44	.10	.02	.09	597.95
320.	0.	320.	0.	0.	128.	0.	31.	7.	597.95
1.12	.00	2.49	.00	.060	.040	.060	.000	591.00	4.83
.001009	100.	100.	100.	1	0	0	.00	40.05	44.87
*SECNO 16385.000									
16385.00	3.54	596.54	.00	.00	596.91	.37	.19	.27	596.00
320.	4.	312.	3.	6.	63.	5.	31.	7.	596.00
1.13	.73	4.93	.73	.060	.040	.060	.000	593.00	281.47
.004970	100.	100.	100.	2	0	0	.00	61.75	343.22

Likely to fill in with sediment

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 17320.000

3265 DIVIDED FLOW

3280 CROSS SECTION 17320.00 EXTENDED .15 FEET

17320.00	4.25	598.25	.00	.00	598.27	.03	1.16	.20	597.40
320.	82.	156.	82.	193.	84.	161.	36.	15.	597.30
1.34	.43	1.86	.51	.060	.040	.060	.000	594.00	.00
.000581	720.	935.	900.	3	0	0	.00	782.18	852.87

THIS RUN EXECUTED 01-20-89

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 HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
 ERROR CORR -  01,02,03,04,05,06
 MODIFICATION -  50,51,52,53,54,55,56
 IBM-PC-XT VERSION AUGUST 1985
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

FLOOD PLAIN IMPROVEMENTS

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
12655.000	.00	.00	.00	588.20	205.00	593.64	.00	593.67	3.17	1.47	139.23	115.18
12655.000	.00	.00	.00	588.20	300.00	594.91	.00	594.94	2.48	1.48	203.12	190.59
12655.000	.00	.00	.00	588.20	325.00	595.29	.00	595.32	2.22	1.45	224.56	217.88
12655.000	.00	.00	.00	588.20	465.00	596.80	.00	596.83	1.77	1.45	320.39	349.96
13568.000	913.00	.00	.00	588.70	205.00	594.11	.00	594.27	14.04	3.16	64.82	54.70
13568.000	913.00	.00	.00	588.70	300.00	595.29	.00	595.51	17.20	3.75	79.95	72.34
13568.000	913.00	.00	.00	588.70	325.00	595.63	.00	595.86	17.57	3.86	84.30	77.54
13568.000	913.00	.00	.00	588.70	465.00	597.05	.00	597.37	21.78	4.54	102.40	99.65
13569.000	1.00	597.60	597.00	588.70	205.00	594.11	.00	594.27	13.05	3.28	62.50	56.78
13569.000	1.00	597.60	597.00	588.70	300.00	595.28	.00	595.53	18.96	4.06	73.88	68.90
13569.000	1.00	597.60	597.00	588.70	325.00	595.61	.00	595.89	20.55	4.24	76.66	71.70
13569.000	1.00	597.60	597.00	588.70	465.00	596.97	.00	597.45	45.17	5.52	84.20	69.18
13672.000	103.00	597.60	597.00	588.70	205.00	594.25	.00	594.41	12.36	3.21	63.91	58.30
13672.000	103.00	597.60	597.00	588.70	300.00	595.48	.00	595.73	18.09	3.97	75.49	70.53
13672.000	103.00	597.60	597.00	588.70	325.00	595.83	.00	596.10	19.65	4.14	78.47	73.33
13672.000	103.00	597.60	597.00	588.70	465.00	597.44	.00	597.92	45.80	5.52	84.20	68.71
13673.000	1.00	.00	.00	588.70	205.00	594.26	.00	594.41	15.21	3.07	66.68	52.57
13673.000	1.00	.00	.00	588.70	300.00	595.54	.00	595.74	18.17	3.61	83.09	70.38
13673.000	1.00	.00	.00	588.70	325.00	595.91	.00	596.12	18.47	3.70	87.79	75.62
13673.000	1.00	.00	.00	588.70	465.00	597.71	.00	597.98	20.60	4.19	112.01	102.44
13913.000	240.00	.00	.00	586.72	205.00	594.49	.00	594.50	.70	.81	251.89	245.69
13913.000	240.00	.00	.00	586.72	300.00	595.83	.00	595.85	.73	.89	335.92	350.86
13913.000	240.00	.00	.00	586.72	325.00	596.21	.00	596.23	.71	.90	362.56	385.68
13913.000	240.00	.00	.00	586.72	465.00	598.08	.00	598.10	.58	.91	510.90	609.42
14126.000	213.00	.00	.00	586.83	205.00	594.51	.00	594.51	.32	.49	418.18	364.45
14126.000	213.00	.00	.00	586.83	300.00	595.85	.00	595.86	.26	.52	580.00	590.05
14126.000	213.00	.00	.00	586.83	325.00	596.23	.00	596.24	.24	.52	628.27	662.90
14126.000	213.00	.00	.00	586.83	465.00	598.10	.00	598.11	.17	.53	874.29	1115.14

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
14506.000	380.00	.00	.00	587.01	205.00	594.52	.00	594.53	.54	.61	338.71	277.98
14506.000	380.00	.00	.00	587.01	300.00	595.86	.00	595.87	.41	.62	482.57	468.38
14506.000	380.00	.00	.00	587.01	325.00	596.24	.00	596.25	.38	.62	525.60	530.43
14506.000	380.00	.00	.00	587.01	465.00	598.11	.00	598.12	.26	.62	748.02	916.62
14725.000	219.00	.00	.00	587.13	200.00	594.53	.00	594.54	.59	.62	323.64	260.49
14725.000	219.00	.00	.00	587.13	295.00	595.87	.00	595.88	.44	.63	464.75	444.38
14725.000	219.00	.00	.00	587.13	320.00	596.25	.00	596.26	.40	.63	507.06	504.56
14725.000	219.00	.00	.00	587.13	465.00	598.11	.00	598.12	.28	.64	728.11	878.25
14925.000	200.00	.00	.00	587.23	200.00	594.54	.00	594.55	.65	.64	313.66	248.92
14925.000	200.00	.00	.00	587.23	295.00	595.88	.00	595.89	.47	.65	452.99	428.50
14925.000	200.00	.00	.00	587.23	320.00	596.26	.00	596.27	.43	.65	494.80	487.41
14925.000	200.00	.00	.00	587.23	465.00	598.12	.00	598.13	.30	.65	714.57	852.38
14950.000	25.00	.00	.00	587.75	200.00	594.55	.00	594.55	1.10	.76	262.61	190.90
14950.000	25.00	.00	.00	587.75	295.00	595.88	.00	595.89	.70	.74	396.01	352.06
14950.000	25.00	.00	.00	587.75	320.00	596.26	.00	596.27	.62	.73	436.15	405.71
14950.000	25.00	.00	.00	587.75	465.00	598.12	.00	598.13	.40	.71	650.54	733.22
15315.000	365.00	.00	.00	587.43	200.00	594.58	.00	594.59	.77	.68	295.80	228.27
15315.000	365.00	.00	.00	587.43	295.00	595.91	.00	595.91	.54	.68	431.96	400.01
15315.000	365.00	.00	.00	587.43	320.00	596.28	.00	596.29	.49	.68	472.90	456.65
15315.000	365.00	.00	.00	587.43	465.00	598.14	.00	598.14	.33	.67	690.20	806.38
15671.000	356.00	.00	.00	587.60	200.00	594.61	.00	594.62	.88	.71	282.55	213.26
15671.000	356.00	.00	.00	587.60	295.00	595.93	.00	595.94	.61	.71	415.72	378.38
15671.000	356.00	.00	.00	587.60	320.00	596.30	.00	596.31	.55	.70	455.87	433.07
15671.000	356.00	.00	.00	587.60	465.00	598.15	.00	598.15	.36	.69	670.55	769.90
16071.000	400.00	.00	.00	587.80	200.00	594.65	.00	594.66	1.06	.75	265.70	194.57
16071.000	400.00	.00	.00	587.80	295.00	595.95	.00	595.96	.70	.74	396.03	352.50
16071.000	400.00	.00	.00	587.80	320.00	596.32	.00	596.33	.62	.74	435.36	405.09
16071.000	400.00	.00	.00	587.80	465.00	598.16	.00	598.17	.41	.72	647.02	726.99
16185.000	114.00	.00	.00	587.86	200.00	594.66	.00	594.67	1.11	.76	261.60	190.07
16185.000	114.00	.00	.00	587.86	295.00	595.96	.00	595.97	.73	.75	390.84	345.72
16185.000	114.00	.00	.00	587.86	320.00	596.33	.00	596.34	.65	.74	429.89	397.65
16185.000	114.00	.00	.00	587.86	465.00	598.17	.00	598.18	.42	.73	640.51	715.27
16285.000	100.00	.00	.00	591.00	200.00	594.69	.00	594.82	20.13	2.85	70.07	44.57
16285.000	100.00	.00	.00	591.00	295.00	595.98	.00	596.08	11.78	2.59	114.03	85.94
16285.000	100.00	.00	.00	591.00	320.00	596.35	.00	596.44	10.09	2.49	128.32	100.73
16285.000	100.00	.00	.00	591.00	465.00	598.18	.00	598.25	5.45	2.20	211.50	199.20
16385.000	100.00	.00	.00	593.00	200.00	595.12	.00	595.72	151.81	6.19	32.33	16.23
16385.000	100.00	.00	.00	593.00	295.00	596.21	.00	596.64	66.92	5.26	57.57	36.08
16385.000	100.00	.00	.00	593.00	320.00	596.54	.00	596.91	49.70	4.93	73.80	45.39
16385.000	100.00	.00	.00	593.00	465.00	598.28	.00	598.33	5.38	2.25	484.66	200.40

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
17320.000	935.00	.00	.00	594.00	200.00	597.86	.00	597.90	7.54	1.93	226.48	72.83
17320.000	935.00	.00	.00	594.00	295.00	598.18	.00	598.21	6.23	1.89	386.08	118.1[illegible]
17320.000	935.00	.00	.00	594.00	320.00	598.25	.00	598.27	5.81	1.86	438.36	132.75
17320.000	935.00	.00	.00	594.00	465.00	598.68	.00	598.69	3.23	1.51	857.45	258.82

FLOOD PLAIN IMPROVEMENTS

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
12655.000	205.00	593.64	.00	.00	.00	45.59	.00
12655.000	300.00	594.91	1.27	.00	.00	55.03	.00
12655.000	325.00	595.29	.38	.00	.00	57.85	.00
12655.000	465.00	596.80	1.51	.00	.00	69.07	.00
13568.000	205.00	594.11	.00	.47	.00	12.80	913.00
13568.000	300.00	595.29	1.18	.38	.00	12.80	913.00
13568.000	325.00	595.63	.34	.34	.00	12.80	913.00
13568.000	465.00	597.05	1.41	.25	.00	12.80	913.00
13569.000	205.00	594.11	.00	.00	.00	12.80	1.00
13569.000	300.00	595.28	1.17	-.02	.00	12.80	1.00
13569.000	325.00	595.61	.33	-.02	.00	12.80	1.00
13569.000	465.00	596.97	1.36	-.07	.00	12.80	1.00
13672.000	205.00	594.25	.00	.14	.00	12.80	103.00
13672.000	300.00	595.48	1.23	.20	.00	12.80	103.00
13672.000	325.00	595.83	.35	.22	.00	12.80	103.00
13672.000	465.00	597.44	1.61	.47	.00	12.80	103.00
13673.000	205.00	594.26	.00	.02	.00	12.80	1.00
13673.000	300.00	595.54	1.27	.06	.00	12.80	1.00
13673.000	325.00	595.91	.37	.07	.00	12.80	1.00
13673.000	465.00	597.71	1.80	.26	.00	35.15	1.00
13913.000	205.00	594.49	.00	.22	.00	56.73	240.00
13913.000	300.00	595.83	1.35	.30	.00	68.47	240.00
13913.000	325.00	596.21	.38	.31	.00	71.95	240.00
13913.000	465.00	598.08	1.87	.38	.00	84.61	240.00
14126.000	205.00	594.51	.00	.02	.00	114.43	213.00
14126.000	300.00	595.85	1.35	.02	.00	125.72	213.00
14126.000	325.00	596.23	.38	.02	.00	128.90	213.00
14126.000	465.00	598.10	1.87	.02	.00	132.00	213.00
14506.000	205.00	594.52	.00	.01	.00	101.40	380.00
14506.000	300.00	595.86	1.34	.01	.00	112.18	380.00
14506.000	325.00	596.24	.38	.01	.00	115.21	380.00
14506.000	465.00	598.11	1.87	.01	.00	120.00	380.00
14725.000	200.00	594.53	.00	.01	.00	99.76	219.00
14725.000	295.00	595.87	1.34	.01	.00	110.50	219.00
14725.000	320.00	596.25	.38	.01	.00	113.52	219.00
14725.000	465.00	598.11	1.86	.01	.00	120.00	219.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
14925.000	200.00	594.54	.00	.01	.00	98.75	200.00
14925.000	295.00	595.88	1.34	.01	.00	109.46	200.00
14925.000	320.00	596.26	.38	.01	.00	112.47	200.00
14925.000	465.00	598.12	1.86	.01	.00	120.00	200.00
14950.000	200.00	594.55	.00	.00	.00	94.37	25.00
14950.000	295.00	595.88	1.34	.00	.00	105.07	25.00
14950.000	320.00	596.26	.38	.00	.00	108.08	25.00
14950.000	465.00	598.12	1.86	.00	.00	120.00	25.00
15315.000	200.00	594.58	.00	.04	.00	97.14	365.00
15315.000	295.00	595.91	1.33	.02	.00	107.77	365.00
15315.000	320.00	596.28	.37	.02	.00	110.77	365.00
15315.000	465.00	598.14	1.85	.01	.00	120.00	365.00
15671.000	200.00	594.61	.00	.03	.00	95.94	356.00
15671.000	295.00	595.93	1.32	.02	.00	106.47	356.00
15671.000	320.00	596.30	.37	.02	.00	109.44	356.00
15671.000	465.00	598.15	1.85	.01	.00	120.00	356.00
16071.000	200.00	594.65	.00	.04	.00	94.42	400.00
16071.000	295.00	595.95	1.31	.03	.00	104.88	400.00
16071.000	320.00	596.32	.37	.02	.00	107.84	400.00
16071.000	465.00	598.16	1.84	.02	.00	120.00	400.00
16185.000	200.00	594.66	.00	.01	.00	94.07	114.00
16185.000	295.00	595.96	1.30	.01	.00	104.49	114.00
16185.000	320.00	596.33	.37	.01	.00	107.44	114.00
16185.000	465.00	598.17	1.84	.00	.00	120.00	114.00
16285.000	200.00	594.69	.00	.03	.00	30.08	100.00
16285.000	295.00	595.98	1.29	.02	.00	37.85	100.00
16285.000	320.00	596.35	.37	.02	.00	40.05	100.00
16285.000	465.00	598.18	1.83	.01	.00	49.70	100.00
16385.000	200.00	595.12	.00	.43	.00	19.48	100.00
16385.000	295.00	596.21	1.09	.23	.00	38.40	100.00
16385.000	320.00	596.54	.32	.19	.00	61.75	100.00
16385.000	465.00	598.28	1.75	.11	.00	417.00	100.00
17320.000	200.00	597.86	.00	2.74	.00	445.16	935.00
17320.000	295.00	598.18	.31	1.96	.00	624.86	935.00
17320.000	320.00	598.25	.07	1.71	.00	782.18	935.00
17320.000	465.00	598.68	.43	.40	.00	1000.00	935.00

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Macomb Twp

3) WATERCOURSE: Miller Drain

4) DOCUMENT TYPE: 100 YR Floodway

00BREAK00

MACJOAY JANDA 05/02/79 12.59.02 7600 JJ

MILLER DRAIN
J&A FILE NO. 9850-03
MACOMB TWP. FIS
10-50-100-500 YR. FLOODS
"ENCROACHED FLOODWAY"

CAUTION
SEE
ATTACHED COMMENTS

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 *******************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
 *******************************************

C
T1               MACOMB TWP. FIS J&A FILE NO. 5850-03-1
T2               10 YEAR FLOOD
T3               MILLER DRAIN

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     0.        2.        0.        0.   0.000000     0.00      0.0       0.    592.440    0.000

J2  NPROF     IPLOT     PREVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     1.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

NC      .040      .050      .045      .300      .500     0.000     0.000     0.000     0.000     0.000
QT     4.000   180.000   265.000   300.000   415.000     0.000     0.000     0.000     0.000     0.000

X1 10220.000    24.000  1000.000  1060.000     0.000     0.000     0.000     0.000     0.000     0.000
GR   599.500     0.000   599.600   100.000   598.900   200.000   598.800   300.000   598.100   400.000
GR   598.200   500.000   599.200   600.000   598.500   700.000   597.500   800.000   596.000   900.000
GR   596.000   960.000   594.800  1000.000   588.100  1020.000   587.600  1023.000   586.600  1029.000
GR   587.600  1040.000   595.400  1060.000   597.000  1100.000   596.700  1200.000   595.800  1300.000
GR   596.500  1400.000   596.400  1500.000   597.800  1600.000   599.700  1637.000     0.000     0.000
NC      .040      .040      .020     0.000     0.000     0.000     0.000     0.000     0.000     0.000
QT     4.000   205.000   300.000   325.000   465.000     0.000     0.000     0.000     0.000     0.000

X1 10519.000    15.000   500.000   514.000    99.000    99.000    99.000     0.000     0.000     0.000
GR   599.700     0.000   599.300   100.000   599.800   200.000   599.700   300.000   599.800   400.000
GR   599.900   500.000   587.300   500.000   586.900   507.000   587.300   514.000   599.900   514.000
GR   599.900   600.000   599.700   700.000   599.700   800.000   599.800   900.000   599.700  1000.000

X1 10520.000     0.000     0.000     0.000     1.000     1.000     1.000     0.000     0.000     0.000
SB     0.000     2.010     3.050     0.000    13.500     0.000    81.000     0.000   586.900   586.900

               HALL ROAD (M-59) BRIDGE SECTION 1 (J&A)          SECT.A

X1 10591.000     0.000     0.000     0.000    71.000    71.000    71.000     0.000     0.000     0.000
X2     0.000     0.000     1.000   592.900   599.700     0.000     0.000     0.000     0.000     0.000
BT    12.000     0.000   599.700     0.000   100.000   599.800     0.000   200.000   599.800     0.000
BT   300.000   599.700     0.000   400.000   599.800     0.000   500.000   599.900   592.900   514.000
BT   599.900   592.900   600.000   599.800     0.000   700.000   599.700     0.000   800.000   599.700
BT     0.000   900.000   599.800     0.000  1000.000   599.700     0.000     0.000     0.000     0.000
NC      .042      .042      .036     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1 10592.000     0.000     0.000     0.000     1.000     1.000     1.000     0.000     0.000     0.000
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GR	597.700	0.000	598.700	100.000	598.800	200.000	598.000	300.000	597.300	400.000
GR	595.500	500.000	586.900	514.000	586.700	519.000	586.800	524.000	595.700	534.000
GR	594.600	600.000	596.100	700.000	597.000	800.000	596.800	900.000	596.300	1000.000

X1	10969.000	16.000	143.100	156.900	328.000	328.000	328.000	0.000	0.000	0.000
GR	597.100	0.000	595.500	100.000	595.600	143.100	590.600	143.100	588.200	143.100
GR	587.200	144.700	586.900	146.900	586.600	150.000	586.900	153.100	587.200	155.300
GR	588.200	156.900	590.600	156.900	595.800	156.900	595.600	250.000	596.200	350.000
GR	596.700	450.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.042	.042	.033	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	10970.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	12.000	0.000	597.100	0.000	100.000	595.500	0.000	143.100	595.600	590.600
BT	144.700	595.600	593.000	146.900	595.700	594.600	150.000	595.700	595.200	153.100
BT	595.700	594.600	155.300	595.800	593.000	156.900	595.800	590.600	250.000	595.600
BT	0.000	350.000	596.200	0.000	450.000	596.700	0.000	0.000	0.000	0.000

PRIVATE CULVERT BRIDGE SECTION 3.1 (AE&W) SECT.C

13'-11" X 8'7" MULTIPLATE PIPE ARCH

X1	11005.000	0.000	0.000	0.000	36.000	36.000	36.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NC	.042	.042	.036	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	11007.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
NC	.040	.042	.037	0.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION 4 (J&A) SECT.D

X1	12655.000	9.000	50.000	128.000	1648.000	1648.000	1648.000	0.000	0.000	0.000
GR	598.600	0.000	597.500	50.000	589.900	85.000	588.300	90.000	588.200	94.000
GR	588.400	98.000	589.300	101.000	598.300	128.000	598.500	150.000	0.000	0.000

X1	13568.000	13.000	93.600	106.400	913.000	913.000	913.000	0.000	0.000	0.000
GR	598.800	0.000	597.600	93.600	590.800	93.600	589.700	94.000	588.900	96.000
GR	588.500	98.000	588.700	100.000	588.800	102.000	588.900	104.000	589.700	106.000
GR	590.800	106.400	597.600	106.400	598.300	200.000	0.000	0.000	0.000	0.000
NC	.040	.040	.033	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	13569.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	11.000	0.000	598.800	0.000	93.600	597.600	590.800	94.000	597.600	593.200
BT	96.000	597.600	595.800	98.000	597.600	596.700	100.000	597.600	597.000	102.000
BT	597.600	596.700	104.000	597.600	595.800	106.000	597.600	593.200	106.400	597.600
BT	590.800	200.000	598.300	0.000	0.000	0.000	0.000	0.000	0.000	0.000

CHATEAU THEIRRY ROAD BRIDGE SECTION 5 (J&A) SECT.E

X1	13672.000	0.000	0.000	0.000	103.000	103.000	103.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NC	.060	.060	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	13673.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
QT	4.000	200.000	295.000	320.000	465.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION 6 (J&A) SECT.F

X1	14950.000	15.000	500.000	525.000	1277.000	1277.000	1277.000	0.000	0.000	0.000
GR	598.400	0.000	598.000	100.000	597.700	200.000	597.500	300.000	597.100	400.000
GR	596.000	500.000	593.100	506.000	592.900	513.000	593.300	520.000	595.600	525.000
GR	596.700	600.000	597.100	700.000	597.800	800.000	599.100	900.000	598.300	1000.000

See Revision in folder

ATTACHED COMMENTS

VALLEY SECTION 7 (J&A) SECT.G

X1	17320.000	16.000	500.000	527.000	2600.000	1600.000	2370.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	150.000	0.000	850.000	0.000	0.000	0.000	0.000
GR	598.100	0.000	598.300	100.000	598.200	200.000	597.300	300.000	597.800	400.000
GR	597.400	500.000	594.300	509.000	594.000	514.000	594.300	520.000	597.300	527.000
GR	597.100	550.000	597.200	600.000	598.000	700.000	598.200	800.000	598.300	900.000
GR	598.300	1000.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	17919.000	37.000	488.300	511.700	599.000	599.000	599.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	150.000	0.000	850.000	0.000	0.000	0.000	0.000
GR	598.700	0.000	598.400	100.000	598.700	200.000	598.800	300.000	598.900	400.000
GR	599.300	488.300	595.300	488.300	594.300	488.300	593.300	489.300	593.800	491.300
GR	593.800	493.300	594.300	494.300	595.300	494.300	599.300	494.300	599.300	497.000
GR	595.200	497.000	594.200	497.000	593.700	498.000	593.700	500.000	593.700	502.000
GR	594.200	503.000	595.200	503.000	599.300	503.000	599.300	505.700	595.300	505.700
GR	594.300	505.700	593.800	506.700	593.800	508.700	593.800	510.700	594.300	511.700
GR	595.300	511.700	599.300	511.700	598.700	600.000	598.300	700.000	598.300	800.000
GR	598.500	900.000	598.800	1000.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.050	.050	.033	0.000	0.030	0.000	0.000	0.000	0.000	0.000

X1	17920.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	150.000	0.000	850.000	0.000	0.000	0.000	0.000
BT	23.000	150.000	598.600	0.000	200.000	598.700	0.000	300.000	598.800	0.000
BT	400.000	598.900	0.000	488.300	599.300	595.300	489.300	599.300	596.900	491.300
BT	599.300	597.400	493.300	599.300	596.900	494.300	599.300	595.300	497.000	599.300
BT	595.200	498.000	599.300	596.800	500.000	599.300	597.300	502.000	599.300	596.800
BT	503.000	599.300	595.200	505.700	599.300	595.300	506.700	599.300	596.900	508.700
BT	599.300	597.400	510.700	599.300	596.900	511.700	599.300	595.300	600.000	598.700
BT	0.000	700.000	598.300	0.000	800.000	598.300	0.000	850.000	598.400	0.000

21 MILE ROAD BRIDGE SECTION 8 (J&A) SECT.H

X1	17952.000	0.000	0.000	0.000	32.000	32.000	32.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	150.000	0.000	850.000	0.000	0.000	0.000	0.000
NC	.060	.060	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	17953.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	150.000	0.000	850.000	0.000	0.000	0.000	0.000

VALLEY SECTION 9 (J&A) SECT.I

X1	19405.000	16.000	500.000	525.000	1452.000	1452.000	1452.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	100.000	0.000	900.000	0.000	0.000	0.000	0.000
GR	598.700	0.000	598.300	100.000	599.300	200.000	599.400	300.000	598.500	400.000
GR	597.900	500.000	594.100	505.000	593.500	512.000	594.100	520.000	598.400	525.000
GR	599.000	560.000	599.100	600.000	599.500	700.000	599.400	800.000	599.100	900.000
GR	598.900	1000.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	20809.000	31.000	494.000	506.200	1404.000	1404.000	1404.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	100.000	0.000	574.000	0.000	0.000	0.000	0.000
GR	600.100	0.000	600.100	100.000	599.500	200.000	601.900	325.000	599.600	400.000

GR	601.300	460.000	[illegible]	485.000	600.500	494.000	[illegible]	[illegible]	594.000	494.000
GR	593.300	494.800	592.800	496.300	593.300	497.800	594.000	498.600	596.000	498.600
GR	600.200	498.600	600.200	501.600	596.700	501.600	594.700	501.600	594.000	502.400
GR	593.500	503.900	594.000	505.400	594.700	506.200	596.700	506.200	600.200	506.200
GR	600.200	515.000	600.500	600.000	600.500	700.000	600.800	800.000	600.500	900.000
GR	600.800	1000.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.040	.040	.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	20810.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	100.000	0.000	574.000	0.000	0.000	0.000	0.000
BT	18.000	100.000	600.100	0.000	200.000	599.500	0.000	325.000	601.900	0.000
BT	400.000	599.600	0.000	460.000	601.300	0.000	485.000	600.500	0.000	494.000
BT	600.200	596.000	494.800	600.200	596.700	496.300	600.200	597.200	497.800	600.200
BT	596.700	498.600	600.200	596.000	501.600	600.200	596.700	502.400	600.200	597.400
BT	503.900	600.200	597.900	505.400	600.200	597.400	506.200	600.200	596.700	515.000
BT	600.200	0.000	574.000	600.400	0.000	0.000	0.000	0.000	0.000	0.000

FARM CULVERT NO.1 BRIDGE SECTION 10 (J&A) SECT.J

X1	20831.000	0.000	0.000	0.000	21.000	21.000	21.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	100.000	0.000	574.000	0.000	0.000	0.000	0.000
NC	.050	.060	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	20832.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	100.000	0.000	574.000	0.000	0.000	0.000	0.000

VALLEY SECTION 11 (J&A) SECT.K

X1	22320.000	17.000	500.000	526.000	1488.000	1488.000	1488.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	100.000	0.000	900.000	0.000	0.000	0.000	0.000
GR	599.600	0.000	599.700	100.000	599.400	200.000	599.500	300.000	599.600	400.000
GR	599.200	450.000	599.200	500.000	594.600	507.000	593.400	513.000	594.700	518.000
GR	599.100	526.000	599.000	550.000	599.200	600.000	599.500	700.000	599.700	800.000
GR	599.600	900.000	599.900	1000.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	22557.000	32.000	495.000	505.200	237.000	237.000	237.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	100.000	0.000	900.000	0.000	0.000	0.000	0.000
GR	599.900	0.000	599.700	100.000	599.900	200.000	600.400	300.000	600.200	400.000
GR	600.300	450.000	600.300	486.000	600.400	495.000	598.400	495.000	596.400	495.000
GR	595.700	495.800	595.200	497.300	595.700	498.800	596.400	499.600	598.400	499.600
GR	600.400	499.600	600.400	500.600	598.300	500.600	596.300	500.600	595.600	501.400
GR	595.100	502.900	595.600	504.400	596.300	505.200	598.300	505.200	600.400	505.200
GR	599.900	513.000	599.000	530.000	599.400	600.000	599.900	700.000	599.600	800.000
GR	599.600	900.000	599.900	1000.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.050	.050	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	22558.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	100.000	0.000	900.000	0.000	0.000	0.000	0.000
BT	22.000	100.000	599.700	0.000	200.000	599.900	0.000	300.000	600.400	0.000
BT	400.000	600.200	0.000	450.000	600.300	0.000	486.000	600.300	0.000	495.000
BT	600.400	598.400	495.800	600.400	599.100	497.300	600.400	599.600	498.800	600.400
BT	599.100	499.600	600.400	598.400	500.500	600.400	598.300	501.400	600.400	599.000
BT	502.900	600.400	599.500	504.400	600.400	599.000	505.200	600.400	598.300	513.000
BT	599.900	0.000	530.000	599.000	0.000	600.000	599.400	0.000	700.000	599.900
BT	0.000	800.000	599.600	0.000	900.000	599.600	0.000	0.000	0.000	0.000

FARM CULVERT NO.2 BRIDGE SECTION 11-A (J&A) SECT.L

X1	[illegible]	0.000	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	100.000	0.000	900.000	0.000	0.000	0.000	0.000
NC	.060	.060	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	22584.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	100.000	0.000	900.000	0.000	0.000	0.000	0.000

X1	23526.000	19.000	497.000	503.000	942.000	942.000	942.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	173.000	0.000	900.000	0.000	0.000	0.000	0.000
GR	602.100	0.000	601.200	100.000	601.000	200.000	601.000	300.000	601.100	400.000
GR	599.000	475.000	599.600	492.000	599.800	497.000	596.500	497.000	596.200	500.000
GR	596.700	503.000	599.800	503.000	599.800	508.000	599.300	532.000	600.000	600.000
GR	600.900	700.000	600.400	800.000	600.400	900.000	600.500	1000.000	0.000	0.000
NC	.050	.050	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	23527.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	173.000	0.000	900.000	0.000	0.000	0.000	0.000
BT	15.000	173.000	601.000	0.000	173.000	601.000	0.000	200.000	601.000	0.000
BT	300.000	601.000	0.000	400.000	601.100	0.000	475.000	599.000	0.000	492.000
BT	599.600	0.000	497.000	599.800	599.100	503.000	599.800	599.100	508.000	599.800
BT	0.000	532.000	599.300	0.000	500.000	500.000	0.000	700.000	600.900	0.000
BT	800.000	600.400	0.000	900.000	600.400	0.000	0.000	0.000	0.000	0.000

FARM CULVERT NO.3 BRIDGE SECTION 12 (J&A) SECT.M

X1	23542.000	0.000	0.000	0.000	15.000	15.000	15.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	173.000	0.000	900.000	0.000	0.000	0.000	0.000
NC	.050	.060	.042	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	23543.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	173.000	0.000	900.000	0.000	0.000	0.000	0.000
QT	4.000	180.000	265.000	290.000	410.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION 13 (J&A) SECT.N

X1	24745.000	17.000	500.000	525.000	700.000	1250.000	1202.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	100.000	0.000	900.000	0.000	0.000	0.000	0.000
GR	601.800	0.000	601.300	100.000	600.900	200.000	600.900	300.000	600.700	400.000
GR	601.000	450.000	600.300	500.000	597.000	509.000	596.700	512.000	597.200	517.000
GR	600.700	525.000	600.400	550.000	600.400	600.000	599.900	700.000	601.000	800.000
GR	600.600	900.000	600.300	1000.000	0.000	0.000	0.000	0.000	0.000	0.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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HEC2 RELEASE DATED NOV 75 UPDATED  AUG1977
ERROR CORR -  01,02
MODIFICATION -  50,51,52,53
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T1          MACOMB TWP. FIS JKA FILE NO. 5850-03-1
T2          100 YEAR FLOOD
T3          MILLER DRAIN
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J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	4.	0.	0.	0.000000	0.00	0.0	0.	593.740	0.000

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	3.000	0.000	-1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

*PROF 3

CCHV= .300 CEHV= .500

*SECNO 10220.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
10220.00	7.14	593.74	0.00	593.74	593.77	.03	0.00	0.00	594.60
300.	0.	300.	0.	0.	226.	0.	0.	0.	595.40
0.00	0.00	1.33	0.00	.040	.045	.050	0.000	586.60	1003.16
.000243	0.	0.	0.	0	0	0	0.00	52.53	1055.74

*SECNO 10519.000

10519.00	6.79	593.69	0.00	0.00	593.88	.19	.13	.08	599.90
325.	0.	325.	0.	0.	92.	0.	0.	0.	599.90
.01	0.00	3.52	0.00	.040	.020	.040	.020	586.90	500.00
.000433	99.	99.	99.	2	0	0	0.00	14.00	514.00

*SECNO 10520.000

10520.00	6.79	593.69	0.00	0.00	593.88	.19	.00	.00	599.90
325.	0.	325.	0.	0.	92.	0.	0.	0.	599.90
.01	0.00	3.52	0.00	.040	.020	.040	.020	586.90	500.00
.000433	1.	1.	1.	0	0	1	0.00	14.00	514.00

SPECIAL BRIDGE

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
0.00	2.01	3.05	0.00	13.50	0.00	81.00	0.00	586.90	586.90

*SECNO 10591.000
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
594.19	593.88	0.00	0.	325.	81.	81.	592.90	599.70

HALL ROAD (M-59) BRIDGE SECTION 1 (J&A) SECT.A

10591.00	7.12	594.02	0.00	0.00	594.19	.17	.31	0.00	599.90
325.	0.	325.	0.	0.	97.	0.	1.	0.	599.90
.01	0.00	3.36	0.00	.040	.020	.040	.020	586.90	500.00
.000380	71.	71.	71.	2	0	0	0.00	14.00	514.00

*SECNO 10592.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
10592.00	7.12	594.02	0.00	0.00	594.19	.17	.00	.00	599.90
325.	0.	325.	0.	0.	97.	0.	1.	0.	599.90

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      .01      0.00      5.36      0.00      .042      .036      .042      .020    586.90    500.10
  .001231        1.        1.        1.         0         0         0      0.00     14.00    514.00

 *SECNO 10641.000

                VALLEY SECTION 2 (J&A)                                  SECT.3

 10641.00      7.48    594.18      0.00      0.00    594.26       .08       .03       .03    595.50
     325.        0.      325.        0.        0.      148.        0.        1.        0.    595.70
      .02      0.00      2.20      0.00      .042      .036      .042      .023    586.70    502.15
  .000416       49.       49.       49.         2         0         0      0.00     30.14    532.29

 *SECNO 10969.000
 10969.00      7.74    594.34      0.00      0.00    594.50       .16       .21       .04    595.60
     325.        0.      325.        0.        0.      100.        0.        2.        0.    595.80
      .05      0.00      3.24      0.00      .042      .036      .042      .031    586.60    143.10
  .001053      328.      328.      328.         2         0         0      0.00     13.80    156.90

 *SECNO 10970.000

 3370 NORMAL BRIDGE,NRD= 12 MIN ELTRD=  595.50 MAX ELLC=  595.20

 10970.00      7.72    594.32      0.00      0.00    594.53       .21       .00       .02    595.60
     325.        0.      325.        0.        0.       89.        0.        2.        0.    595.80
      .05      0.00      3.65      0.00      .042      .033      .042      .031    586.60    143.10
  .001678        1.        1.        1.         2         0         0    -10.98     13.80    156.90

 *SECNO 11006.000

 3370 NORMAL BRIDGE,NRD= 12 MIN ELTRD=  595.50 MAX ELLC=  595.20

                PRIVATE CULVERT  BRIDGE SECTION 3.1 (AE&B)              SECT.C

                13'-11" X 8'7" MULTIPLATE PIPE ARCH

 11006.00      7.78    594.38      0.00      0.00    594.59       .20       .06       .00    595.60
     325.        0.      325.        0.        0.       90.        0.        2.        0.    595.80
      .05      0.00      3.63      0.00      .042      .033      .042      .031    586.60    143.10
  .001656       36.       36.       36.         1         0         0    -11.28     13.80    156.90

 *SECNO 11007.000
    SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS   BANK ELEV
        Q      QLOB       QCH      QROB      ALOB       ACH      AROB       VOL       TWA  LEFT/RIGHT
     TIME      VLOB       VCH      VROB       XNL      XNCH       XNR       WTN     ELMIN      SSTA
    SLOPE     XLOBL      XLCH     XLOBR    ITRIAL       IDC     ICONT     CORAR    TOPWID      ENDST

 11007.00      7.85    594.45      0.00      0.00    594.60       .16       .00       .01    595.60
     325.        0.      325.        0.        0.      102.        0.        2.        0.    595.80
      .05      0.00      3.19      0.00      .042      .036      .042      .031    586.60    143.10
  .001015        1.        1.        1.         2         0         0      0.00     13.80    156.90

 *SECNO 12655.000

                VALLEY SECTION 4 (J&A)                                  SECT.D

 12655.00      7.09    595.29      0.00      0.00    595.32       .03       .68       .04    597.80
     325.        0.      325.        0.        0.      225.        0.        8.        2.    598.30
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      .37       0.00      1.45      0.00      .040      .037      .042      .035    [illegible]   [illegible]
  .000222      1648.     1648.     1648.         3         0         0      0.00     57.85    118.97

*SECNO 13568.000
 13568.00      6.93    595.63      0.00      0.00    595.86       .23       .44       .10    597.60
     325.        0.      325.        0.        0.       84.        0.       11.        2.    597.60
      .43      0.00      3.86      0.00      .040      .037      .042      .036    588.70     93.60
  .001757      913.      913.      913.         2         0         0      0.00     12.80    106.40

*SECNO 13569.000

3370 NORMAL BRIDGE,NRD= 11 MIN ELTRD=  597.60 MAX ELLC=  597.00

 13569.00      6.91    595.61      0.00      0.00    595.89       .28       .00       .03    597.60
     325.        0.      325.        0.        0.       76.        0.       11.        2.    597.60
      .43      0.00      4.26      0.00      .040      .033      .040      .036    588.70     93.60
  .002205        1.        1.        1.         2         0         0     -7.70     12.80    106.40

*SECNO 13672.000

3370 NORMAL BRIDGE,NRD= 11 MIN ELTRD=  597.60 MAX ELLC=  597.00

              CHATEAU THEIRRY ROAD  BRIDGE SECTION 5 (J&A)     SECT.E

 13672.00      7.17    595.87      0.00      0.00    596.13       .27       .24       .00    597.60
     325.        0.      325.        0.        0.       79.        0.       11.        2.    597.60
      .44      0.00      4.13      0.00      .040      .033      .040      .036    588.70     93.60
  .002458      103.      103.      103.         2         0         0     -8.71     12.80    106.40

*SECNO 13673.000
    SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS   BANK ELEV
        Q      QLOB       QCH      QROB      ALOB       ACH      AROB       VOL       TWA  LEFT/RIGHT
     TIME      VLOB       VCH      VROB       XNL       XNCH      XNR       WTN     ELMIN      SSTA
    SLOPE     XLOBL      XLCH     XLOBR    ITRIAL       IDC     ICONT     CORAR    TOPWID     ENDST

 13673.00      7.24    595.94      0.00      0.00    596.15       .21       .00       .02    597.60
     325.        0.      325.        0.        0.       88.        0.       11.        2.    597.60
      .44      0.00      3.68      0.00      .060      .040      .060      .036    588.70     93.60
  .001822        1.        1.        1.         2         0         0      0.00     12.80    106.40

*SECNO 14950.000

              VALLEY SECTION 6 (J&A)                                SECT.F

 14950.00      4.48    597.38      0.00      0.00    597.42       .04      1.22       .05    596.00
     320.       46.      192.       82.       94.       92.      147.       17.        9.    595.60
      .68       .49      2.07       .55      .060      .040      .060      .037    592.90    328.71
  .000581     1277.     1277.     1277.         3         0         0      0.00    412.03    740.74

*SECNO 17320.000
3280 CROSS SECTION  17320.00 EXTENDED       .11 FEET

3470 ENCROACHMENT STATIONS=     150.0     850.0  TYPE=     1  TARGET=     700.000

              VALLEY SECTION 7 (J&A)                                SECT.G
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CAUTION

See revision in Folder

[illegible]	[illegible]	598.41	[illegible]	[illegible]	[illegible]	.04	1.00	.01	[illegible]
320.	95.	133.	91.	244.	88.	214.	39.	36.	597.30
1.39	.39	1.51	.43	.060	.040	.060	.039	594.00	150.00
.000359	2600.	2370.	1500.	4	0	0	0.00	700.00	850.00

*SECNO 17919.000

3265 DIVIDED FLOW

3280 CROSS SECTION 17919.00 EXTENDED .01 FEET

3470 ENCROACHMENT STATIONS= 150.0 850.0 TYPE= 1 TARGET= 700.000

17919.00	5.11	598.81	0.00	0.00	598.90	.09	.44	.04	599.30
320.	5.	244.	71.	16.	89.	106.	44.	43.	599.30
1.47	.30	2.73	.67	.060	.040	.060	.039	593.70	150.00
.002230	599.	599.	599.	2	0	0	0.00	445.59	850.00

*SECNO 17920.000

3265 DIVIDED FLOW

3280 CROSS SECTION 17920.00 EXTENDED .01 FEET

3370 NORMAL BRIDGE,NRD= 23 MIN ELTRD= 598.30 MAX ELLC= 597.40

3470 ENCROACHMENT STATIONS= 150.0 850.0 TYPE= 1 TARGET= 700.000

17920.00	5.11	598.81	0.00	0.00	598.91	.09	.00	.00	599.30
320.	8.	167.	145.	14.	53.	106.	44.	43.	599.30
1.47	.56	3.18	1.37	.050	.033	.050	.039	593.70	150.00
.006476	1.	1.	1.	0	0	0	-38.05	445.36	850.00

*SECNO 17952.000

3265 DIVIDED FLOW

3280 CROSS SECTION 17952.00 EXTENDED .22 FEET

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3370 NORMAL BRIDGE,NRD= 23 MIN ELTRD= 598.30 MAX ELLC= 597.40

3470 ENCROACHMENT STATIONS= 150.0 850.0 TYPE= 1 TARGET= 700.000

21 MILE ROAD BRIDGE SECTION 8 (J&A) SECT.H

17952.00	5.32	599.02	0.00	0.00	599.05	.03	.12	.02	599.30
320.	39.	103.	178.	64.	53.	165.	46.	44.	599.30
1.47	.61	1.96	1.08	.050	.033	.050	.039	593.70	150.00
.002540	32.	32.	32.	2	0	0	-41.79	591.19	850.00

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*SECNO 17953.000

3265 DIVIDED FLOW

3280 CROSS SECTION  17953.00 EXTENDED       .22 FEET


3470 ENCROACHMENT STATIONS=      150.0      850.0  TYPE=      1  TARGET=      700.000
   17953.00      5.31    599.01      0.00      0.00    599.08       .04       .00       .01    599.30
      320.        24.      191.      105.        66.        93.      166.        44.       44.    599.30
      1.47        .37      2.05       .63      .060      .040      .060      .039    593.70    150.00
   .001238         1.        1.        1.         0         0         0      0.00    592.51    850.00


*SECNO 19405.000
3280 CROSS SECTION  19405.00 EXTENDED       .76 FEET


3470 ENCROACHMENT STATIONS=      100.0      900.0  TYPE=      1  TARGET=      800.000

                VALLEY SECTION 9 (J8A)                          SECT.I

   19405.00      5.15    599.55      0.00      0.00    599.67       .02       .51       .01    597.90
      320.      108.      177.       35.      309.      123.      150.       60.       67.    598.40
      1.90       .35      1.44       .22      .060      .040      .060      .039    593.50    100.00
   .000208     1452.     1452.     1452.         4         0         0      0.00    800.00    900.00


*SECNO 20809.000

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=      100.0      574.0  TYPE=      1  TARGET=      474.000
   20809.00      7.58    600.38      0.00      0.00    600.50       .13       .78       .05    600.50
      320.      103.      215.        2.      100.        63.        7.       72.       84.    600.20
      2.05      1.03      3.42       .38      .060      .040      .060      .039    592.80    110.00
   .004193     1404.     1404.     1404.         2         0         0      0.00    273.03    567.57


*SECNO 20810.000

3265 DIVIDED FLOW

3370 NORMAL BRIDGE,NRD= 18 MIN ELTRD=  599.50 MAX ELLC=  597.90


3470 ENCROACHMENT STATIONS=      100.0      574.0  TYPE=      1  TARGET=      474.000
   20810.00      7.65    600.45      0.00      0.00    600.52       .07       .00       .02    600.50
      320.      215.       95.       10.      115.       35.       11.       72.       84.    600.20
      2.05      1.88      2.69       .85      .040      .030      .040      .039    592.80    100.00
   .005426        1.        1.        1.         2         0         0    -28.60    288.31    574.00


*SECNO 20831.000

3265 DIVIDED FLOW

     SECNO     DEPTH     CWSEL     CRIWS     WSELK       EG        HV        HL      OLOSS  BANK ELEV
     Q         QLOB      QCH       QROB      ALOB       ACH       AROB      VOL      TWA   LEFT/RIGHT
     TIME      VLOB      VCH       VROB      XNL        XNCH      XNR       WTN      ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL     IDC       ICONT     CORAR    TOPWID    ENDST
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3370 NORMAL BRIDGE,NRD= 18 MIN ELTRD=  599.50 MAX ELLC=  597.90

3470 ENCROACHMENT STATIONS=     100.0      574.0  TYPE=      1  TARGET=      474.000

                    FARM CULVERT NO.1  BRIDGE SECTION 10 (J&A)        SECT.J

  20831.00      7.77    600.57     0.00      0.00    600.62      .05      .09      .01    600.50
       320.      223.       80.      17.      138.       36.      19.      72.      84.    600.20
      2.05      1.61      2.19      .92      .040      .030     .040     .039   592.80    100.00
   .003425       21.       21.      21.        1         0        0   -28.60   311.94    574.00

  *SECNO 20832.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=     100.0      574.0  TYPE=      1  TARGET=      474.000
  20832.00      7.76    600.56     0.00      0.00    600.64      .07      .00      .01    600.50
       320.      131.      178.      10.      140.       65.      19.      72.      84.    600.20
      2.05       .94      2.74      .54      .060      .040     .060     .039   592.80    100.00
   .002577        1.        1.       1.        1         0        0     0.00   313.05    574.00

  *SECNO 22320.000
3280 CROSS SECTION  22320.00 EXTENDED       .96 FEET

3470 ENCROACHMENT STATIONS=     100.0      900.0  TYPE=      1  TARGET=      800.000

                    VALLEY SECTION 11 (J&A)                       SECT.K

  22320.00      7.46    600.56     0.00      0.00    600.86      .00      .27      .02    599.20
       320.      116.       93.     111.      560.      135.     530.      97.     103.    599.10
      3.26       .21       .69      .21      .060      .040     .060     .039   593.40    100.00
   .000044     1488.     1488.    1488.        4         0        0     0.00   800.00    900.00

  *SECNO 22557.000
3280 CROSS SECTION  22557.00 EXTENDED       .98 FEET

3470 ENCROACHMENT STATIONS=     100.0      900.0  TYPE=      1  TARGET=      800.000
  22557.00      5.78    600.88     0.00      0.00    600.88      .00      .02      .00    600.40
       320.       83.       35.     202.      295.       49.     511.     102.     108.    600.40
      3.40       .28       .72      .40      .060      .040     .060     .039   595.10    100.00
   .000177      237.      237.     237.        2         0        0     0.00   800.00    900.00

  *SECNO 22558.000
3280 CROSS SECTION  22558.00 EXTENDED       .98 FEET

3370 NORMAL BRIDGE,NRD= 22 MIN ELTRD=  599.00 MAX ELLC=  599.60

3470 ENCROACHMENT STATIONS=     100.0      900.0  TYPE=      1  TARGET=      800.000
  22558.00      5.78    600.88     0.00      0.00    600.88      .00      .00      .00    600.40
       320.       89.       16.     216.      295.       37.     511.     102.     108.    600.40
      3.41       .30       .43      .42      .050      .035     .050     .039   595.10    100.00
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   .000140        1.        1.        1.        0                  0   -12.04    800.00    900.00

 *SECNO 22583.000
 3280 CROSS SECTION  22583.00 EXTENDED        .93 FEET

      SECNO      DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
      Q          QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
      TIME       VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
      SLOPE      XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST

 3370 NORMAL BRIDGE,NRD= 22 MIN ELTRD=  599.00 MAX ELLC=  599.60

 3470 ENCROACHMENT STATIONS=      100.0      900.0  TYPE=      1  TARGET=      800.000

                FARM CULVERT NO.2  BRIDGE SECTION 11-A (J&A)     SECT.L

   22583.00      5.73    600.88      0.00      0.00    600.88       .00       .00       .00    600.40
       320.       89.       16.      215.      297.       37.      513.      103.      108.     600.40
       3.42       .30       .43       .42      .050      .035      .050      .039    595.10    100.00
    .000138       25.       25.       25.        0         0         0    -12.04    800.00    900.00

 *SECNO 22584.000
 3280 CROSS SECTION  22584.00 EXTENDED        .98 FEET

 3470 ENCROACHMENT STATIONS=      100.0      900.0  TYPE=      1  TARGET=      810.000
   22584.00      5.78    600.88      0.00      0.00    500.88       .00       .00       .00    600.40
       320.       83.       35.      202.      297.       49.      512.      103.      103.     600.40
       3.42       .28       .72       .39      .060      .040      .060      .039    595.10    100.00
    .000175        1.        1.        1.        0         0         0      0.00    800.00    900.00

 *SECNO 23526.000
 3280 CROSS SECTION  23526.00 EXTENDED        .64 FEET

 3470 ENCROACHMENT STATIONS=      173.0      900.0  TYPE=      1  TARGET=      727.000
   23526.00      4.94    601.14      0.00      0.00    601.15       .01       .26       .00    599.80
       320.       85.       42.      193.      148.       28.      340.      118.      125.     599.80
       3.80       .58      1.48       .57      .060      .040      .060      .039    596.20    173.00
    .000526      942.      942.      942.        2         0         0      0.00    727.00    900.00

 *SECNO 23527.000
 3280 CROSS SECTION  23527.00 EXTENDED        .64 FEET

 3370 NORMAL BRIDGE,NRD= 15 MIN ELTRD=  599.00 MAX ELLC=  599.10

 3470 ENCROACHMENT STATIONS=      173.0      900.0  TYPE=      1  TARGET=      727.000
   23527.00      4.95    601.15      0.00      0.00    601.15       .01       .00       .00    599.80
       320.       92.       21.      207.      148.       24.      340.      118.      125.     599.80
       3.80       .62       .87       .61      .050      .035      .050      .039    596.20    173.00
    .000423        1.        1.        1.        0         0         0     -4.20    727.00    900.00
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*SECNO 23542.000
3280 CROSS SECTION  23542.00 EXTENDED       .65 FEET

3370 NORMAL BRIDGE,NRD= 15 MIN ELTRD=  599.00 MAX ELLC=  599.10

3470 ENCROACHMENT STATIONS=      173.0      900.0  TYPE=      1  TARGET=      727.000

                    FARM CULVERT NO.3  BRIDGE SECTION 12 (J&A)        SECT.M

  23542.00      4.95    601.15      0.00      0.00    601.16       .01       .01       .00    599.80
      320.       92.       21.      207.      151.       26.      344.      118.      125.    599.80
      3.81       .61       .85       .60      .050      .035      .050      .039    596.20    173.00
   .000408       15.       15.       15.         0         0         0     -4.20    727.00    900.00

*SECNO 23543.000
3280 CROSS SECTION  23543.00 EXTENDED       .65 FEET

   SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS  BANK ELEV
       Q      QLOB       QCH      QROB      ALOB       ACH      AROB       VOL       TWA  LEFT/RIGHT
    TIME      VLOB       VCH      VROB       XNL       XNCH      XNR      WTN      ELMIN      SSTA
   SLOPE     XLOBL      XLCH     XLOBR    ITRIAL       IDC     ICONT     CORAR    TOPWID     ENDST

3470 ENCROACHMENT STATIONS=      173.0      900.0  TYPE=      1  TARGET=      727.000
  23543.00      4.95    601.15      0.00      0.00    601.16       .01       .00       .00    599.80
      320.       86.       40.      194.      151.       29.      344.      118.      125.    599.80
      3.81       .57      1.40       .56      .060      .042      .060      .039    596.20    173.00
   .000516        1.        1.        1.         0         0         0      0.00    727.00    900.00

*SECNO 24745.000
3280 CROSS SECTION  24745.00 EXTENDED      1.19 FEET

3470 ENCROACHMENT STATIONS=      100.0      900.0  TYPE=      1  TARGET=      800.000

                    VALLEY SECTION 13 (J&A)                                SECT.N

  24745.00      4.80    601.50      0.00      0.00    601.50       .01       .34       .00    600.30
      290.       62.       88.      140.      242.       83.      386.      133.      142.    600.70
      4.37       .26      1.06       .36      .060      .042      .060      .040    596.70    100.00
   .000195      790.     1202.     1253.         2         0         0      0.00    800.00    900.00
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****************************************************
HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
ERROR CORR -  01,02
MODIFICATION -  50,51,52,53
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

MILLER DRAIN

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
10220.000	0.00	0.00	0.00	586.60	180.00	592.44	0.00	592.46	2.15	1.11	162.70	122.68
10220.000	0.00	0.00	0.00	586.60	265.00	593.40	0.00	593.43	2.36	1.27	208.80	172.40
10220.000	0.00	0.00	0.00	586.60	300.00	593.74	0.00	593.77	2.43	1.33	226.36	192.39
10220.000	0.00	0.00	0.00	586.60	415.00	594.60	0.00	594.64	2.78	1.52	273.63	248.79
10519.000	99.00	0.00	0.00	586.90	205.00	592.42	0.00	592.53	3.08	2.75	74.43	116.78
10519.000	99.00	0.00	0.00	586.90	300.00	593.35	0.00	593.53	4.24	3.43	87.54	145.63
10519.000	99.00	0.00	0.00	586.90	325.00	593.69	0.00	593.88	4.33	3.52	92.25	156.25
10519.000	99.00	0.00	0.00	586.90	465.00	594.50	0.00	594.82	6.50	4.49	103.64	182.41
10520.000	1.00	0.00	0.00	586.90	205.00	592.42	0.00	592.53	3.08	2.75	74.43	116.78
10520.000	1.00	0.00	0.00	586.90	300.00	593.35	0.00	593.54	4.24	3.43	87.54	145.64
10520.000	1.00	0.00	0.00	586.90	325.00	593.69	0.00	593.88	4.33	3.52	92.25	156.26
10520.000	1.00	0.00	0.00	586.90	465.00	594.50	0.00	594.82	6.50	4.49	103.65	182.42
10591.000	71.00	599.70	592.90	586.90	205.00	592.44	0.00	592.56	3.04	2.74	74.75	117.48
10591.000	71.00	599.70	592.90	586.90	300.00	593.61	0.00	593.78	3.80	3.29	91.19	153.85
10591.000	71.00	599.70	592.90	586.90	325.00	594.02	0.00	594.19	3.80	3.36	96.84	166.73
10591.000	71.00	599.70	592.90	586.90	465.00	595.28	0.00	595.53	5.01	4.06	114.47	207.79
10592.000	1.00	0.00	0.00	586.90	205.00	592.44	0.00	592.56	9.86	2.74	74.76	65.27
10592.000	1.00	0.00	0.00	586.90	300.00	593.61	0.00	593.78	12.32	3.29	91.19	85.48
10592.000	1.00	0.00	0.00	586.90	325.00	594.02	0.00	594.19	12.31	3.36	96.85	92.63
10592.000	1.00	0.00	0.00	586.90	465.00	595.28	0.00	595.53	16.22	4.06	114.47	115.45
10641.000	49.00	0.00	0.00	586.70	205.00	592.54	0.00	592.60	4.50	2.01	102.10	96.61
10641.000	49.00	0.00	0.00	586.70	300.00	593.77	0.00	593.84	4.47	2.21	135.59	141.85
10641.000	49.00	0.00	0.00	586.70	325.00	594.18	0.00	594.26	4.16	2.20	147.79	159.34
10641.000	49.00	0.00	0.00	586.70	465.00	595.54	0.00	595.62	3.82	2.31	247.59	237.91
10969.000	328.00	0.00	0.00	586.60	205.00	592.71	0.00	592.82	8.19	2.63	77.95	71.62
10969.000	328.00	0.00	0.00	586.60	300.00	593.94	0.00	594.10	10.40	3.16	94.89	93.02
10969.000	328.00	0.00	0.00	586.60	325.00	594.34	0.00	594.50	10.53	3.24	100.41	100.17
10969.000	328.00	0.00	0.00	586.60	465.00	595.68	0.00	595.91	13.76	3.89	127.25	125.35
10970.000	1.00	595.50	595.20	586.60	205.00	592.71	0.00	592.83	8.71	2.75	74.57	69.45
10970.000	1.00	595.50	595.20	586.60	300.00	593.93	0.00	594.12	15.66	3.49	85.90	75.80
10970.000	1.00	595.50	595.20	586.60	325.00	594.32	0.00	594.53	16.78	3.65	89.15	79.34
10970.000	1.00	595.50	595.20	586.60	465.00	595.81	0.00	595.99	45.56	4.97	96.13	68.89

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
11006.000	36.00	595.50	595.20	586.60	205.00	592.74	0.00	592.86	8.62	2.74	74.89	69.84
11006.000	36.00	595.50	595.20	586.60	300.00	593.98	0.00	594.17	15.50	3.48	86.27	76.21
11006.000	36.00	595.50	595.20	586.60	325.00	594.38	0.00	594.59	15.56	3.63	89.62	79.86
11006.000	36.00	595.50	595.20	586.60	465.00	595.94	0.00	596.19	43.62	4.23	153.32	70.41
11007.000	1.00	0.00	0.00	586.60	205.00	592.76	0.00	592.86	8.05	2.61	78.44	72.23
11007.000	1.00	0.00	0.00	586.60	300.00	594.03	0.00	594.18	10.05	3.12	96.15	94.65
11007.000	1.00	0.00	0.00	586.60	325.00	594.45	0.00	594.50	10.15	3.19	101.84	102.03
11007.000	1.00	0.00	0.00	586.60	465.00	596.06	0.00	596.22	9.82	3.38	206.66	148.36
12655.000	1648.00	0.00	0.00	588.20	205.00	593.64	0.00	593.68	3.18	1.48	138.97	114.90
12655.000	1648.00	0.00	0.00	588.20	300.00	594.91	0.00	594.95	2.47	1.48	203.36	190.89
12655.000	1648.00	0.00	0.00	588.20	325.00	595.29	0.00	595.32	2.22	1.45	224.58	217.90
12655.000	1648.00	0.00	0.00	588.20	465.00	596.80	0.00	596.83	1.76	1.45	320.65	350.31
13568.000	913.00	0.00	0.00	588.70	205.00	594.11	0.00	594.27	14.02	3.16	64.87	54.76
13568.000	913.00	0.00	0.00	588.70	300.00	595.30	0.00	595.51	17.18	3.75	79.98	72.38
13568.000	913.00	0.00	0.00	588.70	325.00	595.63	0.00	595.86	17.57	3.86	84.29	77.53
13568.000	913.00	0.00	0.00	538.70	465.00	597.04	0.00	597.36	21.80	4.54	102.36	99.60
13569.000	1.00	597.60	597.00	588.70	205.00	594.11	0.00	594.28	15.48	3.34	61.35	52.11
13569.000	1.00	597.60	597.00	588.70	300.00	595.28	0.00	595.54	21.08	4.11	72.95	65.34
13569.000	1.00	597.60	597.00	588.70	325.00	595.61	0.00	595.89	22.05	4.26	76.28	69.21
13569.000	1.00	597.60	597.00	588.70	465.00	596.97	0.00	597.44	51.09	5.53	84.14	65.06
13672.000	103.00	597.60	597.00	588.70	205.00	594.27	0.00	594.44	14.52	3.26	62.85	53.79
13672.000	103.00	597.60	597.00	588.70	300.00	595.50	0.00	595.75	19.47	3.99	75.24	67.99
13672.000	103.00	597.60	597.00	588.70	325.00	595.87	0.00	596.13	24.58	4.13	78.62	65.56
13672.000	103.00	597.60	597.00	588.70	465.00	597.52	0.00	598.00	56.70	5.52	84.20	61.76
13673.000	1.00	0.00	0.00	588.70	205.00	594.30	0.00	594.44	14.87	3.05	67.25	53.17
13673.000	1.00	0.00	0.00	588.70	300.00	595.57	0.00	595.77	17.97	3.60	83.45	70.77
13673.000	1.00	0.00	0.00	588.70	325.00	595.94	0.00	596.15	18.22	3.68	88.27	76.15
13673.000	1.00	0.00	0.00	538.70	465.00	597.80	0.00	598.06	19.83	4.14	116.07	104.41
14950.000	1277.00	0.00	0.00	592.90	200.00	596.35	0.00	596.47	16.77	2.83	91.12	48.85
14950.000	1277.00	0.00	0.00	592.90	295.00	597.18	0.00	597.24	7.61	2.29	258.58	106.93
14950.000	1277.00	0.00	0.00	592.90	320.00	597.33	0.00	597.42	5.81	2.07	333.02	132.79
14950.000	1277.00	0.00	0.00	592.90	465.00	598.51	0.00	598.52	1.14	1.10	1095.14	434.94
17320.000	2370.00	0.00	0.00	594.00	200.00	598.03	0.00	598.10	3.82	1.45	331.38	102.26
17320.000	2370.00	0.00	0.00	594.00	295.00	598.35	0.00	598.37	3.55	1.48	509.63	156.51
17320.000	2370.00	0.00	0.00	594.00	320.00	598.41	0.00	598.42	3.59	1.51	545.78	168.81
17320.000	2370.00	0.00	0.00	594.00	465.00	598.86	0.00	598.87	2.41	1.35	858.81	299.45
17919.000	599.00	0.00	0.00	593.70	200.00	598.47	0.00	598.55	16.58	2.31	109.88	49.12
17919.000	599.00	0.00	0.00	593.70	295.00	598.75	0.00	598.84	21.98	2.70	185.72	62.93
17919.000	599.00	0.00	0.00	593.70	320.00	598.81	0.00	598.90	22.30	2.73	211.40	67.76
17919.000	599.00	0.00	0.00	593.70	465.00	599.15	0.00	599.20	17.60	2.46	406.15	110.84
17920.000	1.00	598.30	597.40	593.70	200.00	598.41	595.33	598.61	81.05	3.65	68.06	22.21
17920.000	1.00	598.30	597.40	593.70	295.00	598.74	0.00	598.85	70.27	3.32	149.04	35.19
17920.000	1.00	598.30	597.40	593.70	320.00	598.81	0.00	598.91	64.76	3.18	172.88	39.76
17920.000	1.00	598.30	597.40	593.70	465.00	599.18	0.00	599.21	26.46	1.98	378.09	90.40

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
17952.000	32.00	598.30	597.40	593.70	200.00	598.76	0.00	598.81	31.80	2.23	150.49	35.47
17952.000	32.00	598.30	597.40	593.70	295.00	595.98	0.00	599.01	26.04	1.99	257.86	57.81
17952.000	32.00	598.30	597.40	593.70	320.00	599.02	0.00	599.05	25.40	1.96	281.01	63.50
17952.000	32.00	598.30	597.40	593.70	465.00	599.26	0.00	599.28	19.38	1.69	427.33	105.63
17953.000	1.00	0.00	0.00	593.70	200.00	598.77	0.00	598.81	9.82	1.81	190.46	63.82
17953.000	1.00	0.00	0.00	593.70	295.00	598.97	0.00	599.01	11.91	2.01	300.53	85.49
17953.000	1.00	0.00	0.00	593.70	320.00	599.01	0.00	599.06	12.38	2.05	324.93	90.95
17953.000	1.00	0.00	0.00	593.70	465.00	599.26	0.00	599.29	12.70	2.10	478.81	130.50
19405.000	1452.00	0.00	0.00	593.50	200.00	599.30	0.00	599.32	1.76	1.26	329.83	150.80
19405.000	1452.00	0.00	0.00	593.50	295.00	599.59	0.00	599.61	2.03	1.41	538.90	206.94
19405.000	1452.00	0.00	0.00	593.50	320.00	599.65	0.00	599.67	2.08	1.44	587.33	222.14
19405.000	1452.00	0.00	0.00	593.50	635.00	599.94	0.00	599.95	2.31	1.58	813.93	306.15
20809.000	1404.00	0.00	0.00	592.80	200.00	599.90	0.00	600.06	36.42	3.28	78.62	33.16
20809.000	1404.00	0.00	0.00	592.80	295.00	600.30	0.00	600.45	42.54	3.41	150.74	45.23
20809.000	1404.00	0.00	0.00	592.80	320.00	600.38	0.00	600.50	41.93	3.42	169.34	49.42
20809.000	1404.00	0.00	0.00	592.80	465.00	600.73	0.00	600.82	35.96	3.30	275.20	77.54
20810.000	1.00	599.50	597.90	592.80	200.00	599.71	596.06	600.26	207.92	6.04	37.63	13.87
20810.000	1.00	599.50	597.90	592.80	295.00	600.38	0.00	600.46	64.53	2.89	140.93	36.72
20810.000	1.00	599.50	597.90	592.80	320.00	600.45	0.00	600.52	54.26	2.69	161.60	43.44
20810.000	1.00	599.50	597.90	592.80	465.00	600.78	0.00	600.83	30.77	2.17	265.05	83.83
20831.000	21.00	599.50	597.90	592.80	200.10	600.48	0.00	600.51	19.30	1.61	157.65	45.53
20831.000	21.00	599.50	597.90	592.80	295.00	600.52	0.00	600.57	35.23	2.20	179.51	49.70
20831.000	21.00	599.50	597.90	592.80	320.00	600.57	0.00	600.62	34.25	2.19	193.23	54.68
20831.000	21.00	599.50	597.90	592.80	465.00	600.85	0.00	600.89	24.12	1.95	289.33	94.68
20832.000	1.00	0.00	0.00	592.80	200.00	600.48	0.00	600.52	12.54	1.89	198.79	56.48
20832.000	1.00	0.00	0.00	592.80	295.00	600.51	0.00	600.58	25.25	2.59	207.59	58.71
20832.000	1.00	0.00	0.00	592.80	320.00	600.56	0.00	600.64	25.77	2.74	224.13	63.04
20832.000	1.00	0.00	0.00	592.80	465.00	600.34	0.00	600.91	26.55	2.87	316.21	90.24
22320.000	1488.00	0.00	0.00	593.40	200.00	600.65	0.00	600.65	.26	.52	1051.43	389.62
22320.000	1488.00	0.00	0.00	593.40	295.00	600.80	0.00	600.80	.42	.67	1174.79	453.91
22320.000	1488.00	0.00	0.00	593.40	320.00	600.86	0.00	600.85	.44	.69	1224.40	481.10
22320.000	1488.00	0.00	0.00	593.40	465.00	601.17	0.00	601.17	.55	.80	1473.26	628.57
22557.000	237.00	0.00	0.00	595.10	200.00	600.65	0.00	600.66	1.34	.61	678.33	172.60
22557.000	237.00	0.00	0.00	595.10	295.00	600.82	0.00	600.82	1.79	.72	804.93	220.36
22557.000	237.00	0.00	0.00	595.10	320.00	600.88	0.00	600.88	1.77	.72	854.90	240.81
22557.000	237.00	0.00	0.00	595.10	465.00	601.19	0.00	601.20	1.70	.74	1106.30	356.39
22558.000	1.00	599.00	599.60	595.10	200.00	600.66	0.00	600.66	1.11	.37	666.49	189.91
22558.000	1.00	599.00	599.60	595.10	295.00	600.82	0.00	600.82	1.43	.43	793.01	246.45
22558.000	1.00	599.00	599.60	595.10	320.00	600.88	0.00	600.88	1.40	.43	842.97	270.68
22558.000	1.00	599.00	599.60	595.10	465.00	601.19	0.00	601.20	1.30	.44	1094.37	407.85
22583.000	25.00	599.00	599.60	595.10	200.00	600.66	0.00	600.66	1.10	.37	669.35	191.11
22583.000	25.00	599.00	599.60	595.10	295.00	600.82	0.00	600.82	1.41	.43	796.67	248.19
22583.000	25.00	599.00	599.60	595.10	320.00	600.88	0.00	600.88	1.38	.43	846.53	272.44
22583.000	25.00	599.00	599.60	595.10	465.00	601.20	0.00	601.20	1.29	.44	1097.62	409.78

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
22584.000	1.00	0.00	0.00	595.10	200.00	600.66	0.00	600.66	1.33	.61	681.24	173.63
22584.000	1.00	0.00	0.00	595.10	295.00	600.82	0.00	600.82	1.77	.72	808.47	221.78
22584.000	1.00	0.00	0.00	595.10	320.00	600.88	0.00	600.88	1.75	.72	858.31	242.23
22584.000	1.00	0.00	0.00	595.10	465.00	601.20	0.00	601.20	1.69	.73	1109.37	357.92
23526.000	942.00	0.00	0.00	596.20	200.00	600.87	0.00	600.88	4.78	1.35	353.68	91.51
23526.000	942.00	0.00	0.00	596.20	295.00	601.09	0.00	601.09	5.37	1.48	473.39	127.28
23526.000	942.00	0.00	0.00	596.20	320.00	601.14	0.00	601.15	5.25	1.48	515.82	139.53
23526.000	942.00	0.00	0.00	596.20	465.00	601.44	0.00	601.45	4.56	1.45	731.51	215.46
23527.000	1.00	599.00	599.10	596.20	200.00	600.88	0.00	600.88	4.08	.81	349.64	99.04
23527.000	1.00	599.00	599.10	596.20	295.00	601.09	0.00	601.10	4.36	.87	469.36	141.23
23527.000	1.00	599.00	599.10	596.20	320.00	601.15	0.00	601.15	4.23	.87	511.50	155.62
23527.000	1.00	599.00	599.10	596.20	465.00	601.44	0.00	601.45	3.57	.84	727.75	245.94
23542.000	15.00	599.00	599.10	596.20	200.00	600.88	0.00	600.89	3.94	.80	354.84	100.82
23542.000	15.00	599.00	599.10	596.20	295.00	601.10	0.00	601.10	4.21	.86	477.33	143.81
23542.000	15.00	599.00	599.10	596.20	320.00	601.15	0.00	601.16	4.08	.85	519.23	158.41
23542.000	15.00	599.00	599.10	596.20	465.00	601.45	0.00	601.46	3.49	.83	733.94	248.88
23543.000	1.00	0.00	0.00	596.20	200.00	600.88	0.00	600.89	4.70	1.28	359.03	92.27
23543.000	1.00	0.00	0.00	596.20	295.00	601.10	0.00	601.10	5.26	1.40	481.41	128.62
23543.000	1.00	0.00	0.00	596.20	320.00	601.15	0.00	601.16	5.16	1.40	523.27	140.92
23543.000	1.00	0.00	0.00	596.20	465.00	601.45	0.00	601.46	4.59	1.37	737.86	217.03
24745.000	1202.00	0.00	0.00	596.70	180.00	601.21	0.00	601.22	1.90	.93	483.43	130.57
24745.000	1202.00	0.00	0.00	596.70	265.00	601.44	0.00	601.45	1.93	1.04	666.18	190.52
24745.000	1202.00	0.00	0.00	596.70	290.00	601.50	0.00	601.50	1.96	1.06	710.72	207.15
24745.000	1202.00	0.00	0.00	596.70	410.00	601.75	0.00	601.77	1.89	1.10	926.92	298.14

MILLER DRAIN

SUMMARY PRINTOUT TABLE 150

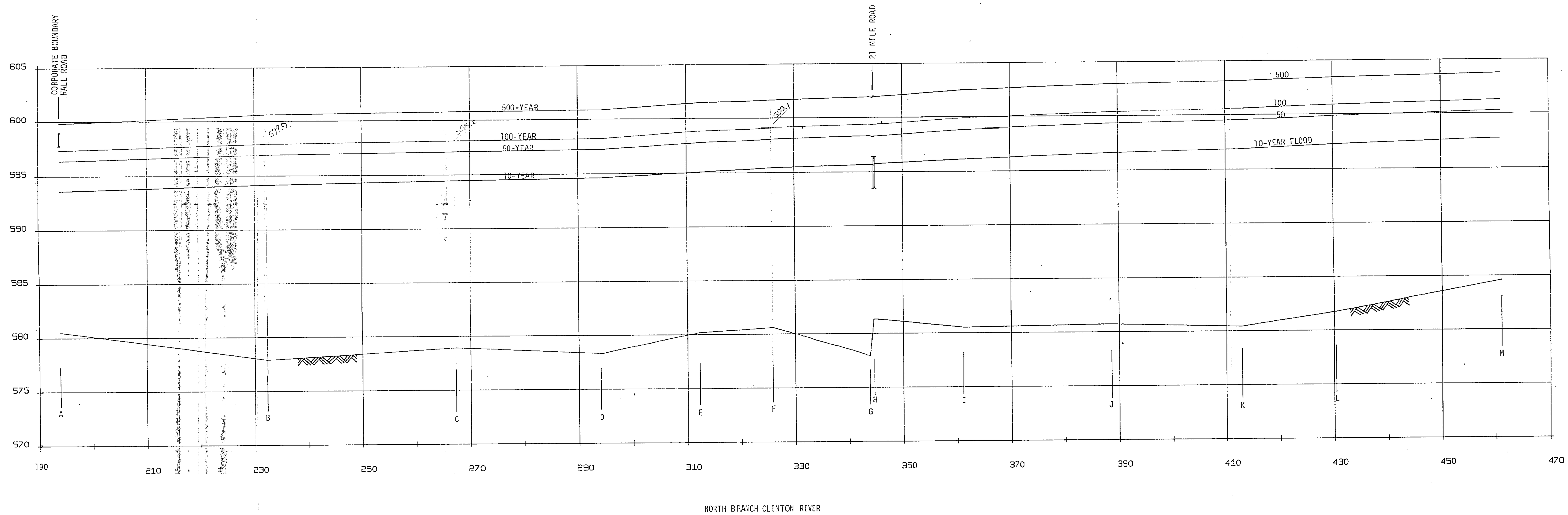
SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
10220.000	180.00	592.44	0.00	0.00	0.00	45.37	0.00
10220.000	265.00	593.40	.96	0.00	0.00	50.69	0.00
10220.000	300.00	593.74	.34	0.00	0.00	52.58	0.00
10220.000	415.00	594.60	.86	0.00	0.00	57.35	0.00
10519.000	205.00	592.42	0.00	-.02	0.00	14.00	99.00
10519.000	300.00	593.35	.94	-.05	0.00	14.00	99.00
10519.000	325.00	593.69	.34	-.05	0.00	14.00	99.00
10519.000	465.00	594.50	.81	-.10	0.00	14.00	99.00
10520.000	205.00	592.42	0.00	.00	0.00	14.00	1.00
10520.000	300.00	593.35	.94	.00	0.00	14.00	1.00
10520.000	325.00	593.69	.34	.00	0.00	14.00	1.00
10520.000	465.00	594.50	.81	.00	0.00	14.00	1.00
10591.000	205.00	592.44	0.00	.02	0.00	14.00	71.00
10591.000	300.00	593.61	1.17	.26	0.00	14.00	71.00
10591.000	325.00	594.02	.40	.33	0.00	14.00	71.00
10591.000	465.00	595.28	1.26	.77	0.00	14.00	71.00
10592.000	205.00	592.44	0.00	.00	0.00	14.00	1.00
10592.000	300.00	593.61	1.17	.00	0.00	14.00	1.00
10592.000	325.00	594.02	.40	.00	0.00	14.00	1.00
10592.000	465.00	595.28	1.26	.00	0.00	14.00	1.00
10641.000	205.00	592.54	0.00	.10	0.00	25.64	49.00
10641.000	300.00	593.77	1.23	.15	0.00	29.01	49.00
10641.000	325.00	594.18	.41	.16	0.00	30.14	49.00
10641.000	465.00	595.54	1.36	.26	0.00	155.41	49.00
10969.000	205.00	592.71	0.00	.17	0.00	13.80	328.00
10969.000	300.00	593.94	1.23	.17	0.00	13.30	328.00
10969.000	325.00	594.34	.40	.16	0.00	13.80	328.00
10969.000	465.00	595.68	1.34	.14	0.00	117.16	328.00
10970.000	205.00	592.71	0.00	-.00	0.00	13.80	1.00
10970.000	300.00	593.93	1.22	-.02	0.00	13.80	1.00
10970.000	325.00	594.32	.40	-.02	0.00	13.80	1.00
10970.000	465.00	595.61	1.29	-.07	0.00	57.17	1.00
11006.000	205.00	592.74	0.00	.03	0.00	13.80	36.00
11006.000	300.00	593.98	1.24	.06	0.00	13.80	36.00
11006.000	325.00	594.38	.40	.06	0.00	13.80	36.00
11006.000	465.00	595.94	1.56	.34	0.00	235.94	36.00
11007.000	205.00	592.76	0.00	.01	0.00	13.80	1.00
11007.000	300.00	594.03	1.28	.05	0.00	13.80	1.00
11007.000	325.00	594.45	.41	.06	0.00	13.80	1.00
11007.000	465.00	596.06	1.61	.11	0.00	261.33	1.00
12655.000	205.00	593.64	0.00	.89	0.00	45.55	1648.00
12655.000	300.00	594.91	1.27	.88	0.00	55.06	1648.00
12655.000	325.00	595.29	.38	.84	0.00	57.85	1648.00
12655.000	465.00	596.80	1.51	.74	0.00	69.10	1648.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
13568.000	205.00	594.11	0.00	.47	0.00	12.80	913.00
13568.000	300.00	595.30	1.18	.38	0.00	12.80	913.00
13568.000	325.00	595.63	.34	.34	0.00	12.80	913.00
13568.000	465.00	597.04	1.41	.25	0.00	12.80	913.00
13569.000	205.00	594.11	0.00	-.01	0.00	12.80	1.00
13569.000	300.00	595.28	1.17	-.02	0.00	12.80	1.00
13569.000	325.00	595.61	.33	-.02	0.00	12.80	1.00
13569.000	465.00	596.97	1.36	-.07	0.00	12.80	1.00
13672.000	205.00	594.27	0.00	.17	0.00	12.80	103.00
13672.000	300.00	595.50	1.23	.23	0.00	12.80	103.00
13672.000	325.00	595.87	.37	.26	0.00	12.80	103.00
13672.000	465.00	597.52	1.66	.55	0.00	12.80	103.00
13673.000	205.00	594.30	0.00	.03	0.00	12.80	1.00
13673.000	300.00	595.57	1.27	.06	0.00	12.80	1.00
13673.000	325.00	595.94	.38	.07	0.00	12.80	1.00
13673.000	465.00	597.80	1.85	.27	0.00	54.34	1.00
14950.000	200.00	596.35	0.00	2.05	0.00	107.77	1277.00
14950.000	295.00	597.18	.84	1.62	0.00	333.58	1277.00
14950.000	320.00	597.38	.19	1.44	0.00	412.03	1277.00
14950.000	465.00	598.51	1.14	.72	0.00	881.67	1277.00
17320.000	200.00	598.08	0.00	1.73	0.00	527.80	2370.00
17320.000	295.00	598.35	.28	1.17	0.00	700.00	2370.00
17320.000	320.00	598.41	.05	1.03	0.00	700.00	2370.00
17320.000	465.00	598.86	.45	.35	0.00	700.00	2370.00
17919.000	200.00	598.47	0.00	.39	0.00	210.62	599.00
17919.000	295.00	598.75	.28	.39	0.00	374.37	599.00
17919.000	320.00	598.81	.06	.40	0.00	446.59	599.00
17919.000	465.00	599.15	.34	.29	0.00	640.96	599.00
17920.000	200.00	598.41	0.00	-.06	0.00	195.57	1.00
17920.000	295.00	598.74	.33	-.01	0.00	375.70	1.00
17920.000	320.00	598.81	.07	.00	0.00	445.36	1.00
17920.000	465.00	599.18	.37	.03	0.00	650.44	1.00
17952.000	200.00	598.76	0.00	.35	0.00	380.30	32.00
17952.000	295.00	598.98	.22	.23	0.00	576.13	32.00
17952.000	320.00	599.02	.04	.21	0.00	591.19	32.00
17952.000	465.00	599.26	.24	.08	0.00	678.47	32.00
17953.000	200.00	598.77	0.00	.01	0.00	389.09	1.00
17953.000	295.00	598.97	.20	-.00	0.00	577.15	1.00
17953.000	320.00	599.01	.04	-.00	0.00	592.51	1.00
17953.000	465.00	599.26	.24	-.00	0.00	681.40	1.00
19405.000	200.00	599.30	0.00	.53	0.00	513.39	1452.00
19405.000	295.00	599.59	.29	.62	0.00	800.00	1452.00
19405.000	320.00	599.65	.06	.64	0.00	800.00	1452.00
19405.000	465.00	599.94	.29	.68	0.00	800.00	1452.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
20809.000	200.00	599.90	0.00	.59	0.00	117.53	1404.00
20809.000	295.00	600.30	.41	.71	0.00	244.01	1404.00
20809.000	320.00	600.38	.07	.73	0.00	273.03	1404.00
20809.000	465.00	600.73	.35	.79	0.00	336.82	1404.00
20810.000	200.00	599.71	0.00	-.19	0.00	64.47	1.00
20810.000	295.00	600.38	.67	.07	0.00	273.31	1.00
20810.000	320.00	600.45	.08	.03	0.00	288.31	1.00
20810.000	465.00	600.78	.33	.06	0.00	345.01	1.00
20831.000	200.00	600.48	0.00	.77	0.00	290.82	21.00
20831.000	295.00	600.52	.04	.14	0.00	305.22	21.00
20831.000	320.00	600.57	.05	.12	0.00	311.94	21.00
20831.000	465.00	600.85	.28	.07	0.00	355.49	21.00
20832.000	200.00	600.48	0.00	-.00	0.00	291.86	1.00
20832.000	295.00	600.51	.03	-.01	0.00	304.96	1.00
20832.000	320.00	600.56	.05	-.01	0.00	313.05	1.00
20832.000	465.00	600.84	.28	-.01	0.00	354.76	1.00
22320.000	200.00	600.65	0.00	.16	0.00	800.00	1488.00
22320.000	295.00	600.80	.15	.29	0.00	800.00	1488.00
22320.000	320.00	600.86	.06	.29	0.00	800.00	1488.00
22320.000	465.00	601.17	.31	.33	0.00	800.00	1488.00
22557.000	200.00	600.66	0.00	.01	0.00	800.00	237.00
22557.000	295.00	600.82	.16	.02	0.00	800.00	237.00
22557.000	320.00	600.88	.06	.02	0.00	800.00	237.00
22557.000	465.00	601.19	.31	.02	0.00	800.00	237.00
22558.000	200.00	600.66	0.00	.00	0.00	800.00	1.00
22558.000	295.00	600.82	.16	.00	0.00	800.00	1.00
22558.000	320.00	600.88	.06	.00	0.00	800.00	1.00
22558.000	465.00	601.19	.31	.00	0.00	800.00	1.00
22583.000	200.00	600.66	0.00	.00	0.00	800.00	25.00
22583.000	295.00	600.82	.16	.00	0.00	800.00	25.00
22583.000	320.00	600.88	.06	.00	0.00	800.00	25.00
22583.000	465.00	601.20	.31	.00	0.00	800.00	25.00
22584.000	200.00	600.66	0.00	-.00	0.00	800.00	1.00
22584.000	295.00	600.82	.16	-.00	0.00	800.00	1.00
22584.000	320.00	600.88	.06	-.00	0.00	800.00	1.00
22584.000	465.00	601.20	.31	.00	0.00	800.00	1.00
23526.000	200.00	600.87	0.00	.21	0.00	482.99	942.00
23526.000	295.00	601.09	.21	.27	0.00	711.99	942.00
23526.000	320.00	601.14	.06	.26	0.00	727.00	942.00
23526.000	465.00	601.44	.30	.25	0.00	727.00	942.00
23527.000	200.00	600.88	0.00	.00	0.00	683.11	1.00
23527.000	295.00	601.09	.21	.00	0.00	712.23	1.00
23527.000	320.00	601.15	.06	.00	0.00	727.00	1.00
23527.000	465.00	601.44	.30	.00	0.00	727.00	1.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
23542.000	200.00	600.88	0.00	.01	0.00	486.82	15.00
23542.000	295.00	601.10	.21	.01	0.00	723.72	15.00
23542.000	320.00	601.15	.06	.01	0.00	727.09	15.00
23542.000	465.00	601.45	.30	.01	0.00	727.09	15.00
23543.000	200.00	600.88	0.00	-.00	0.00	486.81	1.00
23543.000	295.00	601.10	.21	-.00	0.00	723.56	1.00
23543.000	320.00	601.15	.06	-.00	0.00	727.00	1.00
23543.000	465.00	601.45	.30	-.00	0.00	727.10	1.00
24745.000	180.00	601.21	0.00	.33	0.00	776.83	1202.00
24745.000	265.00	601.44	.23	.34	0.00	800.00	1202.00
24745.000	290.00	601.50	.06	.34	0.00	800.00	1202.00
24745.000	410.00	601.76	.27	.32	0.00	800.00	1202.00

SUMMARY OF ERRORS



DRAWN: S.R.
DESIGN:

SCALE: VERT. 1" = 5'
HORIZ. 1" = 1000'

JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS
PONTIAC, MICHIGAN

MACOMB TOWNSHIP, MI, FIS

NORTH BRANCH CLINTON RIVER

JOB NO. 5850-03
JULY 28, 1978
SHEET NO.

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Macomb Twp

3) WATERCOURSE: North Branch Clinton River

4) DOCUMENT TYPE: Encroached Run

00BREAK00

5850-03-1-18

Macomb Township

N. B. Clinton River

(Encroached Run)

IMSJ3FP

IMSJ3FP LQ43
IMSJ3FP LQ43
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IMSJ3FP LQ43
IMSJ3FP LQ43

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MACJOEB   JANDA                      06/30/78   11.39.08   7600     J3

**** 7000 SCOPE 2.1 LVL   221   06/01/78   07.42.50   06/30/78        78181

SYS DEVICES 819/ 4/PF FLS=200K FLL=764K MXS=160K MXL=453K MXB=4538

HH.MM.SS CPU SECOND ORIGIN
                11.40.01.MFA.  J3    LV461 NOSBE B+W LYNRELEASE447 02/04/78
11.39.06 00000.006 MFZ.             -MACJ003,T10,STMFZ.   MACOMB TWP FIS                                     000100
11.39.07 00000.023 USR.              CHARGE.810-0037-45-78-5803,JANDA,001,D,JANDA.                           CHARGE
11.39.08 00000.058 LOD.             -INFORM.     MAIL CUTPUT IMSJ3 (3 COPIES)     VIA UPS
11.39.24 00000.084 JOB.             -ATTACH,LGO,HED2N76V2,ID=HEC.
11.39.24 00000.089 MFZ.                PF254 - CYCLE      1 ATTACHED FROM SN=SYSTEM
11.39.24 00000.090 LOD.             -LGO(PL=999999).
11.39.27 00000.917 MFZ.                LD510 - FLS REQUIRED TO LOAD - 0027777 OU.COG
11.39.29 00000.921 MFZ.                LD503 - EXECUTION INITIATED CS.EXP
11.39.28 00000.921 USR.              FORTRAN LIBRARY 439                05/14/78
11.39.32 00001.901 USR.                  STOP
11.39.32 00001.901 USR.                    .979 CP SECONDS EXECUTION TIME
11.39.32 00001.905 MFZ.                RM770 - MAXIMUM ACTIVE FILES                                 6
11.39.32 00001.905 MFZ.                RM771 - OPEN/CLOSE CALLS                                    32
11.39.32 00001.906 MFZ.                RM772 - DATA TRANSFER CALLS                              2,577
11.39.32 00001.906 MFZ.                RM773 - CONTROL/POSITIONING CALLS                           66
11.39.32 00001.906 MFZ.                RM774 - BM DATA TRANSFER CALLS                             434
11.39.32 00001.906 MFZ.                RM775 - BM CONTROL/POSITIONING CALLS                        79
11.39.32 00001.907 MFZ.                RM776 - QUEUE MANAGER CALLS                                 96
11.39.32 00001.907 MFZ.                RM777 - RECALL CALLS                                        31
11.39.32 00001.907 MFZ.                BWMSG - NUMBER OF TAPES MOUNTED
11.39.32 00001.908 MFZ.                SRU                       2.043   SEC
11.39.32 00001.908 MFZ.                SCM                      36.913   KWS
11.39.32 00001.908 MFZ.                I/O                       0.040   MW
11.39.32 00001.908 MFZ.                RMS                       0.034   MWS
11.39.32 00001.908 MFZ.                USER                      0.736   SEC
11.39.32 00001.909 MFZ.                JOB                       1.910   SEC
11.39.32 00001.909 MFZ.                SC050 - 000021 SC/LC SWAPS
11.39.32 00001.909 MFZ.              MACJOEB    MACJOEB
11.39.32.EJ  END OF JOB
MACJOEB   JANDA                      06/30/78   11.39.08   7600     J3
```

S C O P E 2 L O A D M A P   LOADER VERSION 1.0   06/30/78   11.39.27   PAGE 1

PROGRAM WILL BE ENTERED AT MAIN (355)   SCM LENGTH 64711   LCM LENGTH 0

BLOCK	ADDRESS	LENGTH
/CONTRL/	100	17
MAIN	117	253
/DOUBLE/	372	10
/NAMES/	402	202
H2MAIN	604	15337
ADDPTS	16143	321
BLFLC	16464	1021
BLOCK	17505	261
BWEIR	17766	1427
CARD	21415	2453
CHIMP	24100	1650
DC	25750	705
DONE	26656	60
FLOHAZ	26736	2220
FLODIS	31155	453
BLKDAT.	31631	0
NEAR	31631	16
PRIAH	31647	251
PROF*	32120	1142
SCALE	33262	236
SLARA	33520	243
SUMPO	33763	2744
XSEC	36727	1256
YCRIT	40205	122
MAPIT	40327	50
OVAR	40377	24
SAVEIT	40423	24
/STP.END/	40447	1
/FCL.C./	40450	23
/Q8.IO./	40473	140
Q8NTRY=	40633	1
COMIO=	40634	44
ENDFIL=	40700	45
EOF	40745	20
FECMSK=	40765	41
FLTIN=	41026	156
FLTOUT=	41204	315
FMTAP=	41521	372
FORSYS=	42113	561
FORUTL=	42674	16
GETFIT=	42712	43
INCOM=	42755	256
/IO.BUF./	43233	227
INFB=	43462	324
INFC=	44006	173
KODER=	44201	467
KRAKER=	44670	454
OUTB=	45344	246
/HEADING/	45612	16
/LIN.CNT/	45630	1
OUTC=	45631	1054
OUTCOM=	46705	204

S C O P E 2 L O A D M A P LOADER VERSION 1.0 06/30/78 11.39.27 PAGE 2

```
REWIND=     47111        36
GOTOER=     47147        14
ALOG        47163        77
EXP         47262       102
ITOJ*       47364        52
SQRT        47436        46
SYSAID=     47504         1
SYS=1ST     47505        62
XTOY*       47567        55
 //         47644     15045
```

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***************************************************
 HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
 ERROR CORR -  01,02
 MODIFICATION -  50,51,52,53
***************************************************
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T1      5850-03-1,  FIS - MACOMB TOWNSHIP,  PM = OLE N. ANDERSON
T2      10-YEAR FLOOD
T3      NORTH BRANCH - CLINTON RIVER
```

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-1.	2.	0.	0.	0.000000	0.00	0.0	0.	593.614	0.000

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	1.000	0.000	-1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

J3 VARIABLE CODES FOR SUMMARY PRINTOUT

38.000	39.000	40.000	41.000	42.000	43.000	1.000	10.000	11.000	12.000
14.000	8.000	4.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

NC	.080	.075	.032	.300	.500	0.000	0.000	0.000	0.000	0.000
QT	4.000	5440.000	8410.000	9720.000	13100.000	0.000	0.000	0.000	0.000	0.000
NH	5.000	.050	1647.000	.094	1708.000	.050	1837.000	.090	1926.600	.060
NH	3600.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

U/S FACE OF HALL ROAD CULVERT   SEC. A

X1	19401.000	54.000	1700.000	1926.600	39.000	39.000	39.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	1926.600	599.900	0.000	0.000	0.000
GR	603.800	0.000	602.900	100.000	601.300	200.000	601.100	300.000	600.300	400.000
GR	599.700	500.000	599.200	600.000	599.000	700.000	599.000	800.000	599.000	900.000
GR	599.600	1100.000	600.200	1400.000	600.400	1600.000	600.400	1647.000	597.400	1700.000
GR	594.000	1700.000	593.000	1708.000	586.300	1726.000	582.300	1736.100	583.500	1736.100
GR	583.500	1736.600	597.700	1736.600	597.700	1739.600	583.500	1739.600	583.500	1740.100
GR	581.500	1740.100	580.800	1750.000	580.500	1770.000	581.000	1780.000	581.400	1786.100
GR	583.500	1786.100	583.500	1796.600	597.800	1786.600	597.800	1789.600	583.500	1789.600
GR	585.600	1800.000	586.600	1820.000	586.700	1836.600	597.800	1836.600	597.300	1839.600
GR	585.900	1839.600	586.200	1850.000	586.100	1875.000	585.900	1886.600	597.700	1886.600
GR	597.700	1889.600	594.500	1689.600	595.600	1897.000	594.400	1919.000	595.300	1926.600
GR	587.400	1926.600	597.400	1926.600	587.400	1926.600	587.600	1973.000	589.000	2173.000
GR	592.600	2373.000	600.200	2530.000	600.200	2800.000	600.400	2900.000	600.500	3000.000
GR	600.200	3300.000	600.000	3400.000	600.100	3500.000	601.100	3500.000	0.000	0.000
QT	4.000	5440.000	8970.000	10700.000	15300.000	0.000	0.000	0.000	0.000	0.000
NC	.080	.075	.032	0.000	0.000	0.000	0.000	0.000	0.000	0.000

3820 U/S FROM U/S FACE OF HALL ROAD CULVERT, VSE23   SEC. B

X1	23221.000	25.000	1653.000	1738.000	1300.000	3850.000	3820.000	0.000	0.000	0.000
GR	598.200	0.000	598.000	15.000	596.000	200.000	594.000	310.000	592.300	575.000
GR	593.600	800.000	591.600	900.000	591.600	1000.000	591.300	1100.000	591.300	1200.000
GR	587.500	1300.000	587.400	1400.000	587.600	1500.000	590.300	1600.000	586.100	1653.000
GR	579.300	1670.000	578.900	1680.000	578.000	1690.000	577.900	1700.000	578.200	1710.000

GR	578.800	1720.000	580.200	1727.000	589.600	1738.000	594.900	1775.000	597.200	1930.000
NC	.075	.075	.031	0.000	0.000	0.000	0.000	0.000	0.000	0.000

7320' U/S FROM U/S FACE OF HALL ROAD CULVERT, VSE24 SEC. C

X1	26721.000	28.000	100.000	200.000	1200.000	2800.000	3500.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	100.000	0.000	1600.000	0.000	0.000	0.000	0.000
GR	596.500	0.000	597.200	100.000	579.700	132.000	578.900	142.000	578.900	152.000
GR	579.500	162.000	580.000	172.000	588.300	200.000	590.100	300.000	589.500	400.000
GR	590.800	500.000	590.800	500.000	590.100	700.000	588.300	800.000	588.000	900.000
GR	588.700	1000.000	590.600	1100.000	589.700	1300.000	590.300	1400.000	589.900	1500.000
GR	591.000	1670.000	596.000	1700.000	596.000	1800.000	597.500	2125.000	598.000	2500.000
GR	596.700	2650.000	598.000	2950.000	600.300	3220.000	0.000	0.000	0.000	0.000
NC	.065	.050	.032	0.000	0.000	0.000	0.000	0.000	0.000	0.000

10020' U/S FROM U/S FACE OF HALL ROAD CULVERT, VSE25 SEC. D

X1	29421.000	25.000	274.000	385.000	2600.000	1200.000	2700.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	115.000	0.000	615.000	0.000	0.000	0.000	0.000
GR	600.000	0.000	598.000	30.000	596.000	70.000	595.500	120.000	591.900	220.000
GR	590.900	274.000	580.600	293.000	579.500	305.000	578.700	315.000	578.600	325.000
GR	579.300	335.000	580.500	345.000	580.700	355.000	581.100	363.000	590.100	385.000
GR	583.200	420.000	597.000	500.000	598.000	700.000	598.300	890.000	598.300	1165.000
GR	598.000	1300.000	597.800	1440.000	597.000	1650.000	598.000	1800.000	600.000	2050.000
NC	.065	.052	.033	0.000	0.000	0.000	0.000	0.000	0.000	0.000

3260' D/S FROM D/S FACE OF 21 MILE ROAD, VSE26 SEC. E

X1	31221.000	21.000	0.000	167.000	1600.000	1000.000	1800.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	850.000	0.000	0.000	0.000	0.000
GR	610.800	0.000	587.600	97.000	583.000	103.000	581.500	110.000	580.500	120.000
GR	580.200	130.000	580.900	140.000	583.200	150.000	592.200	167.000	593.600	200.000
GR	591.600	300.000	590.300	400.000	591.500	500.000	591.000	600.000	594.500	700.000
GR	596.800	800.000	598.000	1095.000	598.400	1200.000	598.600	1450.000	598.000	1780.000
GR	600.000	1950.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.062	.050	.031	0.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	4.000	5390.000	9890.000	10600.000	15200.000	0.000	0.000	0.000	0.000	0.000

1870' D/S FROM D/S FACE OF 21 MILE ROAD, VSE27 SEC. F

X1	32611.000	16.000	750.000	840.000	1400.000	1100.000	1390.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	230.000	0.000	840.000	0.000	0.000	0.000	0.000
GR	599.300	0.000	598.400	150.000	592.500	230.000	587.300	350.000	588.300	440.000
GR	591.000	550.000	592.600	650.000	591.900	750.000	582.000	770.000	581.400	780.000
GR	581.200	790.000	580.700	800.000	580.500	810.000	581.200	818.000	598.200	840.000
GR	600.000	960.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.060	.055	.032	0.000	0.000	0.000	0.000	0.000	0.000	0.000

700' D/S FROM D/S FACE OF 21 MILE ROAD CULVERT, VSE28 SEC. G

X1	34411.000	26.000	400.000	504.000	1200.000	1500.000	1800.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	400.000	0.000	1000.000	0.000	0.000	0.000	0.000
GR	599.800	0.000	598.500	120.000	599.700	300.000	598.000	350.000	596.000	375.000
GR	599.700	400.000	589.000	420.000	587.700	430.000	582.200	437.000	580.700	439.000
GR	577.900	451.000	578.100	463.000	578.300	474.000	581.100	484.000	582.500	490.000
GR	583.900	495.000	587.200	504.000	590.600	600.000	590.100	700.000	590.000	800.000
GR	591.000	900.000	595.000	1000.000	594.000	1010.000	596.000	1040.000	598.000	1115.000
GR	599.000	1200.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	34481.000	28.000	400.000	529.000	70.000	45.000	70.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	400.000	0.000	1000.000	0.000	0.000	0.000	0.000
GR	600.700	0.000	600.200	100.000	599.800	200.000	598.600	300.000	596.800	400.000

GR	585.200	400.000	581.500	410.000	581.300	420.000	581.700	430.000	582.200	440.000
GR	582.800	450.000	582.600	460.000	583.200	462.000	583.200	466.000	582.500	470.000
GR	581.800	480.000	581.400	490.000	581.400	500.000	581.600	510.000	582.100	520.000
GR	584.300	529.000	596.800	529.000	596.400	600.000	596.400	700.000	596.400	800.000
GR	596.700	900.000	596.900	1000.000	598.100	1260.000	0.000	0.000	0.000	0.000
NC	.035	.035	.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D/S FACE OF 21 MILE ROAD CULVERT, BSE29 SEC. H

X1	34482.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	400.000	0.000	1000.000	0.000	0.000	0.000	0.000
BT	19.000	0.000	600.700	0.000	100.000	600.200	0.000	200.000	599.800	0.000
BT	300.000	595.600	0.000	400.000	596.300	0.000	400.000	596.800	585.200	400.000
BT	596.800	593.400	462.000	596.800	593.400	462.000	596.800	583.200	466.000	596.800
BT	583.200	466.000	596.800	593.400	529.000	596.800	593.400	529.000	596.800	584.300
BT	529.000	596.800	0.000	600.000	596.400	0.000	700.000	596.400	0.000	800.000
BT	596.400	0.000	900.000	596.700	0.000	1000.000	596.900	0.000	0.000	0.000

U/S FACE OF 21 MILE ROAD CULVERT, BSE29 SEC. H

X1	34506.000	0.000	0.000	0.000	24.000	24.000	24.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	400.000	0.000	1000.000	0.000	0.000	0.000	0.000
NC	.060	.065	.032	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	34507.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	400.000	0.000	1000.000	0.000	0.000	0.000	0.000

1600' U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VSE30 SEC. I

X1	36107.000	13.000	47.000	92.000	1650.000	1300.000	1600.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	25.000	0.000	600.000	0.000	0.000	0.000	0.000
GR	600.200	0.000	599.000	10.000	591.300	25.000	588.300	47.000	582.600	51.000
GR	581.500	55.000	581.300	60.000	580.500	65.000	581.000	70.000	581.800	75.000
GR	582.900	80.000	589.900	92.000	589.100	110.000	590.200	210.000	589.500	310.000
GR	593.000	410.000	593.700	510.000	594.700	610.000	596.200	710.000	0.000	0.000
NC	.062	.065	.033	0.000	0.000	0.000	0.000	0.000	0.000	0.000

4295' U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VSE31 SEC. J

X1	38802.000	23.000	292.000	346.000	1125.000	2150.000	2695.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	1140.000	0.000	0.000	0.000	0.000
GR	600.300	0.000	599.300	37.000	592.300	106.000	590.300	272.000	588.200	292.000
GR	582.400	302.000	581.000	307.000	580.700	313.000	581.600	320.000	582.300	325.000
GR	582.300	330.000	583.400	335.000	589.700	346.000	589.300	432.000	590.700	542.000
GR	591.700	632.000	591.200	732.000	591.100	822.000	591.200	912.000	595.000	1042.000
GR	595.200	1062.000	598.000	1162.000	599.300	1500.000	0.000	0.000	0.000	0.000
NC	.070	.065	.032	0.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	4.000	5280.000	7760.000	10500.000	15000.000	0.000	0.000	0.000	0.000	0.000

6775' U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VSE32 SEC. K

X1	41262.000	24.000	1761.000	1835.000	2000.000	1200.000	2480.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	1150.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	601.300	0.000	600.000	200.000	599.900	300.000	600.000	400.000	601.000	580.000
GR	601.200	715.000	600.000	800.000	599.700	900.000	600.200	1000.000	596.400	1100.000
GR	594.500	1144.000	590.700	1174.000	592.100	1200.000	591.500	1300.000	592.000	1400.000
GR	591.400	1500.000	592.300	1600.000	590.700	1700.000	581.500	1761.000	584.500	1775.000
GR	581.200	1785.000	580.400	1795.000	585.400	1803.000	606.400	1835.000	0.000	0.000
NH	4.000	.075	1275.000	.033	1349.000	.060	1475.000	.090	1800.000	0.000

8500[U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VS=33 SEC. L

X1	43007.000	33.000	1275.000	1349.000	750.000	1600.000	1725.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	830.000	0.000	2300.000	0.000	0.000	0.000	0.000
GR	601.200	0.000	600.000	145.000	599.000	325.000	600.000	490.000	600.800	570.000
GR	600.000	635.000	599.600	830.000	598.000	890.000	597.500	935.000	598.000	1000.000
GR	596.000	1060.000	595.800	1070.000	596.000	1100.000	598.000	1140.000	600.000	1270.000
GR	601.300	1275.000	590.200	1291.000	590.500	1304.000	585.200	1308.000	581.800	1318.000
GR	581.700	1328.000	584.700	1338.000	589.400	1349.000	591.300	1375.000	592.700	1475.000
GR	592.800	1575.000	592.300	1675.000	593.100	1775.000	597.600	1800.000	598.000	1930.000
GR	600.000	1955.000	600.200	2050.000	600.300	2350.000	0.000	0.000	0.000	0.000
NC	.060	.070	.032	0.000	0.000	0.000	0.000	0.000	0.000	0.000

11600[U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VS=34 SEC. M

X1	46107.000	39.000	3382.000	3487.000	1700.000	1800.000	3350.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	1300.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	600.000	0.000	599.800	140.000	600.000	280.000	602.500	340.000	600.000	400.000
GR	600.700	500.000	600.000	575.000	599.000	660.000	600.000	735.000	600.200	825.000
GR	600.000	960.000	599.800	1265.000	600.000	1425.000	600.200	1700.000	600.000	1840.000
GR	600.000	1915.000	601.400	2015.000	600.000	2175.000	598.600	2210.000	593.900	2310.000
GR	591.900	2410.000	591.800	2510.000	591.400	2610.000	591.600	2710.000	591.800	2810.000
GR	591.600	2910.000	592.100	3010.000	592.200	3110.000	591.900	3200.000	595.600	3310.000
GR	593.500	3330.000	592.800	3382.000	585.600	3392.000	584.900	3407.000	584.600	3422.000
GR	585.900	3432.000	588.900	3443.000	600.600	3477.000	603.900	3487.000	0.000	0.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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*PROF 1

CCHV=     .300 CEHV=     .500
1490 NH CARD USED
*SECNO 19401.000

3265 DIVIDED FLOW

     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA     LEFT/RIGHT
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

3470 ENCROACHMENT STATIONS=          .0     1926.6  TYPE=      1  TARGET=     1926.599

           U/S FACE OF HALL ROAD CULVERT                                            SEC. A

  19401.00     13.11     593.61      0.00     593.61     593.79       .17       0.00       0.00    597.40
     5440.        0.      5440.        0.         0.      1628.        0.         0.         0.     599.90
      0.00      0.00       3.34      0.00      0.000       .062     0.000      0.000     580.50   1703.09
   .000114       39.        39.       39.          0          0         0       0.00     201.95   1917.04

*SECNO 23221.000

           3820[ U/S FROM U/S FACE OF HALL ROAD CULVERT, VSE23                      SEC. B

  23221.00     16.22     594.12      0.00       0.00     594.20       .07        .38        .03    596.10
     5440.     2168.      3246.       26.      4111.      1176.       71.       187.        34.     589.60
       .50       .53       2.76       .36       .080       .032      .075       .037     577.90    303.16
   .000115     1300.      3820.     3850.          2          0         0       0.00    1466.42   1769.58

*SECNO 26721.000

3470 ENCROACHMENT STATIONS=       100.0     1600.0  TYPE=      1  TARGET=     1500.000

           7320[ U/S FROM U/S FACE OF HALL ROAD CULVERT, VSE24                      SEC. C

  26721.00     15.54     594.44      0.00       0.00     594.47       .03        .26        .01    597.20
     5440.        0.      2241.     3199.         0.      1093.     6558.       548.       106.     588.30
      1.19      0.00       2.05       .49       .075       .031      .075       .037     578.90    105.04
   .000075     1200.      3500.     2900.          2          0         0       0.00    1494.95   1600.00

*SEGNO 29421.000

3470 ENCROACHMENT STATIONS=       115.0      615.0  TYPE=      1  TARGET=      500.000

           10020[ U/S FROM U/S FACE OF HALL ROAD CULVERT, VSE25                     SEC. D

  29421.00     16.32     594.62      0.00       0.00     594.80       .17        .26        .07    590.90
     5440.      163.      4343.      334.       277.      1421.      325.       729.       137.     590.10
      1.38       .59       3.48      1.03       .065       .032      .050       .038     579.30    144.31
   .000199     2600.      2700.     1200.          2          0         0       0.00     331.33    475.64

*SECNO 31221.000
     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA     LEFT/RIGHT
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
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  SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID      ENDST

3470 ENCROACHMENT STATIONS=          .0       850.0  TYPE=       1  TARGET=       849.999
          32600 D/S FROM D/S FACE OF 21 MILE ROAD, VSE26                          SEC. E

  31221.00     14.89     595.09       0.00       0.00     595.21        .12        .40        .01100000.00
   5440.         0.       3339.       2101.         0.       956.       1780.       808.        151.     592.20
     1.55       0.00       3.49       1.18       .065       .033       .052       .038      580.20      65.69
  .000323      1600.      1800.      1000.          2          0          0       0.00      659.96     725.64

*SECNO 32611.000
3470 ENCROACHMENT STATIONS=       230.0       840.0  TYPE=       1  TARGET=       510.000
          18700 D/S FROM D/S FACE OF 21 MILE ROAD, VSE27                          SEC. F

  32611.00     14.85     595.45       0.00       0.00     595.53        .08        .30         .01     591.90
   5390.      2475.      2915.          0.      2607.       989.         0.       933.        169. 100000.00
     1.74        .95       2.95       0.00       .062       .031       .050       .037      580.60     230.00
  .000163      1400.      1390.      1100.          1          0          0       0.00      606.42     836.42

*SECNO 34411.000
3470 ENCROACHMENT STATIONS=       400.0      1000.0  TYPE=       1  TARGET=       600.000
          700 D/S FROM D/S FACE OF 21 MILE ROAD CULVERT, VSE28                    SEC. G

  34411.00     17.78     595.68       0.00       0.00     595.75        .07        .22         .00     599.70
   5390.         0.       3140.       2250.         0.      1216.       2533.      1028.        189.     587.20
     1.97       0.00       2.58        .39       .060       .032       .055       .037      577.90     407.51
  .000114      1200.      1800.      1500.          2          0          0       0.00      592.49    1000.00

*SECNO 34481.000
3470 ENCROACHMENT STATIONS=       400.0      1000.0  TYPE=       1  TARGET=       600.000
  34481.00     14.35     595.65       0.00       0.00     595.80        .15        .01         .04     596.80
   5390.         0.       5390.          0.         0.      1741.         0.      1032.        189.     596.80
     1.98       0.00       3.10       0.00       .060       .032       .055       .037      581.30     400.00
  .000172        70.        70.        45.          2          0          0       0.00      129.00     529.00

*SECNO 34482.000
3370 NORMAL BRIDGE,NRD= 10 MIN ELTRD=  596.40 MAX ELLC=  593.40

3470 ENCROACHMENT STATIONS=       400.0      1000.0  TYPE=       1  TARGET=       600.000
          D/S FACE OF 21 MILE ROAD CULVERT, BSE29                                 SEC. H

  34482.00     14.30     595.60       0.00       0.00     595.84        .24        .00         .05     596.80
   5390.         0.       5390.          0.         0.      1369.         0.      1032.        189.     596.80
     1.98       0.00       3.94       0.00       .035       .030       .035       .037      581.30     400.00
  .000750        1.         1.         1.           2          0          0    -365.95      129.00     529.00

*SECNO 34506.000
  SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
  Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA     LEFT/RIGHT
  TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN       SSTA
  SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID      ENDST
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3370 NORMAL BRIDGE,NRD= 19 MIN ELTRD=  596.40 MAX ELLC=  593.40

3470 ENCROACHMENT STATIONS=      400.0     1000.0  TYPE=      1  TARGET=      600.000

          U/S FACE OF 21 MILE ROAD CULVERT, BSE29                             SEC. H

  34506.00     14.32    595.62      0.00      0.00    595.86       .24       .02       .00    596.80
   5390.         0.     5390.        0.        0.     1369.         0.     1033.      189.     596.80
    1.98      0.00      3.94      0.00      .035      .030      .035      .037    581.30    400.00
  .000750      24.       24.       24.         0         0         0   -367.38    129.00    529.00

*SECNO 34507.000

3470 ENCROACHMENT STATIONS=      400.0     1000.0  TYPE=      1  TARGET=      600.000
  34507.00     14.44    595.74      0.00      0.00    595.89       .15       .00       .03    596.80
   5390.         0.     5390.        0.        0.     1753.         0.     1033.      189.     596.80
    1.98      0.00      3.07      0.00      .060      .032      .065      .037    581.30    400.00
  .000165        1.        1.        1.         2         0         0      0.00    129.00    529.00

*SECNO 36107.000

3470 ENCROACHMENT STATIONS=       25.0      600.0  TYPE=      1  TARGET=      575.000

          1600I U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VSE30               SEC. I

  36107.00     15.60    596.10      0.00      0.00    596.23       .13       .34       .00    588.30
   5390.      179.     2423.     2788.      139.      582.     2324.     1113.      201.     589.90
    2.15      1.29      4.16      1.20      .060      .032      .065      .037    580.50     25.00
  .000306     1650.     1600.     1300.         2         0         0      0.00    575.00    600.00

*SECNO 38802.000

3470 ENCROACHMENT STATIONS=         .0     1140.0  TYPE=      1  TARGET=     1139.999

          4295I U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VSE31               SEC. J

  38802.00     15.91    596.61      0.00      0.00    596.64       .04       .36       .03    588.20
   5390.      840.     1784.     2766.     1119.      715.     3754.     1319.      238.     589.70
    2.62       .75      2.50       .74      .062      .033      .065      .037    580.70     63.55
  .000107     1125.     2695.     2150.         2         0         0      0.00   1021.03   1084.58

*SECNO 41282.000

3470 ENCROACHMENT STATIONS=     1150.0     1835.0  TYPE=      1  TARGET=    -1150.000

          6775I U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VSE32               SEC. K

  41282.00     16.49    596.89      0.00      0.00    596.97       .08       .30       .02    591.50
   5290.     3195.     2095.        0.     3194.      638.        0.     1508.      270. 100000.00
    2.91      1.00      3.28      0.00      .070      .032      .065      .037    580.40   1150.00
  .000245     2000.     2430.     1200.         2         0         0      0.00    670.51   1820.51

1490 NH CARD USED
*SECNO 43007.000

3265 DIVIDED FLOW

    SECNO     DEPTH     CWSEL     CRIWS     WSELK      EG        HV        HL      OLOSS   BANK ELEV
      Q       QLOB      QCH       QROB      ALOB      ACH      AROB       VOL      TWA   LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN     ELMIN      SSTA
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  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

3470 ENCROACHMENT STATIONS=      830.0     2300.0  TYPE=      1  TARGET=     1470.000
         9500  U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VSE33          SEC. L

  43007.00     15.59    597.29      0.00      0.00    597.43       .14       .43       .03    601.30
   5290.         39.     2849.     2401.       97.      711.     2144.     1603.      287.    589.40
     3.06        .41      4.01      1.12      .075      .033      .076      .037    581.70   1021.36
  .000395       750.     1725.     1500.         2         0         0      0.00    621.83   1798.27

*SECNO 46107.000
3470 ENCROACHMENT STATIONS=     1300.0     3487.0  TYPE=      1  TARGET=    -1300.000
         11600  U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VSE34          SEC. M

  46107.00     13.18    597.78      0.00      0.00    597.79       .02       .32       .04    592.80
   5290.       3920.     1370.        0.     6120.      823.        0.     1327.      327. 100000.00
     3.79        .64      1.66      0.00      .060      .032      .070      .038    584.60   2227.51
  .000068      1700.     3350.     1800.         2         0         0      0.00   1241.29   3468.80
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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -   01,02
  MODIFICATION -  50,51,52,53
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T1      5650-03-1,  FIS - MACOMB TOWNSHIP,  PM = OLE N. ANDERSON
T2      50-YEAR FLOOD
T3      NORTH BRANCH - CLINTON RIVER

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
       -1.        3.        0.        0.  0.000000      0.00       0.0        0.   596.365     0.000

J2  NPROF     IPLOT     PREVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
      2.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
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*PROF 2

CCHV=     .300 CEHV=      .500
1490 NH CARD USED
*SECNO 19401.000

3265 DIVIDED FLOW

      SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
      Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA    LEFT/RIGHT
      TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN       SSTA
      SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID      ENDST


3470 ENCROACHMENT STATIONS=          .0     1926.6  TYPE=      1  TARGET=     1926.599

               U/S FACE OF HALL ROAD CULVERT                                       SEC. A

   19401.00      15.87     596.37       0.00     596.37     596.59        .23       0.00       0.00     597.40
      8410.         0.      8410.         0.         0.      2207.         0.         0.         0.      599.90
       0.00       0.00       3.81       0.00      0.000       .062      0.000      0.000     580.50    1700.00
    .000121        39.        39.        39.          0          0          0       0.00     214.60    1926.60

*SECNO 23221.000

               3820C U/S FROM U/S FACE OF HALL ROAD CULVERT, VSE23                 SEC. B

   23221.00      19.01     596.91       0.00       0.00     596.97        .06        .33        .05     586.10
      8970.      4913.      3940.       117.      8102.      1413.       309.       293.        44.      589.60
        .56        .61       2.79        .38       .080       .032       .075       .039     577.90     115.75
    .000092      1300.      3320.      3850.          2          0          0       0.00    1794.76    1910.51

*SECNO 26721.000

3470 ENCROACHMENT STATIONS=       100.0     1600.0  TYPE=      1  TARGET=     1500.000

               7320C U/S FROM U/S FACE OF HALL ROAD CULVERT, VSE24                 SEC. C

   26721.00      18.25     597.15       0.00       0.00     597.17        .02        .20        .01     597.20
      8970.         0.      2814.      6156.         0.      1357.     10347.       859.       123.      588.30
       1.25       0.00       2.07        .59       .075       .031       .075       .040     578.90     100.09
    .000062      1200.      3500.      2800.          2          0          0       0.00    1499.90    1600.00

*SECNO 29421.000

3470 ENCROACHMENT STATIONS=       115.0      615.0  TYPE=      1  TARGET=      500.000

               10020C U/S FROM U/S FACE OF HALL ROAD CULVERT, VSE25                SEC. D

   29421.00      18.97     597.27       0.00       0.00     597.51        .25        .23        .11     598.90
      8970.       663.      7435.       872.       692.      1714.       607.      1125.       156.      590.10
       1.40        .97       4.34       1.44       .065       .032       .050       .040     578.30     115.00
    .000240      2600.      2700.      1200.          2          0          0       0.00     438.53     553.53

*SECNO 31221.000
      SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
      Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA    LEFT/RIGHT
      TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN       SSTA
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    SLOPE     XLOBL      XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

3470 ENCROACHMENT STATIONS=         .0       850.0  TYPE=       1  TARGET=       849.999

        32600 D/S FROM D/S FACE OF 21 MILE ROAD, VSE26                           SEC. E

  31221.00     17.83    597.83      0.00      0.00    597.92       .09       .36       .05100000.00
     8970.        0.     4096.     4874.        0.     1249.     3495.     1246.       173.    592.20
     1.99      0.00      3.28      1.39      .065      .033      .052      .040    580.20     54.24
  .000229     1600.     1300.     1000.         2         0         0      0.00    795.75    850.00

*SECNO 32611.000

3470 ENCROACHMENT STATIONS=      230.0     840.0  TYPE=       1  TARGET=       610.000

        18700 D/S FROM D/S FACE OF 21 MILE ROAD, VSE27                           SEC. F

  32611.00     17.40    598.08      0.00      0.00    598.17       .09       .25       .00    591.90
     8690.     4857.     4033.        0.     3984.     1222.        0.     1393.       193. 100000.00
     1.76      1.22      3.30      0.00      .062      .031      .050      .039    580.60    230.00
  .000164     1400.     1390.     1100.         2         0         0      0.00    609.85    839.85

*SECNO 34411.000

3470 ENCROACHMENT STATIONS=      400.0    1000.0  TYPE=       1  TARGET=       600.000

        700 D/S FROM D/S FACE OF 21 MILE ROAD CULVERT, VSE28                     SEC. G

  34411.00     20.42    598.32      0.00      0.00    598.40       .08       .22       .00    599.70
     8890.        0.     4337.     4553.        0.     1478.     3843.     1570.       213.    587.20
     1.97      0.00      2.94      1.15      .060      .032      .055      .039    577.90    402.58
  .000122     1200.     1300.     1500.         2         0         0      0.00    597.42   1000.00

*SECNO 34481.000
3280 CROSS SECTION  34481.00 EXTENDED       .15 FEET


3470 ENCROACHMENT STATIONS=      400.0    1000.0  TYPE=       1  TARGET=       600.000
  34481.00     16.95    598.25      0.00      0.00    598.49       .24       .01       .08    596.80
     8890.        0.     8410.      480.        0.     2076.      802.     1575.       214.    596.30
     1.97      0.00      4.05       .60      .060      .032      .055      .039    581.30    400.00
  .000241       70.       70.       45.         2         0         0      0.00    600.00   1000.00

*SECNO 34482.000
3280 CROSS SECTION  34482.00 EXTENDED       .14 FEET


3370 NORMAL BRIDGE,NRD= 19 MIN ELTRD=  596.40 MAX ELLC=  593.40

3470 ENCROACHMENT STATIONS=      400.0    1000.0  TYPE=       1  TARGET=       600.000

        D/S FACE OF 21 MILE ROAD CULVERT, BSE29                                  SEC. H

  34482.00     16.93    598.23      0.00      0.00    598.51       .27       .00       .02    596.80
     8890.        0.     7077.     1813.        0.     1555.      798.     1576.       214.    595.80
     1.97      0.00      4.55      2.27      .035      .030      .035      .039    581.30    400.00
  .001408        1.        1.        1.         1         0         0   -520.40    600.00   1000.00
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*SECNO 34506.000
3280 CROSS SECTION  34506.00 EXTENDED        .16 FEET

     SECNO      DEPTH      CWSEL      CRIWS      WSELK       EG         HV         HL        OLOSS    BANK ELEV
     Q          QLOB       QCH        QROB       ALOB        ACH        AROB       VOL       TWA     LEFT/RIGHT
     TIME       VLOB       VCH        VROB       XNL         XNCH       XNR        WTN       ELMIN       SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL      IDC        ICONT      CORAR     TOPWID      ENDST


3370 NORMAL BRIDGE,NRD= 18 MIN ELTRD=  596.40 MAX ELLC=  593.40

3470 ENCROACHMENT STATIONS=      400.0     1000.0  TYPE=      1  TARGET=      600.000

          U/S FACE OF 21 MILE ROAD CULVERT, BSE29                             SEC. H

   34506.00     16.97     598.27      0.00       0.00     598.54       .27        .03        .00     596.80
     8890.         0.      7053.     1337.         0.      1558.      308.      1577.       214.     596.80
       1.98      0.00       4.53      2.27       .035       .032      .535       .039     581.30     400.00
    .001391       24.       24.        24.          1          0         0    -520.40     600.00    1000.00

*SECNO 34507.000
3280 CROSS SECTION  34507.00 EXTENDED        .20 FEET


3470 ENCROACHMENT STATIONS=      400.0     1000.0  TYPE=      1  TARGET=      600.000
   34507.00     17.00     598.30      0.00       0.00     598.55       .24        .00        .01     596.30
     8890.         0.      8461.      429.         0.      2084.      528.      1577.       214.     596.80
       1.98      0.00       4.06       .52       .060       .032      .065       .039     581.30     400.00
    .000241        1.        1.        1.          2          0         0       0.00     600.00    1000.00

*SECNO 36107.000
3280 CROSS SECTION  36107.00 EXTENDED       2.64 FEET


3470 ENCROACHMENT STATIONS=       25.0      600.0  TYPE=      1  TARGET=      575.000

          1600( U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VSE30              SEC. I

   36107.00     10.34     598.94      0.00       0.00     598.97       .13        .38        .03     588.30
     8890.       289.      3150.     5452.       199.       705.     3715.      1700.       232.     589.90
       2.14      1.45       4.46      1.47       .060       .032      .065       .039     581.50      25.00
    .000273     1650.      1600.     1300.          2          0         0       0.00     575.00     600.00

*SECNO 38802.000

3470 ENCROACHMENT STATIONS=         .0     1140.0  TYPE=      1  TARGET=     1139.999

          4295( U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VSE31              SEC. J

   38802.00     18.59     599.23      0.00       0.00     599.32       .04        .33        .03     588.20
     8890.      1559.      2249.     5082.      1767.       659.     5853.      2010.       271.     589.70
       2.61       .83       2.62       .67       .062       .033      .065       .039     580.70      37.14
    .000092     1125.      2595.     2150.          2          0         0       0.00    1102.86    1140.00

*SECNO 41282.000

3470 ENCROACHMENT STATIONS=     1150.0     1835.0  TYPE=      1  TARGET=    -1150.000

          6775( U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VSE32              SEC. K
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  41282.00      19.12     599.52       0.00       0.00     599.60        .08        .26        .02     591.50
   8760.        5984.     2776.         0.       4803.      800.         0.       2288.       305.  100000.00
    2.88        1.25       3.47        0.00      .070       .032       .065       .039     580.40    1150.00
  .000222       2000.      2480.      1200.         2          0          0        0.00     674.52    1824.52

 1490 NH CARD USED
 *SECNO 43007.000

 3265 DIVIDED FLOW

      SECNO      DEPTH      CWSEL      CRIWS      WSELK       EG         HV         HL       OLOSS    BANK ELEV
        Q        QLOB        QCH       QROB       ALOB       ACH        AROB       VOL        TWA    LEFT/RIGHT
      TIME       VLOB        VCH       VROB       XNL        XNCH       XNR        WTN       ELMIN      SSTA
      SLOPE      XLOBL       XLCH      XLOBR      ITRIAL     IDC        ICONT      CORAR     TOPWID     ENDST

 3470 ENCROACHMENT STATIONS=       830.0      2300.0  TYPE=        1  TARGET=     1470.000

          9500E U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VSE33            SEC. L

  43007.00      18.16     599.86       0.00       0.00     599.99        .13        .36        .03     601.30
   8760.         560.     3719.       4482.       853.       691.      3304.      2431.       328.      589.40
    3.03         .66       4.17        1.36       .075       .033       .077       .039     581.70     830.00
  .000342        750.      1725.      1600.         2          0          0        0.00    1107.09    1953.25

 *SECNO 46107.000

 3265 DIVIDED FLOW

 3470 ENCROACHMENT STATIONS=      1300.0      3487.0  TYPE=        1  TARGET=    -1300.000

          11600E U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VSE34           SEC. M

  46107.00      15.68     600.28       0.00       0.00     600.29        .02        .27        .03     592.80
   8760.        6931.     1829.         0.       9221.      1049.        0.       2771.       392.  100000.00
    3.66         .75       1.74        0.00      .060       .032       .070       .040     584.60    1300.00
  .000060       1700.      3350.      1800.         2          0          0        0.00    1967.35    3476.06
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*************************************************
 HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
 ERROR CORR -  01,02
 MODIFICATION -  50,51,52,53
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T1      5850-03-1, FIS - MACOMB TOWNSHIP,  PM = OLE N. ANDERSON
T2      100-YEAR FLOOD
T3      NORTH BRANCH - CLINTON RIVER

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
      -1.        4.        0.        0.    0.000000     0.00      0.0       0.     597.367    0.000

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
      3.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
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*PROF 3

CCHV=      .300 CEHV=      .500
1490 NH CARD USED
*SECNO 19401.000

3265 DIVIDED FLOW

     SECNO      DEPTH     CWSEL     CRIWS     WSELK      EG        HV        HL       OLOSS    BANK ELEV
     Q          QLOB      QCH       QROB      ALOB       ACH       AROB      VOL      TWA     LEFT/RIGHT
     TIME       VLOB      VCH       VROB      XNL        XNCH      XNR       WTN      ELMIN      SSTA
     SLOPE      XLOBL     XLCH      XLOBR     ITRIAL     IDC       ICONT     CORAR    TOPWID     ENDST


3470 ENCROACHMENT STATIONS=         .0     1926.6   TYPE=      1   TARGET=     1926.599

          U/S FACE OF HALL ROAD CULVERT                                     SEC. A

   19401.00     16.87    597.37      0.00    597.37    597.62       .25      0.00      0.00    597.40
     9720.        0.     9720.         0.        0.     2422.        0.        0.        0.     599.90
       0.00      0.00      4.01      0.00     0.000      .062     0.000     0.000    580.50   1700.00
    .000126       39.       39.       39.         0         0         0      0.00    214.60   1926.60

*SECNO 23221.000
3280 CROSS SECTION  23221.00 EXTENDED        .74 FEET


          38200 U/S FROM U/S FACE OF HALL ROAD CULVERT, VSE23               SEC. B

   23221.00     20.04    597.94      0.00      0.00    597.99       .05       .32       .06    586.10
    10700.      6240.     4253.      206.     9735.     1500.      504.      339.       46.    589.60
        .57       .64      2.84       .41      .050      .032      .075      .040    577.90     20.45
    .000087     1300.     3420.     3850.         2         0         0      0.00   1909.55   1930.00

*SECNO 26721.000

3470 ENCROACHMENT STATIONS=      100.0     1600.0   TYPE=      1   TARGET=     1500.000

          73200 U/S FROM U/S FACE OF HALL ROAD CULVERT, VSE24               SEC. C

   26721.00     19.26    598.16      0.00      0.00    598.19       .03       .19       .01    597.20
    10700.         0.     3130.     7570.        0.     1458.    11770.      987.      127.    588.30
       1.23      0.00      2.15       .64      .075      .031      .075      .041    578.90    100.00
    .000061     1200.     3500.     2800.         2         0         0      0.00   1500.00   1600.00

*SECNO 29421.000

3470 ENCROACHMENT STATIONS=      115.0      615.0   TYPE=      1   TARGET=      500.000

          100200 U/S FROM U/S FACE OF HALL ROAD CULVERT, VSE25              SEC. D

   29421.00     19.97    598.27      0.00      0.00    598.54       .27       .23       .12    590.90
    10700.       955.     8507.     1238.      842.     1826.      828.     1237.      161.    590.10
       1.37      1.13      4.66      1.49      .065      .032      .050      .041    578.30    115.00
    .000254     2600.     2700.     1200.         2         0         0      0.00    500.00    615.00

*SECNO 31221.000
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 SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
 Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA     LEFT/RIGHT
 TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN        SSTA
 SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID       ENDST


3470 ENCROACHMENT STATIONS=         .0      850.0  TYPE=      1  TARGET=     849.999

          3260I D/S FROM D/S FACE OF 21 MILE ROAD, VSE26                      SEC. E

  31221.00    18.68     598.86      0.00      0.00    598.95       .09       .35       .06100000.00
  10700.         0.      4481.     6219.        0.     1367.     4201.     1427.      179.     592.20
   1.56       0.00      3.28      1.46      .065      .033      .052      .041    580.20     49.92
 .000213     1600.     1300.     1000.         2         0         0      0.00    800.08    850.00

*SECNO 32611.000

3470 ENCROACHMENT STATIONS=      230.0      840.0  TYPE=      1  TARGET=     610.000

          1370I D/S FROM D/S FACE OF 21 MILE ROAD, VSE27                      SEC. F

  32611.00    18.50     599.10      0.00      0.00    599.20       .10       .25       .00    591.90
  10500.     6023.      4577.        0.     4514.     1314.        0.     1595.      199. 100000.00
   1.72       1.33      3.48      0.00      .062      .031      .050      .040    580.60    230.00
 .000168     1400.     1390.     1100.         2         0         0      0.00    610.00    840.00

*SECNO 34411.000
3280 CROSS SECTION  34411.00 EXTENDED       .35 FEET


3470 ENCROACHMENT STATIONS=      400.0     1000.0  TYPE=      1  TARGET=     600.000

          700 D/S FROM D/S FACE OF 21 MILE ROAD CULVERT, VSE28                SEC. G

  34411.00    21.45     599.35      0.00      0.00    599.43       .08       .23       .00    599.70
  10600.        0.      4903.     5697.        0.     1583.     4352.     1792.      219.     587.20
   1.92       0.00      3.10      1.31      .060      .032      .055      .039    577.90    400.66
 .000127     1200.     1800.     1500.         2         0         0      0.00    599.34   1000.00

*SECNO 34481.000
3280 CROSS SECTION  34481.00 EXTENDED      1.17 FEET


3470 ENCROACHMENT STATIONS=      400.0     1000.0  TYPE=      1  TARGET=     600.000
  34481.00    17.97     599.27      0.00      0.00    599.53       .26       .01       .09    596.80
  10600.        0.      9525.     1075.        0.     2208.     1282.     1798.      220.     596.80
   1.93       0.00      4.31       .84      .060      .032      .055      .039    581.30    400.00
 .000254       70.       70.       45.         2         0         0      0.00    600.00   1000.00

*SECNO 34482.000
3280 CROSS SECTION  34482.00 EXTENDED      1.23 FEET


3370 NORMAL BRIDGE,NRD= 19 MIN ELTRD=  596.40 MAX ELLC=  593.40

3470 ENCROACHMENT STATIONS=      400.0     1000.0  TYPE=      1  TARGET=     600.000
          D/S FACE OF 21 MILE ROAD CULVERT, BSE29                             SEC. H
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  34482.00     18.03    599.33      0.00      0.00    599.54       .22       .00       .01    596.80
  10600.          0.     7043.     3557.        0.     1695.     1310.     1798.      220.    596.80
    1.93       0.00      4.15      2.72      .035      .030      .035      .039    581.30    400.00
 .001050         1.        1.        1.         2         0         0   -520.40    600.00   1000.00

*SECNO 34506.000
3280 CROSS SECTION  34506.00 EXTENDED      1.25 FEET

     SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS   BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST

3370 NORMAL BRIDGE,NRD= 19 MIN ELTRD=  596.40 MAX ELLC=  593.40

3470 ENCROACHMENT STATIONS=      400.0    1000.0  TYPE=     1  TARGET=    600.000

          U/S FACE OF 21 MILE ROAD CULVERT, 3SE29                       SEC. H

  34506.00     18.05    599.36      0.00      0.00    599.57       .21       .03       .00    596.80
  10600.          0.     7019.     3581.        0.     1698.     1320.     1799.      220.    596.80
    1.93       0.00      4.13      2.71      .035      .030      .035      .039    581.30    400.00
 .001037        24.       24.       24.         1         0         0   -520.40    600.00   1000.00

*SECNO 34507.000
3280 CROSS SECTION  34507.00 EXTENDED      1.23 FEET

3470 ENCROACHMENT STATIONS=      400.0    1000.0  TYPE=     1  TARGET=    600.000
  34507.00     18.03    599.33      0.00      0.00    599.60       .27       .00       .03    596.80
  10600.          0.     9650.      950.        0.     2216.     1310.     1800.      220.    596.80
    1.93       0.00      4.36       .72      .060      .032      .065      .039    581.30    400.00
 .000258         1.        1.        1.         2         0         0      0.00    600.00   1000.00

*SECNO 36107.000
3280 CROSS SECTION  36107.00 EXTENDED      3.69 FEET

3470 ENCROACHMENT STATIONS=       25.0     600.0  TYPE=     1  TARGET=    575.000

          1600I U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VSE30        SEC. I

  36107.00     19.39    599.89      0.00      0.00    600.03       .14       .39       .04    588.30
  10600.        339.     3506.     6755.      222.      753.     4252.     1941.      238.    589.90
    2.09       1.52      4.66      1.59      .060      .032      .065      .039    580.50     25.00
 .000272      1650.     1600.     1300.         2         0         0      0.00    575.00    600.00

*SECNO 38802.000
3280 CROSS SECTION  38802.00 EXTENDED       .54 FEET

3470 ENCROACHMENT STATIONS=         .0    1140.0  TYPE=     1  TARGET=   1139.999

          4295I U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VSE31        SEC. J

  38802.00     19.64    600.34      0.00      0.00    600.38       .04       .32       .03    588.20
  10600.       1926.     2471.     6203.     2356.      916.     6693.     2292.      277.    589.70
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      2.94        .94       2.70        .93       .062       .033       .065       .039    580.70        .00
   .000090      1125.      2595.      2150.          2          0          0       0.00   1140.00    1140.00

 *SECNO 41282.000

 3470 ENCROACHMENT STATIONS=     1150.0     1635.0  TYPE=      1  TARGET=    -1150.000

             67750 U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VSE32           SEC. K

  41282.00      20.17     600.57       0.00       0.00     600.65        .08        .25        .02     591.50
    10500.      7375.      3125.         0.      5444.       868.         0.      2508.       312.  100000.00
      2.80       1.39       3.60       0.00       .070       .032       .065       .039     530.40    1150.00
   .000223      2000.      2490.      1200.          2          0          0       0.00     676.12    1826.12

 1490 NH CARD USED
 *SECNO 43007.000

 3265 DIVIDED FLOW

 3280 CROSS SECTION   43007.00 EXTENDED         .60 FEET

     SECNO      DEPTH      CWSEL      CRIWS      WSELK         EG         HV         HL      OLOSS  BANK ELEV
         Q       QLOB        QCH       QROB       ALOB        ACH       AROB        VOL        TWA LEFT/RIGHT
      TIME       VLOB        VCH       VROB        XNL       XNCH        XNR        WTN      ELMIN       SSTA
     SLOPE      XLOBL       XLCH      XLOBR     ITRIAL        IDC      ICONT      CORAR     TOPWID      ENDST

 3470 ENCROACHMENT STATIONS=      830.0     2300.0  TYPE=      1  TARGET=     1470.000

             85000 U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VSE33           SEC. L

  43007.00      19.20     600.90       0.00       0.00     601.02        .12        .35        .02     601.30
    10500.      1024.      4073.      5403.      1311.       967.      3773.      2771.       342.     589.40
      2.95        .78       4.21       1.43       .075       .033       .077       .040     581.70     830.00
   .000323       750.      1725.      1500.          2          0          0       0.00    1467.88    2300.00

 *SECNO 46107.000

 3265 DIVIDED FLOW

 3470 ENCROACHMENT STATIONS=     1300.0     3487.0  TYPE=      1  TARGET=    -1300.000

             116000 U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VSE34          SEC. M

  46107.00      16.69     601.29       0.00       0.00     601.31        .02        .25        .03     592.80
    10500.      8473.      2027.         0.     11216.      1146.         0.      3175.       417.  100000.00
      3.60        .76       1.77       0.00       .060       .032       .070       .040     584.60    1300.00
   .000058      1700.      3350.      1300.          2          0          0       0.00    2158.68    3479.09
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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
**************************************************

T1        5850-03-1,  FIS - MACOMB TOWNSHIP,  PM = OLE N. ANDERSON
T2        500-YEAR FLOOD
T3        NORTH BRANCH - CLINTON RIVER

J1   ICHECK     INQ       NINV      IDIR       STRT      METRIC     HVINS      Q          WSEL       FQ
        -1.        5.        0.        0.  0.000000      0.00       0.0       0.     599.788     0.000
J2   NPROF      IPLOT     PRFVS     XSECV      XSECH      FN        ALLDC      IBW       CHNIM      ITRACE
      15.000     0.000    -1.000     0.000      0.000     0.000     0.000     0.000     0.000      0.000
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*PROF 4

CCHV=      .300 CEHV=      .500
1490 NH CARD USED
*SECNO 19401.000

3265 DIVIDED FLOW

     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA     LEFT/RIGHT
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3470 ENCROACHMENT STATIONS=          .0     1926.6  TYPE=      1  TARGET=     1926.539

          U/S FACE OF HALL ROAD CULVERT                                         SEC. A

   19401.00     19.29     599.79      0.00     599.79     600.07       .28      0.00      0.00    597.40
   13100.        317.     12783.        0.       416.      2966.        0.        0.        0.     599.90
       0.00       .76       4.31      0.00       .354       .091     0.000     1.000    580.50    485.33
    .001292       39.        39.       39.         0          0         0      0.00    977.45   1926.60

*SECNO 23221.000
3280 CROSS SECTION  23221.00 EXTENDED        3.41 FEET


          3820I U/S FROM U/S FACE OF HALL ROAD CULVERT, VSE23                   SEC. B

   23221.00     22.71     600.61      0.00       0.00     600.65       .04       .51       .07    586.10
   15300.       9857.      4379.      534.     14139.      1727.     1016.      468.       58.     589.60
        .60       .70       2.83       .53       .080       .032      .075      .041    577.90      0.00
    .000072     1300.      3320.     3850.         3          0         0      0.00   1930.00   1930.00

*SECNO 26721.000
3280 CROSS SECTION  26721.00 EXTENDED         .79 FEET


3470 ENCROACHMENT STATIONS=       100.0     1500.0  TYPE=      1  TARGET=     1500.000

          7320I U/S FROM U/S FACE OF HALL ROAD CULVERT, VSE24                   SEC. C

   26721.00     21.69     600.79      0.00       0.00     600.81       .03       .16       .01    597.20
   15300.          0.      3899.    11401.         0.      1721.    15441.     1330.      139.     568.30
       1.21      0.00       2.27       .74       .075       .031      .075      .042    573.90    100.00
    .000057     1200.      3500.     2800.         2          0         0      0.00   1500.00   1600.00

*SECNO 29421.000
3260 CROSS SECTION  29421.00 EXTENDED         .86 FEET


3470 ENCROACHMENT STATIONS=       115.0      615.0  TYPE=      1  TARGET=      500.000

          10020I U/S FROM U/S FACE OF HALL ROAD CULVERT, VSE25                  SEC. D

   29421.00     22.56     600.86      0.00       0.00     601.17       .31       .21       .14    590.90
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   15300.     1852.     10924.     2545.     1253.     2113.     1424.     1719.      173.    590.10
    1.35      1.46      5.17      1.79      .065      .032      .050      .042    578.30    115.00
 .000258     2600.     2700.     1200.         2         0         0      0.00    500.00    615.00

*SECNO 31221.000
3280 CROSS SECTION  31221.00 EXTENDED      1.46 FEET

   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST

3470 ENCROACHMENT STATIONS=       .0      850.0  TYPE=      1  TARGET=      849.999

        32600 D/S FROM D/S FACE OF 21 MILE ROAD, VSE26                      SEC. E

31221.00     21.26    601.46      0.00      0.00    601.54       .08       .31       .07100000.00
   15300.       0.     5441.     9859.        0.     1685.     5975.     1905.      191.    592.20
    1.53      0.00      3.23      1.65      .065      .033      .052      .042    580.20     39.06
 .000175     1600.     1800.     1000.         2         0         0      0.00    810.94    850.00

*SECNO 32611.000
3280 CROSS SECTION  32611.00 EXTENDED      1.67 FEET

3470 ENCROACHMENT STATIONS=     230.0      840.0  TYPE=      1  TARGET=      610.000

        18700 D/S FROM D/S FACE OF 21 MILE ROAD, VSE27                      SEC. F

32611.00     21.07    601.67      0.00      0.00    601.78       .11       .23       .01    591.90
   15200.     9259.     5941.        0.     5847.     1545.        0.     2126.      212. 100000.00
    1.68      1.58      3.85      0.00      .062      .031      .050      .041    580.60    230.00
 .000171     1400.     1390.     1100.         2         0         0      0.00    610.00    840.00

*SECNO 34411.000
3280 CROSS SECTION  34411.00 EXTENDED      2.92 FEET

3470 ENCROACHMENT STATIONS=     400.0     1000.0  TYPE=      1  TARGET=      600.000

        700 D/S FROM D/S FACE OF 21 MILE ROAD CULVERT, VSE28                SEC. G

34411.00     24.02    601.92      0.00      0.00    602.01       .10       .23       .00    599.70
   15200.       0.     6360.     8840.        0.     1850.     5629.     2373.      232.    587.20
    1.86      0.00      3.44      1.57      .060      .032      .055      .041    577.90    400.00
 .000132     1200.     1800.     1500.         1         0         0      0.00    600.00   1000.00

*SECNO 34481.000
3280 CROSS SECTION  34481.00 EXTENDED      3.74 FEET

3470 ENCROACHMENT STATIONS=     400.0     1000.0  TYPE=      1  TARGET=      600.000
34481.00     20.54    601.84      0.00      0.00    602.11       .28       .01       .09    596.80
   15200.       0.    11947.     3253.        0.     2539.     2492.     2381.      232.    596.80
    1.86      0.00      4.70      1.31      .060      .032      .055      .041    581.30    400.00
 .000256       70.       70.       45.         2         0         0      0.00    600.00   1000.00
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*SECNO 34482.000
3280 CROSS SECTION  34482.00 EXTENDED       3.87 FEET


3370 NORMAL BRIDGE,NRD= 19 MIN ELTRD=  596.40 MAX ELLC=  593.40

3470 ENCROACHMENT STATIONS=      400.0     1000.0  TYPE=      1  TARGET=      600.000

         D/S FACE OF 21 MILE ROAD CULVERT, BSE29                           SEC. H

  34482.00     20.67    601.97      0.00      0.00    602.15       .17       .00       .03    596.80
   15200.         0.     7123.     8077.        0.     2036.     2555.     2331.      232.     596.60
     1.86      0.00      3.50      3.16      .035      .030      .035      .041    581.30    400.00
  .000587        1.        1.        1.         2         0         0   -520.40    600.00   1000.00

*SECNO 34506.000
3280 CROSS SECTION  34506.00 EXTENDED       3.88 FEET

    SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS   BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST

3370 NORMAL BRIDGE,NRD= 19 MIN ELTRD=  596.40 MAX ELLC=  593.40

3470 ENCROACHMENT STATIONS=      400.0     1000.0  TYPE=      1  TARGET=      600.000

         U/S FACE OF 21 MILE ROAD CULVERT, BSE29                           SEC. H

  34506.00     20.69    601.99      0.00      0.00    602.16       .17       .01       .00    596.80
   15200.         0.     7116.     8354.        0.     2038.     2561.     2384.      233.     596.80
     1.87      0.00      3.49      3.16      .035      .030      .035      .040    581.30    400.00
  .000585       24.       24.       24.         3         2         0   -520.40    600.00   1000.00

*SECNO 34507.000
3280 CROSS SECTION  34507.00 EXTENDED       3.83 FEET


3470 ENCROACHMENT STATIONS=      400.0     1000.0  TYPE=      1  TARGET=      600.000
  34507.00     20.63    601.93      0.00      0.00    602.22       .30       .00       .06    596.80
   15200.         0.    12306.     2894.        0.     2551.     2534.     2334.      233.     596.80
     1.87      0.00      4.32      1.14      .060      .032      .065      .040    581.30    400.00
  .000263        1.        1.        1.         2         0         0      0.00    600.00   1000.00

*SECNO 36107.000
3280 CROSS SECTION  36107.00 EXTENDED       6.30 FEET


3470 ENCROACHMENT STATIONS=       25.0      600.0  TYPE=      1  TARGET=      575.000

         1600C U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VSE30            SEC. I

  36107.00     22.00    602.50      0.00      0.00    602.66       .15       .39       .04    588.30
   15200.       464.     4402.    10334.      280.      871.     5578.     2573.      251.     589.90
     2.01      1.66      5.06      1.85      .060      .032      .065      .040    580.50     25.00
  .000264     1650.     1600.     1300.         2         0         0      0.00    575.00    600.00
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*SECNO 38802.000
3280 CROSS SECTION  38802.00 EXTENDED        3.15 FEET


3470 ENCROACHMENT STATIONS=          .0     1140.0   TYPE=      1  TARGET=     1139.999

            42950 U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VSE31               SEC. J

  38802.00      22.25     602.95       0.00       0.00     602.99        .04        .30        .03     588.20
    15200.      2965.      3018.      9217.      2317.      1057.      8762.      3027.       290.     589.70
      2.44       1.05       2.36       1.05       .062       .033       .065       .040     580.70        .00
   .000083      1125.      2695.      2150.          2          0          0       0.00    1140.00    1140.00

*SECNO 41282.000

3470 ENCROACHMENT STATIONS=      1150.0     1835.0   TYPE=      1  TARGET=    -1150.000

            67750 U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VSE32               SEC. K

  41282.00      22.75     603.16       0.00       0.00     603.25        .09        .24        .02     591.50
    15000.     11023.      3977.         0.      7023.      1041.         0.      3433.       325.  100000.00
      2.68       1.57       3.82       0.00       .070       .032       .065       .040     580.40    1150.00
   .000214      2000.      2480.      1200.          2          0          0       0.00  , 580.06    1830.06

1490 NH CARD USED
*SECNO 43007.000
3280 CROSS SECTION  43007.00 EXTENDED        3.14 FEET

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA     LEFT/RIGHT
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN       SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3470 ENCROACHMENT STATIONS=       830.0     2300.0   TYPE=      1  TARGET=     1470.000

            85000 U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VSE33               SEC. L

  43007.00      21.74     603.44       0.00       0.00     603.56        .11        .30        .01     601.30
    15000.      2492.      4939.      7569.      2443.      1155.      4920.      3648.       355.     589.40
      2.83       1.02       4.23       1.54       .075       .033       .078       .041     581.70     830.00
   .000266       750.      1725.      1600.          2          0          0       0.00    1470.00    2300.00

*SECNO 46107.000

3470 ENCROACHMENT STATIONS=      1300.0     3487.0   TYPE=      1  TARGET=    -1300.000

            116000 U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VSE34              SEC. M

  46107.00      19.17     603.77       0.00       0.00     603.79        .02        .20        .03     592.80
    15000.     12576.      2424.         0.     16382.      1396.         0.      4215.       431.  100000.00
      3.47        .77       1.74       0.00       .060       .032       .070       .042     584.60    1300.00
   .000047      1700.      3350.      1800.          2          0          0       0.00    2186.61    3486.61
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**************************************************
 HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

NORTH BRANCH - CLINTON R

SUMMARY PRINTOUT

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	HV	HL	OLOSS	QCH	DEPTH	TOPWID
19401.000	30.00	0.00	0.00	580.50	5440.00	593.61	.17	0.00	0.00	5440.00	13.11	201.95
19401.000	30.00	0.00	0.00	580.50	8410.00	596.37	.23	0.00	0.00	8410.00	15.87	214.60
19401.000	30.00	0.00	0.00	580.50	9720.00	597.37	.25	0.00	0.00	9720.00	16.87	214.60
19401.000	30.00	0.00	0.00	580.50	13100.00	599.73	.28	0.00	0.00	12782.69	19.23	977.45
23221.000	3820.00	0.00	0.00	577.90	5440.00	594.12	.07	.38	.03	3246.14	16.22	1466.42
23221.000	3820.00	0.00	0.00	577.90	8970.00	596.91	.06	.33	.05	3940.27	19.01	1794.76
23221.000	3820.00	0.00	0.00	577.90	10700.00	597.94	.05	.32	.06	4253.47	20.04	1909.55
23221.000	3820.00	0.00	0.00	577.90	15300.00	600.61	.04	.51	.07	4878.83	22.71	1930.00
26721.000	3500.00	0.00	0.00	578.90	5440.00	594.44	.03	.26	.01	2240.95	15.54	1494.95
26721.000	3500.00	0.00	0.00	578.90	8970.00	597.15	.02	.20	.01	2813.63	18.25	1499.90
26721.000	3500.00	0.00	0.00	578.90	10700.00	598.16	.03	.19	.01	3130.32	19.26	1500.00
26721.000	3500.00	0.00	0.00	578.90	15300.00	600.79	.03	.16	.01	3898.52	21.89	1500.00
29421.000	2700.00	0.00	0.00	578.30	5440.00	594.62	.17	.26	.07	4942.53	16.32	331.33
29421.000	2700.00	0.00	0.00	578.30	8970.00	597.27	.25	.23	.11	7435.17	18.97	438.53
29421.000	2700.00	0.00	0.00	578.30	10700.00	598.27	.27	.23	.12	8516.91	19.97	500.00
29421.000	2700.00	0.00	0.00	578.30	15300.00	600.86	.31	.21	.14	10924.42	22.56	500.00
31221.000	1800.00	0.00	0.00	580.20	5440.00	595.09	.12	.40	.01	3338.81	14.89	659.96
31221.000	1800.00	0.00	0.00	580.20	8970.00	597.83	.09	.36	.05	4096.27	17.63	795.76
31221.000	1800.00	0.00	0.00	580.20	10700.00	598.86	.09	.35	.06	4480.67	18.66	800.08
31221.000	1800.00	0.00	0.00	580.20	15300.00	601.46	.08	.31	.07	5443.93	21.26	810.94
32611.000	1390.00	0.00	0.00	580.60	5390.00	595.45	.08	.30	.01	2915.48	14.85	606.42
32611.000	1390.00	0.00	0.00	580.60	8390.00	598.03	.09	.25	.00	4033.14	17.43	609.85
32611.000	1390.00	0.00	0.00	580.60	10600.00	599.10	.10	.25	.00	4576.80	18.50	610.00
32611.000	1390.00	0.00	0.00	580.60	15200.00	601.67	.11	.23	.01	5940.97	21.07	610.00
34411.000	1800.00	0.00	0.00	577.90	5390.00	595.68	.07	.22	.00	3133.55	17.78	592.49
34411.000	1800.00	0.00	0.00	577.90	8890.00	598.32	.08	.22	.00	4336.68	20.42	597.42
34411.000	1800.00	0.00	0.00	577.90	10600.00	599.35	.08	.23	.00	4902.57	21.45	599.34
34411.000	1800.00	0.00	0.00	577.90	15200.00	601.92	.10	.23	.00	6360.43	24.02	600.00
34481.000	70.00	0.00	0.00	581.30	5390.00	595.65	.15	.01	.04	5390.00	14.35	129.00
34481.000	70.00	0.00	0.00	581.30	8890.00	598.25	.24	.01	.08	8409.58	16.95	600.00
34481.000	70.00	0.00	0.00	581.30	10600.00	599.27	.26	.01	.09	9524.99	17.97	600.00
34481.000	70.00	0.00	0.00	581.30	15200.00	601.84	.28	.01	.09	11947.01	20.54	600.00

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	HV	HL	OLOSS	QCH	DEPTH	TOPWID
34482.000	1.00	596.40	593.40	581.30	5390.00	595.60	.24	.00	.05	5390.00	14.30	129.00
34482.000	1.00	596.40	593.40	581.30	8890.00	598.23	.27	.00	.02	7077.11	16.93	600.00
34482.000	1.00	596.40	593.40	581.30	10600.00	599.33	.22	.00	.01	7042.53	18.03	600.00
34482.000	1.00	596.40	593.40	581.30	15200.00	601.97	.17	.00	.03	7123.39	20.67	600.00
34506.000	24.00	596.40	593.40	581.30	5390.00	595.62	.24	.02	.00	5390.00	14.32	129.00
34506.000	24.00	596.40	593.40	581.30	8890.00	598.27	.27	.03	.00	7052.86	16.97	600.00
34506.000	24.00	596.40	593.40	581.30	10600.00	599.35	.21	.03	.00	7018.85	18.06	600.00
34506.000	24.00	596.40	593.40	581.30	15200.00	601.99	.17	.01	.00	7115.78	20.69	600.00
34507.000	1.00	0.00	0.00	581.30	5390.00	595.74	.15	.00	.03	5390.00	14.44	129.00
34507.000	1.00	0.00	0.00	581.30	8890.00	598.30	.24	.00	.01	8460.87	17.00	600.00
34507.000	1.00	0.00	0.00	581.30	10600.00	599.33	.27	.00	.03	9650.26	18.03	600.00
34507.000	1.00	0.00	0.00	581.30	15200.00	601.93	.30	.00	.06	12306.31	20.63	600.00
36107.000	1600.00	0.00	0.00	580.50	5390.00	596.10	.13	.34	.00	2423.09	15.60	575.00
36107.000	1600.00	0.00	0.00	580.50	8890.00	598.84	.13	.38	.03	3149.76	18.34	575.00
36107.000	1600.00	0.00	0.00	580.50	10600.00	599.89	.14	.39	.04	3505.80	19.39	575.00
36107.000	1600.00	0.00	0.00	580.50	15200.00	602.50	.15	.39	.04	4401.93	22.00	575.00
38802.000	2695.00	0.00	0.00	580.70	5390.00	596.61	.04	.38	.03	1784.14	15.91	1021.03
38802.000	2695.00	0.00	0.00	580.70	8890.00	599.29	.04	.33	.03	2248.97	18.59	1102.86
38802.000	2695.00	0.00	0.00	580.70	10600.00	600.34	.04	.32	.03	2470.59	19.64	1140.00
38802.000	2695.00	0.00	0.00	580.70	15200.00	602.95	.04	.30	.03	3018.25	22.25	1140.00
41282.000	2480.00	0.00	0.00	580.40	5290.00	596.89	.08	.30	.02	2095.42	16.49	670.51
41282.000	2480.00	0.00	0.00	580.40	8760.00	599.52	.08	.26	.02	2775.77	19.12	674.52
41282.000	2480.00	0.00	0.00	580.40	10500.00	600.57	.08	.25	.02	3124.55	20.17	676.12
41282.000	2480.00	0.00	0.00	580.40	15000.00	603.16	.09	.24	.02	3977.32	22.76	680.06
43007.000	1725.00	0.00	0.00	581.70	5290.00	597.29	.14	.43	.03	2849.29	15.59	621.88
43007.000	1725.00	0.00	0.00	581.70	8760.00	599.86	.13	.36	.03	3717.72	18.16	1107.09
43007.000	1725.00	0.00	0.00	581.70	10500.00	600.90	.12	.35	.02	4072.72	19.20	1467.88
43007.000	1725.00	0.00	0.00	581.70	15000.00	603.44	.11	.30	.01	4939.82	21.74	1470.00
46107.000	3350.00	0.00	0.00	584.60	5290.00	597.78	.02	.32	.04	1369.75	13.18	1241.29
46107.000	3350.00	0.00	0.00	584.60	8760.00	600.28	.02	.27	.03	1828.95	15.68	1967.35
46107.000	3350.00	0.00	0.00	584.60	10500.00	601.29	.02	.25	.03	2026.71	16.69	2158.68
46107.000	3350.00	0.00	0.00	584.60	15000.00	603.77	.02	.20	.03	2424.48	19.17	2186.61

SUMMARY OF ERRORS

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Macomb Twp

3) WATERCOURSE: North Branch Clinton River

4) DOCUMENT TYPE: Hydraulic Analysis

00BREAK00

HYDRAULIC ANALYSIS

Introduction

The stream being analyzed is the North Branch of the Clinton River in the Township of Macomb, Macomb County, Michigan. The study starts from Hall Road, the southern corporate boundary of the Township, to 22 Mile Road (extended). The total reach length is about 5.1 miles. The 10-, 50-, 100- and 500-year flood frequency flows were determined by a gaging analysis method using the records at gaging stations near Meade and Mt. Clemens. These flows have been approved by the Michigan Department of Natural Resources (MDNR), Water Management Division. The project manager of this study is Ole Anderson.

Method of Analysis

The flood profiles were calculated by the HEC-2 computer program developed by the U.S. Corps of Engineers (Reference 1). All bridges have been modeled by the requirements of the HEC-2 normal bridge routine.

Variables and Coefficients

The roughness factors (Manning's "n") were determined by comparing the descriptions in Ven Te Chow's Open-Channel Hydraulics (Reference 2) with photographs and field descriptions of the sections taken in the Township by survey crews in January 1978. To reflect the changes in cross-section geometry, the contraction and expansion coefficients used in this study were 0.3 and 0.5, respectively; "n" values are indicative of summer conditions.

Starting Conditions

The starting water-surface elevations for the North Branch of the Clinton River at the Township of Macomb were obtained from the Township of Clinton Flood Insurance Study done by Johnson & Anderson, Inc.

The stationing of this study is in feet from the mouth of the North Branch of the Clinton River.

Discussions

1. In general, the study area is very flat such that a significant reduction in the floodway can be expected without raising water-surface elevations by more than 0.1 ft.

2. There are several small footbridges inside the golf course at the study area. Due to the high submergence, these footbridges were not taken into consideration.

3. Ten year flood at 21 Mile Road appears to be pressure flow. A hand calculation has been checked. It was found that the headwater elevation obtained from hand-calculation was almost the same as that obtained from HEC-2 (only 0.02' difference).

References

1. U.S. Army Corps of Engineers, Hydrologic Engineering Center, HEC-2 Water Surface Profiles Users Manual, October 1973.

2. Chow, Ven Te, Open-Channel Hydraulics, McGraw-Hill, 1959, pp. 101-123.

Township of Macomb
North Branch Clinton River
5850-03-1
MSC 6-28-78

Original Cross Section Location

Cross Section	J & A Section No.	SECNO	Location
A		19401	u/s face of Hall Road Culvert
B	23	23221	±3820' u/s from u/s face of Hall Road Culvert
C	24	26721	±7320' u/s from u/s face of Hall Road Culvert
D	25	29421	±10020' u/s from u/s face of Hall Road Culvert
E	26	31221	±3260' d/s from d/s face of 21 Mile Road Culvert
F	27	32611	±1870' d/s from d/s face of 21 Mile Road Culvert
G	28	34411	±70' d/s from d/s face of 21 Mile Road Culvert
H	29	34506	u/s face of 21 Mile Road Culvert
I	30	36107	±1600' u/s from u/s face of 21 Mile Road Culvert
J	31	38802	±4295' u/s from u/s face of 21 Mile Road Culvert
K	32	41282	±6775' u/s from u/s face of 21 Mile Road Culvert
L	33	43007	±8500' u/s from u/s face of 21 Mile Road Culvert
M	34	46107	±11600' u/s from u/s Face of 21 MIle Road Culvert

1

Johnson & Anderson, Inc.
Consulting Engineers
P.O. Box 1166 2300 Dixie Highway Pontiac, Michigan 48056

HYDRAULIC STRUCTURAL DATA

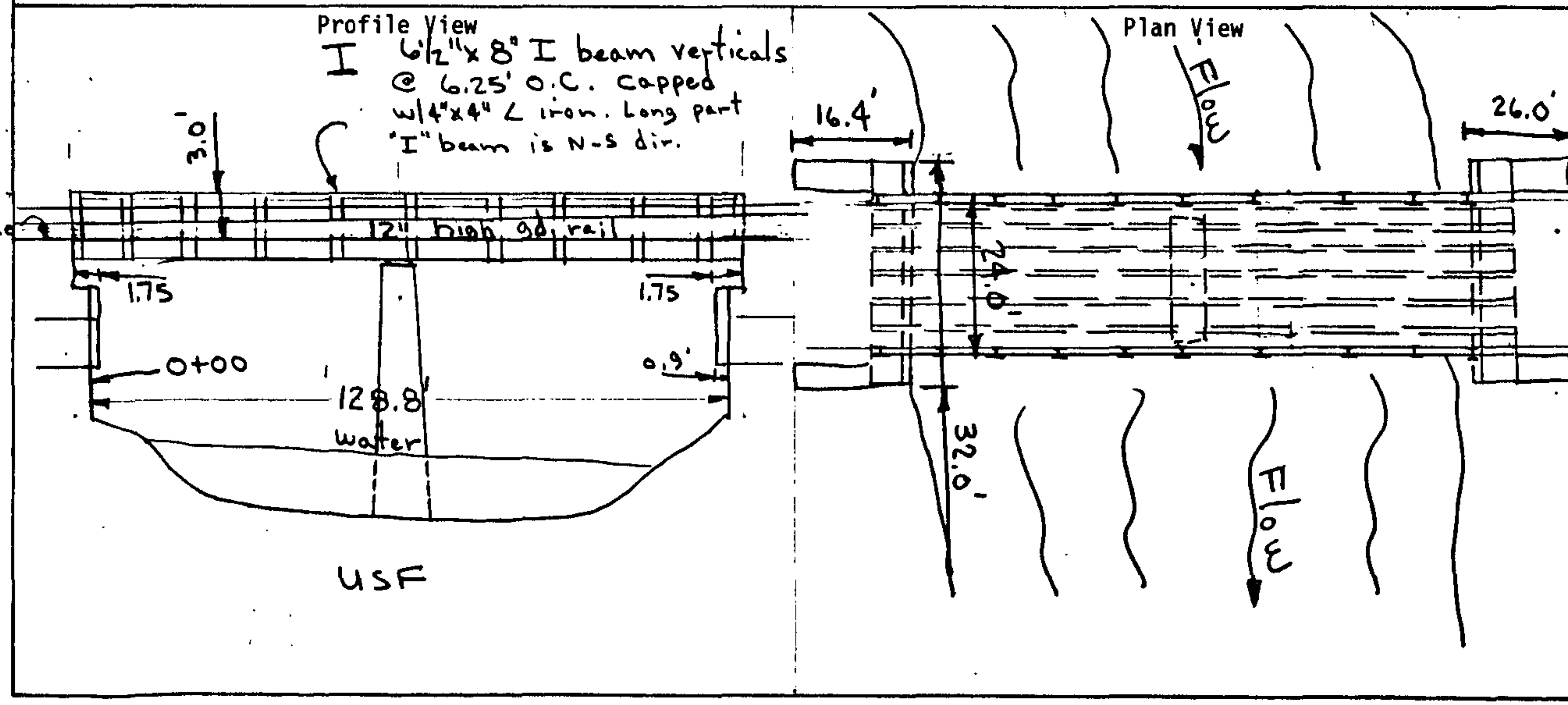
Code No. 5850-03- BS*29

Job Name: Macomb Twp FIS		By: Mapley Janette Lehmoine
Date: 12-16-77	Feature: 21 mile Rd. bridge	Water Course: North Branch Clinton River

Remarks: Pier shape is rectangular as shown; conc. is badly spalled & Corners are rounded & irregular

Width of Piers: Top 3.0 4' wd at water elev	Pier Shape:	No. of Piers: 1	Area:
Water Elevation:	Length: 128.8'	Width of Deck: 24.0'	Skew: —

FIELD SKETCH



00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Macomb Twp

3) WATERCOURSE: North Branch Clinton River

4) DOCUMENT TYPE: Natural Encroachment

00BREAK00

5850 - 03 - 1 - 13

Macomb Township

N. B. Clinton River

(Natural Encroachment)

IMSJ306

IMSJ306 LQ42
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IMSJ306 LQ42
IMSJ306 LQ42

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*************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -   01,02
  MODIFICATION -  50,51,52,53
*************************************************

C
T1        5853-03-1,  FIS - MACOMB TOWNSHIP,  PM = OLE N. ANDERSON
T2        10-YEAR FLOOD
T3        NORTH BRANCH - CLINTON RIVER

J1   ICHECK     INQ       NINV      IDIR       STRT      METRIC     HVINS      Q          WSEL       FQ

       -1.        2.        0.        0.   0.000000      0.00       0.0        0.     593.614     0.000

J2   NPROF     IPLOT      PRFVS     XSECV      XSECH      FN        ALLDC      IBW        CHNIM      ITRACE

      1.000     0.000    -1.000     0.000      0.000     0.000      0.000      0.000      0.000      0.000

J3   VARIABLE CODES FOR SUMMARY PRINTOUT

     38.000    39.000    40.000    41.000     42.000    43.000      1.000     10.000     11.000     12.000

     14.000     8.000     4.000     0.000      0.000     0.000      0.000      0.000      0.000      1.000

NC       .080      .075       .032      .300       .500      0.000      0.000      0.000      0.000      0.000
QT      4.000  5440.000   8410.000  9720.000  13100.000      0.000      0.000      0.000      0.000      0.000
NH      5.000      .050   1647.000      .094   1708.000       .050   1897.000       .090   1926.600       .060
NH   3600.000     0.000      0.000     0.000      0.000      0.000      0.000      0.000      0.000      0.000

         U/S FACE OF HALL ROAD CULVERT                                SEC. A

X1  19401.000    64.000   1700.000  1926.600     39.000     39.000     39.000      0.000      0.000      0.000
X3      0.000     0.000      0.000     0.000      0.000   1926.600    599.900      0.000      0.000      0.000
GR    603.800     0.000    602.900   100.000    601.900    200.000    601.100    300.000    600.300    400.000
GR    599.700   500.000    599.200   600.000    599.000    700.000    599.000    800.000    599.000    900.000
GR    599.600  1100.000    600.200  1400.000    600.400   1600.000    600.400   1647.000    597.400   1700.000
GR    594.000  1700.000    593.000  1708.000    586.300   1726.000    582.300   1736.100    583.500   1736.100
GR    583.500  1736.600    597.700  1736.600    597.700   1739.600    583.500   1739.600    583.500   1740.100
GR    581.500  1740.100    580.800  1750.000    580.500   1770.000    581.000   1780.000    581.400   1786.100
GR    583.500  1786.100    583.500  1786.600    597.800   1786.600    597.800   1789.600    583.500   1789.600
GR    585.600  1800.000    586.600  1820.000    586.700   1836.600    597.800   1836.600    597.800   1839.600
GR    585.900  1839.600    586.200  1860.000    586.100   1875.000    585.900   1886.600    597.700   1886.600
GR    597.700  1889.600    584.500  1889.600    585.600   1897.000    594.400   1919.000    595.300   1926.600
GR    587.400  1926.600    587.400  1926.600    587.400   1926.600    587.600   1973.000    589.000   2173.000
GR    592.600  2373.000    600.200  2530.000    600.200   2800.000    600.400   2900.000    600.500   3000.000
GR    600.200  3300.000    600.000  3400.000    600.100   3500.000    601.100   3600.000      0.000      0.000
QT      4.000  5440.000   8970.000 10700.000  15300.000      0.000      0.000      0.000      0.000      0.000
NC       .080      .075       .032     0.000      0.000      0.000      0.000      0.000      0.000      0.000

         3820I U/S FROM U/S FACE OF HALL ROAD CULVERT, VS=23          SEC. B

X1  23221.000    25.000   1653.000  1738.000   1300.000   3850.000   3820.000      0.000      0.000      0.000
GR    598.200     0.000    598.000    15.000    596.000    200.000    594.000    310.000    592.300    575.000
GR    593.600   800.000    591.600   900.000    591.600   1000.000    591.300   1100.000    591.300   1200.000
GR    587.600  1300.000    587.600  1400.000    587.600   1500.000    590.300   1600.000    586.100   1653.000
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GR   579.900  1670.000   578.900  1680.000   578.000  1690.000   577.900  1700.000   578.200  1710.000
GR   578.800  1720.000   580.200  1727.000   589.600  1738.000   594.900  1775.000   597.200  1930.000
NC      .075      .075      .031     0.000     0.000     0.000     0.000     0.000     0.000     0.000

          7320I U/S FROM U/S FACE OF HALL ROAD CULVERT, VS=24          SEC. C

X1 26721.000    28.000   100.000   200.000  1200.000  2800.000  3500.000     0.000     0.000     0.000
X3     0.000     0.000     0.000    10.000     0.000  2700.000     0.000     0.000     0.000     0.000
GR   596.500     0.000   597.200   100.000   579.700   132.000   578.900   142.000   578.900   152.000
GR   579.500   162.000   580.300   172.000   588.300   200.000   590.100   300.000   589.500   400.000
GR   590.800   500.000   590.800   600.000   590.100   700.000   588.300   800.000   588.000   900.000
GR   588.700  1000.000   590.600  1100.000   589.700  1300.000   590.300  1400.000   589.900  1500.000
GR   591.000  1600.000   596.000  1700.000   596.000  1800.000   597.500  2125.000   598.000  2500.000
GR   596.700  2650.000   598.000  2950.000   600.000  3220.000     0.000     0.000     0.000     0.000
NC      .065      .050      .032     0.000     0.000     0.000     0.000     0.000     0.000     0.000

          10020I U/S FROM U/S FACE OF HALL ROAD CULVERT, VS=25          SEC. D

X1 29421.000    25.000   274.000   385.000  2600.000  1200.000  2700.000     0.000     0.000     0.000
X3     0.000     0.000     0.000     0.000     0.000  1600.000     0.000     0.000     0.000     0.000
GR   600.000     0.000   598.000    30.000   596.000    70.000   595.500   120.000   591.900   220.000
GR   590.900   274.000   580.600   293.000   579.500   305.000   578.700   315.000   578.600   325.000
GR   578.300   335.000   580.500   345.000   580.700   355.000   581.100   363.000   590.100   385.000
GR   589.200   420.000   597.000   500.000   598.000   700.000   598.300   890.000   598.300  1165.000
GR   598.000  1300.000   597.800  1440.000   597.000  1650.000   598.000  1800.000   600.000  2050.000
NC      .065      .052      .033     0.000     0.000     0.000     0.000     0.000     0.000     0.000

          3260I D/S FROM D/S FACE OF 21 MILE ROAD, VS=26          SEC. E

X1 31221.000    21.000     0.000   167.000  1600.000  1000.000  1800.000     0.000     0.000     0.000
X3     0.000     0.000     0.000     0.000     0.000  1450.000     0.000     0.000     0.000     0.000
GR   610.800     0.000   587.600    97.000   583.000   103.000   581.500   110.000   580.500   120.000
GR   580.200   130.000   580.900   140.000   583.200   150.000   592.200   167.000   593.600   200.000
GR   591.600   300.000   590.300   400.000   591.500   500.000   591.000   600.000   594.500   700.000
GR   596.800   800.000   598.000  1095.000   598.400  1200.000   598.600  1450.000   598.000  1780.000
GR   600.000  1950.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
NC      .062      .050      .031     0.000     0.000     0.000     0.000     0.000     0.000     0.000
QT     4.000  5390.000  8890.000 10600.000 15200.000     0.000     0.000     0.000     0.000     0.000

          1870I D/S FROM D/S FACE OF 21 MILE ROAD, VS=27          SEC. F

X1 32611.000    16.000   750.000   840.000  1400.000  1100.000  1390.000     0.000     0.000     0.000
X3     0.000     0.000     0.000   100.000     0.000     0.000     0.000     0.000     0.000     0.000
GR   599.300     0.000   598.400   150.000   592.500   250.000   587.300   350.000   588.300   440.000
GR   591.000   550.000   592.600   650.000   591.900   750.000   582.000   770.000   581.400   780.000
GR   581.200   790.000   580.700   800.000   580.600   810.000   581.200   818.000   598.200   840.000
GR   600.000   960.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
NC      .060      .055      .032     0.000     0.000     0.000     0.000     0.000     0.000     0.000

          70I D/S FROM D/S FACE OF 21 MILE ROAD CULVERT, VS=28          SEC. G

X1 34411.000    26.000   400.000   504.000  1200.000  1500.000  1800.000     0.000     0.000     0.000
X3     0.000     0.000     0.000   180.000     0.000  1110.000     0.000     0.000     0.000     0.000
GR   599.800     0.000   598.500   120.000   599.700   300.000   598.000   350.000   596.000   375.000
GR   599.700   400.000   589.000   420.000   587.700   430.000   582.200   437.000   580.700   439.000
GR   577.900   451.000   578.100   463.000   578.300   474.000   581.100   484.000   582.500   490.000
GR   583.900   495.000   587.200   504.000   590.600   600.000   590.100   700.000   590.000   800.000
GR   591.000   900.000   595.000  1000.000   594.000  1010.000   596.000  1040.000   598.000  1115.000
GR   599.000  1200.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1 34481.000    28.000   400.000   529.000    70.000    45.000    70.000     0.000     0.000     0.000
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GR	600.700	0.000	600.200	100.000	599.800	200.000	598.600	300.000	596.800	400.000
GR	585.200	400.000	581.500	410.000	581.300	420.000	581.700	430.000	582.200	440.000
GR	582.800	450.000	582.600	460.000	583.200	462.000	583.200	466.000	582.500	470.000
GR	581.800	480.000	581.400	490.000	581.400	500.000	581.600	510.000	582.100	520.000
GR	584.300	529.000	596.800	529.000	596.400	600.000	596.400	700.000	596.400	800.000
GR	596.700	900.000	596.900	1000.000	598.100	1260.000	0.000	0.000	0.000	0.000
NC	.035	.035	.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D/S FACE OF 21 MILE ROAD CULVERT, BS=29 SEC. H

X1	34482.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	240.000	0.000	1170.000	0.000	0.000	0.000	0.000
BT	19.000	0.000	600.700	0.000	100.000	600.200	0.000	200.000	599.800	0.000
BT	300.000	598.600	0.000	400.000	596.800	0.000	400.000	596.800	585.200	400.000
BT	596.800	593.400	462.000	596.800	593.400	462.000	596.800	583.200	466.000	596.800
BT	583.200	466.000	596.800	593.400	529.000	596.800	593.400	529.000	596.800	584.300
BT	529.000	596.800	0.000	600.000	596.400	0.000	700.000	596.400	0.000	800.000
BT	596.400	0.000	900.000	596.700	0.000	1000.000	596.900	0.000	0.000	0.000

U/S FACE OF 21 MILE ROAD CULVERT, BS=29 SEC. H

X1	34506.000	0.000	0.000	0.000	24.000	24.000	24.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	240.000	0.000	1170.000	0.000	0.000	0.000	0.000
NC	.060	.065	.032	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	34507.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	240.000	0.000	1170.000	0.000	0.000	0.000	0.000

1600' U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VS=30 SEC. I

X1	36107.000	19.000	47.000	92.000	1650.000	1300.000	1600.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	640.000	0.000	0.000	0.000	0.000
GR	600.200	0.000	599.000	10.000	591.300	25.000	588.300	47.000	582.600	51.000
GR	581.800	55.000	581.300	60.000	580.500	65.000	581.000	70.000	581.800	75.000
GR	582.900	80.000	589.900	92.000	589.100	110.000	590.200	210.000	589.500	310.000
GR	593.000	410.000	593.700	510.000	594.700	610.000	596.200	710.000	0.000	0.000
NC	.062	.065	.033	0.000	0.000	0.000	0.000	0.000	0.000	0.000

4295' U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VS=31 SEC. J

X1	38802.000	23.000	292.000	346.000	1125.000	2150.000	2695.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	1140.000	0.000	0.000	0.000	0.000
GR	600.300	0.000	599.300	37.000	592.300	106.000	590.300	272.000	588.200	292.000
GR	582.400	302.000	581.000	307.000	580.700	313.000	581.600	320.000	582.300	325.000
GR	582.300	330.000	583.400	335.000	589.700	346.000	589.800	432.000	590.700	542.000
GR	591.700	632.000	591.200	732.000	591.100	822.000	591.200	912.000	595.000	1042.000
GR	596.200	1062.000	598.000	1162.000	599.800	1500.000	0.000	0.000	0.000	0.000
NC	.070	.065	.032	0.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	4.000	5290.000	8760.000	10500.000	15000.000	0.000	0.000	0.000	0.000	0.000

6775' U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VS=32 SEC. K

X1	41282.000	24.000	1761.000	1835.000	2000.000	1200.000	2480.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	140.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	601.300	0.000	600.000	200.000	599.900	300.000	600.000	400.000	601.000	580.000
GR	601.200	715.000	600.300	800.000	599.700	900.000	600.200	1000.000	596.400	1100.000
GR	594.500	1144.000	590.700	1174.000	592.100	1200.000	591.500	1300.000	592.000	1400.000
GR	591.400	1500.000	592.300	1600.000	590.700	1700.000	591.500	1761.000	584.500	1775.000
GR	581.200	1785.000	580.400	1795.000	585.400	1803.000	606.400	1835.000	0.000	0.000
NH	4.000	.075	1275.000	.033	1349.000	.060	1475.000	.090	1800.000	0.000

8500I U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VS=33 SEC. L

X1	43007.000	33.000	1275.000	1349.000	750.000	1600.000	1725.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	90.000	0.000	2300.000	0.000	0.000	0.000	0.000
GR	601.200	0.000	600.000	145.000	599.000	325.000	600.000	490.000	600.800	570.000
GR	600.000	635.000	599.600	830.000	598.000	890.000	597.500	935.000	598.000	1000.000
GR	596.000	1060.000	595.800	1070.000	596.000	1100.000	598.000	1140.000	600.000	1270.000
GR	601.300	1275.000	590.200	1291.000	590.500	1304.000	585.200	1308.000	581.800	1318.000
GR	581.700	1328.000	584.700	1338.000	589.400	1349.000	591.300	1375.000	592.700	1475.000
GR	592.800	1575.000	592.300	1675.000	593.100	1775.000	597.600	1800.000	598.000	1930.000
GR	600.000	1955.000	600.200	2050.000	600.300	2350.000	0.000	0.000	0.000	0.000
NC	.060	.070	.032	0.000	0.000	0.000	0.000	0.000	0.000	0.000

11600I U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VS=34 SEC. M

X1	46107.000	39.000	3382.000	3487.000	1700.000	1800.000	3350.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	375.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	600.000	0.000	599.800	140.000	600.000	280.000	602.500	340.000	600.000	400.000
GR	600.700	500.000	600.000	575.000	599.000	660.000	600.000	735.000	600.200	825.000
GR	600.000	960.000	599.800	1265.000	600.000	1425.000	600.200	1700.000	600.000	1840.000
GR	600.300	1915.000	601.400	2015.000	600.000	2175.000	598.600	2210.000	593.900	2310.000
GR	591.900	2410.000	591.800	2510.000	591.400	2610.000	591.600	2710.000	591.800	2810.000
GR	591.600	2910.000	592.100	3010.000	592.200	3110.000	591.900	3200.000	595.600	3310.000
GR	593.500	3330.000	592.800	3382.000	585.600	3392.000	584.900	3407.000	584.600	3422.000
GR	585.900	3432.000	588.900	3443.000	600.600	3477.000	603.900	3487.000	0.000	0.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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*PROF 1

CCHV=     .300 CEHV=      .500
1490 NH CARD USED
*SECNO 19401.000

3265 DIVIDED FLOW

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST


3470 ENCROACHMENT STATIONS=          .0     1926.6  TYPE=      1  TARGET=     1926.599

          U/S FACE OF HALL ROAD CULVERT                                      SEC. A

 19401.00     13.11    593.61      0.00    593.61    593.79       .17      0.00      0.00    597.40
    5440.        0.     5440.        0.        0.     1628.        0.        0.        0.     599.90
     0.00      0.00      3.34      0.00     0.000      .062     0.000     0.000    580.50   1703.09
  .000114       39.       39.       39.         0         0         0      0.00    201.95   1917.04

*SECNO 23221.000

          3320I U/S FROM U/S FACE OF HALL ROAD CULVERT, VS=23               SEC. B

 23221.00     16.22    594.12      0.00      0.00    594.20       .07       .38       .03    586.10
    5440.     2168.     3246.       26.     4111.     1176.       71.      187.       34.     589.60
      .50       .53      2.76       .36      .080      .032      .075      .037    577.90    303.16
  .000115     1300.     3820.     3850.         2         0         0      0.00   1466.42   1769.58

*SECNO 26721.000

3470 ENCROACHMENT STATIONS=       10.0     2700.0  TYPE=      1  TARGET=     2690.000

          7320I U/S FROM U/S FACE OF HALL ROAD CULVERT, VS=24               SEC. C

 26721.00     15.54    594.44      0.00      0.00    594.47       .03       .26       .01    597.20
    5440.        0.     2228.     3212.        0.     1093.     6674.      552.      108.     588.30
     1.20      0.00      2.04       .48      .075      .031      .075      .037    578.90    105.05
  .000075     1200.     3500.     2800.         2         0         0      0.00   1563.75   1668.80

*SECNO 29421.000

3470 ENCROACHMENT STATIONS=          .0     1600.0  TYPE=      1  TARGET=     1599.999

          10020I U/S FROM U/S FACE OF HALL ROAD CULVERT, VS=25              SEC. D

 29421.00     16.32    594.62      0.00      0.00    594.79       .17       .25       .07    590.90
    5440.      163.     4943.      334.      277.     1421.      325.      735.      140.     590.10
     1.39       .59      3.48      1.03      .065      .032      .050      .038    578.30    144.40
  .000198     2600.     2700.     1200.         2         0         0      0.00    331.20    475.60

*SECNO 31221.000
    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
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   TIME     VLOB      VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL     XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST

3470 ENCROACHMENT STATIONS=          .0     1450.0  TYPE=      1  TARGET=    1449.999

          3260' D/S FROM D/S FACE OF 21 MILE ROAD, VS=26                    SEC. E

  31221.00    14.89    595.09     0.00     0.00   595.21      .12      .40      .01100000.00
    5440.       0.     3340.     2100.       0.     955.    1778.     813.      154.     592.20
     1.56     0.00      3.50      1.18     .065     .033     .052     .038    580.20      65.70
  .000323    1600.     1800.     1000.        2        0        0     0.00    659.82     725.52

*SECNO 32611.000

3470 ENCROACHMENT STATIONS=       100.0      960.0  TYPE=      1  TARGET=    -100.000

          1870' D/S FROM D/S FACE OF 21 MILE ROAD, VS=27                    SEC. F

  32611.00    14.84    595.44     0.00     0.00   595.52      .08      .30      .01     591.90
    5390.    2477.     2913.       0.     2632.     988.       0.     909.      173.     598.20
     1.74      .94      2.95      0.00     .062     .031     .050     .037    580.60     200.27
  .000163    1400.     1390.     1100.        1        0        0     0.00    636.16     836.42

*SECNO 34411.000

3470 ENCROACHMENT STATIONS=       180.0     1110.0  TYPE=      1  TARGET=     930.000

          70' D/S FROM D/S FACE OF 21 MILE ROAD CULVERT, VS=28              SEC. G

  34411.00    17.78    595.68     0.00     0.00   595.74      .07      .22      .00     599.70
    5390.       0.     3134.     2256.       0.    1216.    2565.    1035.      193.     587.20
     1.98     0.00      2.58       .88     .060     .032     .055     .037    577.90     407.52
  .000114    1200.     1800.     1500.        2        0        0     0.00    627.66    1035.18

*SECNO 34481.000

3470 ENCROACHMENT STATIONS=       240.0     1170.0  TYPE=      1  TARGET=     930.000
  34481.00    14.35    595.65     0.00     0.00   595.79      .15      .01      .04     596.80
    5390.       0.     5390.        0.       0.    1748.       0.    1038.      194.     596.80
     1.99     0.00      3.10      0.00     .060     .032     .055     .037    581.30     400.00
  .000172      70.       70.       45.        2        0        0     0.00    129.00     529.00

*SECNO 34482.000

3370 NORMAL BRIDGE,NRD= 19 MIN ELTRD=  596.40 MAX ELLC=  593.40

3470 ENCROACHMENT STATIONS=       240.0     1170.0  TYPE=      1  TARGET=     930.000

          D/S FACE OF 21 MILE ROAD CULVERT, BS=29                           SEC. H

  34482.00    14.30    595.60     0.00     0.00   595.84      .24      .00      .05     596.80
    5390.       0.     5390.        0.       0.    1369.       0.    1038.      194.     596.80
     1.99     0.00      3.94      0.00     .035     .030     .035     .037    581.30     400.00
  .000750       1.        1.        1.        2        0        0  -365.61    129.00     529.00

*SECNO 34506.000
   SECNO    DEPTH     CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB      QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
   TIME     VLOB      VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL     XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST
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3370 NORMAL BRIDGE,NRD= 19 MIN ELTRD=  596.40 MAX ELLC=  593.40

3470 ENCROACHMENT STATIONS=      240.0      1170.0  TYPE=      1  TARGET=      930.000

          U/S FACE OF 21 MILE ROAD CULVERT, BS=29                          SEC. H

  34506.00     14.32    595.62     0.00      0.00    595.86       .24       .02       .00    596.80
    5390.        0.     5390.        0.        0.     1369.        0.     1039.      194.     596.80
     1.99      0.00      3.94      0.00      .035      .030      .035      .037    581.30    400.00
   .000750      24.       24.       24.         0         0         0   -367.04    129.00    529.00

*SECNO 34507.000

3470 ENCROACHMENT STATIONS=      240.0      1170.0  TYPE=      1  TARGET=      930.000
  34507.00     14.44    595.74      0.00      0.00    595.89      .15       .00       .03    596.80
    5390.        0.     5390.        0.        0.     1753.        0.     1039.      194.     596.80
     1.99      0.00      3.08      0.00      .060      .032      .065      .037    581.30    400.00
   .000169       1.        1.        1.         2         0         0      0.00    129.00    529.00

*SECNO 36107.000

3470 ENCROACHMENT STATIONS=         .0       640.0  TYPE=      1  TARGET=      639.999

          1600E U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VS=30           SEC. I

  36107.00     15.60    596.10      0.00      0.00    596.23       .13       .33       .01    588.30
    5390.      217.     2394.     2779.      161.      582.     2374.     1120.      206.     589.90
     2.16      1.35      4.11      1.17      .060      .032      .065      .037    580.50     15.65
   .000299     1650.     1600.     1300.         2         0         0      0.00    624.35    640.00

*SECNO 38802.000

3470 ENCROACHMENT STATIONS=         .0      1140.0  TYPE=      1  TARGET=     1139.999

          4295E U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VS=31           SEC. J

  38802.00     15.90    596.60      0.00      0.00    596.64       .04       .38       .03    588.20
    5390.      840.     1786.     2764.     1117.      714.     3747.     1328.      244.     589.70
     2.63       .75      2.50       .74      .062      .033      .065      .037    580.70     63.64
   .000108     1125.     2695.     2150.         2         0         0      0.00   1020.43   1084.07

*SECNO 41282.000

3470 ENCROACHMENT STATIONS=      140.0      1835.0  TYPE=      1  TARGET=     -140.000

          6775E U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VS=32           SEC. K

  41282.00     16.48    596.88      0.00      0.00    596.96       .07       .30       .02    591.50
    5290.     3210.     2080.        0.     3272.      638.        0.     1519.      278. 100000.00
     2.93       .98      3.26      0.00      .070      .032      .065      .037    580.40   1087.28
   .000242     2000.     2480.     1200.         2         0         0      0.00    733.22   1820.50

1490 NH CARD USED
*SECNO 43007.000

3265 DIVIDED FLOW

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
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    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

3470 ENCROACHMENT STATIONS=      90.0     2300.0  TYPE=     1  TARGET=     2210.000
          8500E U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VS=33           SEC. L

  43007.00     15.58    597.28      0.00      0.00    597.42       .14       .43       .04    601.30
     5290.       39.     2853.     2399.       96.      710.     2139.     1614.      296.    589.40
      3.07       .41      4.02      1.12      .075      .033      .076      .037    581.70   1021.74
   .000398      750.     1725.     1600.         2         0         0      0.00    621.17   1798.20

*SECNO 46107.000

3470 ENCROACHMENT STATIONS=     375.0     3487.0  TYPE=     1  TARGET=     -375.000
          11600E U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VS=34          SEC. M

  46107.00     13.17    597.77      0.00      0.00    597.78       .12       .33       .04    592.80
     5290.     3919.     1371.        0.     6109.      822.        0.     1838.      336. 100000.00
      3.80       .64      1.67      0.00      .060      .032      .070      .038    584.60   2227.71
   .000069     1700.     3350.     1800.         2         0         0      0.00   1241.06   3468.77
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*************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
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T1      585.-03-1,  FIS - MACOMB TOWNSHIP,  PM = OLE N. ANDERSON
T2      50-YEAR FLOOD
T3      NORTH BRANCH - CLINTON RIVER
J1   ICHECK     INQ      NINV      IDIR      STRT      METRIC     HVINS      Q       WSEL      FQ
       -1.       3.       0.        0.   0.000000      0.00      0.0       0.    596.365    0.000
J2   NPROF      IPLOT    PRFVS     XSECV     XSECH      FN       ALLDC      IBW     CHNIM     ITRACE
      2.000     0.000   -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
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*PROF 2

CCHV=     .300 CEHV=     .500
1490 NH CARD USED
*SECNO 19401.000

3265 DIVIDED FLOW

      SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
      Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA    LEFT/RIGHT
      TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN       SSTA
      SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID      ENDST


3470 ENCROACHMENT STATIONS=         .0      1926.6  TYPE=      1  TARGET=      1926.599

           U/S FACE OF HALL ROAD CULVERT                                          SEC. A

   19401.00      15.87     596.37       0.00     596.37     596.59        .23       0.00       0.00     597.40
      8410.         0.      8410.         0.         0.      2207.         0.         0.         0.      599.90
       0.00       0.00       3.81       0.00      0.000       .062      0.000      0.000     580.50    1700.00
    .000121        39.        39.        39.          0          0          0       0.00     214.60    1926.60

*SECNO 23221.000

           3820 U/S FROM U/S FACE OF HALL ROAD CULVERT, VS=23                     SEC. B

   23221.00      19.01     596.91       0.00       0.00     596.97        .06        .33        .05     586.10
      8970.      4913.      3940.       117.      8102.      1413.       309.       293.        44.      589.60
        .56        .61       2.79        .38       .080       .032       .075       .039     577.90     115.75
    .000092      1300.      3820.      3850.          2          0          0       0.00    1794.76    1910.51

*SECNO 26721.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=       10.0      2700.0  TYPE=      1  TARGET=      2690.000

           7320 U/S FROM U/S FACE OF HALL ROAD CULVERT, VS=24                     SEC. C

   26721.00      18.25     597.15       0.00       0.00     597.17        .02        .19        .01     597.20
      8970.         2.      2756.      6212.        24.      1356.     10994.       880.       142.      588.30
       1.27        .07       2.03        .57       .075       .031       .075       .040     578.90      10.00
    .000064      1200.      3500.      2800.          2          0          0       0.00    2131.79    2700.00

*SECNO 29421.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=         .0      1600.0  TYPE=      1  TARGET=      1599.999

           10020 U/S FROM U/S FACE OF HALL ROAD CULVERT, VS=25                    SEC. D

   29421.00      18.96     597.26       0.00       0.00     597.50        .24        .22        .11     590.90
      8970.       695.      7408.       867.       764.      1713.       606.      1158.       187.      590.10
       1.43        .91       4.32       1.43       .065       .032       .050       .040     578.30      44.83
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 .000238     2600.     2700.     1200.        2         0         0      0.00    524.80   1600.00

*SECNO 31221.000
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


3470 ENCROACHMENT STATIONS=        .0     1450.0  TYPE=     1  TARGET=    1449.999

          3260I D/S FROM D/S FACE OF 21 MILE ROAD, VS=26                   SEC. E

 31221.00    17.62    597.82      0.00      0.00    597.91       .09       .36       .05100000.00
   8970.        0.     4093.     4877.        0.     1247.     3568.     1281.      208.    592.20
    1.62      0.00      3.28      1.37      .065      .033      .052      .040    580.20     54.29
 .000229     1600.     1800.     1000.        2         0         0      0.00    995.33   1049.62

*SECNO 32611.000

3470 ENCROACHMENT STATIONS=     100.0      960.0  TYPE=     1  TARGET=    -100.000

          1870I D/S FROM D/S FACE OF 21 MILE ROAD, VS=27                   SEC. F

 32611.00    17.47    598.07      0.00      0.00    598.16       .09       .25       .00    591.90
   8890.     4891.     3999.        0.     4141.     1221.        0.     1432.      232.    598.20
    1.79      1.18      3.28      0.00      .062      .031      .050      .039    580.60    155.54
 .000162     1400.     1390.     1100.        2         0         0      0.00    684.30    839.84

*SECNO 34411.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=     180.0     1110.0  TYPE=     1  TARGET=     930.000

          70I D/S FROM D/S FACE OF 21 MILE ROAD CULVERT, VS=28             SEC. G

 34411.00    20.41    598.31      0.00      0.00    598.38       .07       .21       .00    599.70
   8890.       16.     4266.     4608.       52.     1476.     4068.     1616.      255.    587.20
    2.61       .31      2.89      1.13      .060      .032      .055      .039    577.90    341.01
 .000118     1200.     1800.     1500.        2         0         0      0.00    756.96   1110.00

*SECNO 34481.000
3280 CROSS SECTION  34481.00 EXTENDED       .13 FEET


3470 ENCROACHMENT STATIONS=     240.0     1170.0  TYPE=     1  TARGET=     930.000
 34481.00    16.93    598.23      0.00      0.00    598.47       .24       .01       .08    596.80
   8890.       17.     8341.      532.       57.     2074.      955.     1621.      256.    596.80
    2.01       .30      4.02       .56      .060      .032      .055      .039    581.30    320.33
 .000234       70.       70.       45.        2         0         0      0.00    849.67   1170.00

*SECNO 34482.000
3280 CROSS SECTION  34482.00 EXTENDED       .13 FEET


3370 NORMAL BRIDGE,NRD= 19 MIN ELTRD=  596.40 MAX ELLC=  593.40
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3470 ENCROACHMENT STATIONS=      240.0     1170.0  TYPE=      1  TARGET=      930.000
        D/S FACE OF 21 MILE ROAD CULVERT, BS=29                            SEC. H

 34482.00    16.93   598.23     0.00     0.00   598.48      .25      .00      .01   596.80
  8890.        70.    6843.    1977.      57.    1554.     955.    1621.     256.    596.80
    2.01     1.23     4.40     2.07     .035     .030     .035     .039   581.30   320.32
 .001312       1.       1.       1.        0        0        0  -520.40   849.68  1170.00

*SECNO 34506.000
3280 CROSS SECTION  34506.00 EXTENDED       .16 FEET

    SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS  BANK ELEV
    Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
    TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN    SSTA
    SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID   ENDST

3370 NORMAL BRIDGE,NRD= 19 MIN ELTRD=  596.40 MAX ELLC=  593.40

3470 ENCROACHMENT STATIONS=      240.0     1170.0  TYPE=      1  TARGET=      930.000
        U/S FACE OF 21 MILE ROAD CULVERT, BS=29                            SEC. H

 34506.00    16.97   598.27     0.00     0.00   598.51      .24      .03      .00   596.80
  8890.        73.    6811.    2007.      59.    1557.     969.    1623.     257.    596.80
    2.02     1.23     4.37     2.07     .035     .030     .035     .039   581.30   319.13
 .001292      24.      24.      24.        1        0        0  -520.40   850.87  1170.00

*SECNO 34507.000
3280 CROSS SECTION  34507.00 EXTENDED       .17 FEET

3470 ENCROACHMENT STATIONS=      240.0     1170.0  TYPE=      1  TARGET=      930.000
 34507.00    16.97   598.27     0.00     0.00   598.51      .24      .00      .00   596.80
  8890.        18.    8404.     468.      60.    2079.     976.    1623.     257.    596.80
    2.02      .31     4.04      .48     .060     .032     .065     .039   581.30   318.52
 .000236       1.       1.       1.        0        0        0     0.00   851.48  1170.00

*SECNO 36107.000
3280 CROSS SECTION  36107.00 EXTENDED      2.60 FEET

3470 ENCROACHMENT STATIONS=         .0      640.0  TYPE=      1  TARGET=      639.999
        1600 U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VS=30              SEC. I

 36107.00    18.30   598.80     0.00     0.00   598.92      .12      .37      .04   588.30
  8890.       389.    3067.    5434.     253.     704.    3851.    1752.     280.    589.90
    2.19     1.54     4.36     1.41     .060     .032     .065     .038   580.50    10.40
 .000261     1650.    1600.    1300.        2        0        0     0.00   629.60   640.00

*SECNO 38802.000
3470 ENCROACHMENT STATIONS=         .0     1140.0  TYPE=      1  TARGET=     1139.999
        4295 U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VS=31              SEC. J
 38802.00    18.53   599.23     0.00     0.00   599.27      .04      .32      .03   588.20
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      8890.     1557.     2259.     5074.     1753.      856.     5809.     2064.      320.    589.70
      2.65       .89      2.64       .87      .062      .033      .065      .039    580.70     37.69
   .000094     1125.     2695.     2150.         2         0         0      0.00   1102.31   1140.00

*SECNO 41282.000

3470 ENCROACHMENT STATIONS=      140.0     1835.0  TYPE=     1  TARGET=     -140.000

          6775I U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VS=32          SEC. K

  41282.00     19.07    599.47      0.00      0.00    599.54       .07       .26       .02    591.50
     8760.     6053.     2707.        0.     5104.      797.        0.     2349.      357. 100000.00
      2.93      1.19      3.40      0.00      .071      .032      .065      .039    580.40   1019.16
   .000214     2000.     2480.     1200.         2         0         0      0.00    805.28   1824.44

1490 NH CARD USED
*SECNO 43007.000

3265 DIVIDED FLOW

   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST


3470 ENCROACHMENT STATIONS=       90.0     2300.0  TYPE=     1  TARGET=     2210.000

          8500I U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VS=33          SEC. L

  43007.00     18.10    599.80      0.00      0.00    599.93       .13       .36       .03    601.30
     8760.      565.     3729.     4467.      945.      887.     3276.     2494.      384.    589.40
      3.08       .60      4.21      1.36      .075      .033      .077      .039    581.70    181.34
   .000350      750.     1725.     1600.         2         0         0      0.00   1474.14   1952.48

*SECNO 46107.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=      375.0     3487.0  TYPE=     1  TARGET=     -375.000

          11600I U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VS=34          SEC. M

  46107.00     15.62    600.22      0.00      0.00    600.24       .02       .27       .03    592.80
     8760.     6930.     1830.        0.     9382.     1044.        0.     2838.      470. 100000.00
      3.74       .74      1.75      0.00      .060      .032      .070      .040    584.60    394.67
   .000061     1700.     3350.     1800.         2         0         0      0.00   2742.91   3475.90
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*************************************
HEC-2 RELEASE DATED NOV 76 UPDATED MAY 1977
ERROR CORR - 01,02
MODIFICATION - 50,51,52
*************************************

T1      [illegible] FIS - MACOMB TOWNSHIP, FM - OLE M. ANDERSON
T2      100-YEAR FLOOD
T3      NORTH BRANCH - CLINTON RIVER
J1  ICHECK    INQ     NINV     IDIR     STRT     METRIC   HVINS    Q       WSEL     FQ
      -1.      4.       0.       0.  0.000000    0.00     0.0      0.   597.367   0.000
J2  NPROF    IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW     CHNIM    ITRACE
     3.000    0.000   -1.000    0.000    0.000   0.000    0.000    0.000   0.000    0.000
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The questionable flow distribution is due
to [illegible] or S-shaped alluvial valley.
Based on the topo furnished it appears
to be reasonable the shifting of flow.

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*PROF 3

CCHV=   .300 CEHV=   .500
[illegible] CARD USED
*SECNO 19461.000

3265 DIVIDED FLOW

   SECNO      DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
   Q          QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
   TIME       VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
   SLOPE      XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

3470 ENCROACHMENT STATIONS=        .0     1926.6  TYPE=     1  TARGET=     1926.599
        U/S FACE OF HALL ROAD CULVERT                                   SEC. A
  19461.00    16.07   [illegible]   0.00   597.[illegible]   597.42    .25    0.00    0.00   597.40
  [illegible]     0.   [illegible]   [illegible]   [illegible]   [illegible]   [illegible]   [illegible]   [illegible]   [illegible]
  [illegible]   0.00   [illegible]   0.00   0.000   .001   0.000   0.000   [illegible]   1700.00
   .000126      39.      39.      39.       0        0        0      0.00    214.60   1926.60

*SECNO 23221.000
3280 CROSS SECTION  23221.00 EXTENDED      .74 FEET

       3020( U/S FROM U/S FACE OF HALL ROAD CULVERT, VS=23              SEC. B
  23221.00    20.04    597.94    0.00    0.00    597.99    .05    .72    .06    596.10
  [illegible]   [illegible]   [illegible]   [illegible]   [illegible]   [illegible]   [illegible]   [illegible]   [illegible]   [illegible]
  [illegible]    .27   [illegible]   [illegible]   [illegible]   [illegible]   .075   [illegible]   577.[illegible]   [illegible]
   .000087     1200.   [illegible]   [illegible]     0        0        0      0.00   [illegible]   19[illegible].00

*SECNO 26721.000
3470 ENCROACHMENT STATIONS=      10.0     2700.0  TYPE=     1  TARGET=     2690.000
       7320( U/S [illegible] VS=[illegible]                               SEC. C
  26721.00    19.25   [illegible]   [illegible]   [illegible]   [illegible]   .12   .10   .01   597.[illegible]
  107[illegible]   [illegible]   [illegible]   [illegible]   [illegible]   [illegible]   [illegible]   [illegible]   [illegible]   [illegible]
     1.28      .17   [illegible]   [illegible]   .0[illegible]   .0[illegible]   .075   .0[illegible]   570.90   10.00
   .000057     1200.    2000.    2000.      2        0        0      0.00   2690.00   2700.00

*SECNO 29421.000
3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=        .0    [illegible]  TYPE=     1  TARGET=     1599.999
       10020( U/S [illegible] FACE OF HALL ROAD [illegible] VS=25            SEC. D
  29421.00    19.[illegible]   [illegible]   [illegible]   [illegible]   [illegible]   .[illegible]   .[illegible]   .12   59[illegible]
   10700.     1035.   [illegible]   [illegible]   [illegible]   [illegible]   1071.   1300.    227.   2[illegible].10
     1.43     1.03   [illegible]   [illegible]   .0[illegible]   .0[illegible]   .050   .061   570.30   26.17
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agree with
already approved
profile d/s and
through Hall Rd

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 .000248     2600.     2700.     1200.         2         0         0      0.00  1250.10  1600.00

*SECNO 31221.000
   SECNO      DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
   Q          QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
   TIME       VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE      XLOBL     XLCH      XLOBR     ITRIAL    IOC       ICONT     CORAR     TOPWID     ENDST

3470 ENCROACHMENT STATIONS=        .0    1450.0  TYPE=      1  TARGET=     1449.999

         3260I D/S FROM D/S FACE OF 21 MILE ROAD, VS=26                    SEC. E

 31221.00     18.63    598.83      0.00      0.00    598.91       .08       .34     .05100000.00
  10700.         0.     4410.     6290.        0.     1363.     4650.     1518.      261.    592.20
    1.63       0.00      3.23      1.35      .065      .033      .052      .041    580.20    50.06
 .000208      1600.     1800.     1000.         2         0         0      0.00   1399.94  1450.00

*SECNO 32611.000

3470 ENCROACHMENT STATIONS=     100.0     960.0  TYPE=      1  TARGET=     -100.000

         1870I D/S FROM D/S FACE OF 21 MILE ROAD, VS=27                    SEC. F

 32611.00     18.46    599.06      0.00      0.00    599.16       .09       .24       .00    591.90
  10600.      6067.     4527.        5.     4760.     1310.       25.     1696.      292.    598.20
    1.79       1.27      3.46       .22      .062      .031      .050      .040    580.60   100.00
 .000164      1400.     1390.     1100.         2         0         0      0.00    797.49   897.49

*SECNO 34411.000

3265 DIVIDED FLOW

3280 CROSS SECTION  34411.00 EXTENDED       .30 FEET


3470 ENCROACHMENT STATIONS=     180.0    1110.0  TYPE=      1  TARGET=      930.000

         70I D/S FROM D/S FACE OF 21 MILE ROAD CULVERT, VS=28              SEC. G

 34411.00     21.40    599.30      0.00      0.00    599.38       .08       .22       .00    599.70
  10600.        48.     4777.     5775.      131.     1578.     4672.     1904.      318.    587.20
    2.00        .36      3.03      1.24      .060      .032      .055      .039    577.90   180.00
 .000122      1200.     1800.     1500.         2         0         0      0.00    855.02  1110.00

*SECNO 34481.000
3280 CROSS SECTION  34481.00 EXTENDED      1.13 FEET


3470 ENCROACHMENT STATIONS=     240.0    1170.0  TYPE=      1  TARGET=      930.000
 34481.00     17.93    599.23      0.00      0.00    599.47       .24       .01       .08    596.80
  10600.        80.     9290.     1230.      169.     2203.     1592.     1911.      319.    596.80
    2.01        .47      4.22       .77      .060      .032      .055      .039    581.30   247.63
 .000238        70.       70.       45.         2         0         0      0.00    922.37  1170.00

*SECNO 34482.000
3280 CROSS SECTION  34482.00 EXTENDED      1.23 FEET
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3370 NORMAL BRIDGE,NRD= 19 MIN ELTRD=  596.40 MAX ELLC=  593.40

3470 ENCROACHMENT STATIONS=      240.0     1170.0  TYPE=     1  TARGET=     930.000

          D/S FACE OF 21 MILE ROAD CULVERT, BS=29                          SEC. H

  34482.00    18.03    599.33      0.00      0.00    599.50       .17       .00       .02    596.80
    10600.     294.     6392.     3914.      185.     1695.     1657.     1911.      319.    596.80
      2.01     1.59      3.77      2.36      .035      .030      .035      .039    581.30    240.00
   .000857       1.        1.        1.         2         0         0   -520.40    930.00   1170.00

*SECNO 34506.000
3280 CROSS SECTION  34506.00 EXTENDED      1.24 FEET

     SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS  BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST

3370 NORMAL BRIDGE,NRD= 19 MIN ELTRD=  596.40 MAX ELLC=  593.40

3470 ENCROACHMENT STATIONS=      240.0     1170.0  TYPE=     1  TARGET=     930.000

          U/S FACE OF 21 MILE ROAD CULVERT, BS=29                          SEC. H

  34506.00    18.05    599.35      0.00      0.00    599.52       .16       .02       .00    596.80
    10600.     298.     6374.     3929.      187.     1697.     1665.     1913.      320.    596.80
      2.01     1.59      3.76      2.36      .035      .030      .035      .039    581.30    240.00
   .000849      24.       24.       24.         0         0         0   -520.40    930.00   1170.00

*SECNO 34507.000
3280 CROSS SECTION  34507.00 EXTENDED      1.21 FEET

3470 ENCROACHMENT STATIONS=      240.0     1170.0  TYPE=     1  TARGET=     930.000
  34507.00    18.01    599.31      0.00      0.00    599.56       .25       .00       .04    596.80
    10600.      89.     9439.     1102.      182.     2213.     1644.     1913.      320.    596.80
      2.01      .49      4.25       .67      .060      .032      .065      .039    581.30    240.92
   .000240       1.        1.        1.         2         0         0      0.00    929.08   1170.00

*SECNO 36107.000
3280 CROSS SECTION  36107.00 EXTENDED      3.64 FEET

3470 ENCROACHMENT STATIONS=         .0      640.0  TYPE=     1  TARGET=     639.999

          1600' U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VS=30           SEC. I

  36107.00    19.34    599.44      0.00      0.00    599.97       .13       .37       .04    588.30
    10600.     479.     3393.     6728.      294.      751.     4424.     2067.      345.    589.90
      2.18     1.63      4.52      1.52      .060      .032      .065      .039    580.50      2.99
   .000257    1650.     1600.     1300.         2         0         0      0.00    637.00    640.00

*SECNO 38802.000
3280 CROSS SECTION  38802.00 EXTENDED       .47 FEET
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3470 ENCROACHMENT STATIONS=        .0     1140.0  TYPE=      1  TARGET=     1139.999

          4295I U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VS=31          SEC. J

 36802.00      19.57    600.27      0.00      0.00    600.31       .04       .31       .03    588.20
  10600.       1922.     2484.     6195.     2035.      912.     6636.     2421.      385.    589.70
    2.62        .94      2.72       .93      .062      .033      .065      .039    580.70      1.08
 .000092       1125.     2695.     2150.         2         0         0      0.00   1138.92   1140.00

*SECNO 41282.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=      140.0     1835.0  TYPE=      1  TARGET=     -140.000

          6775I U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VS=32          SEC. K

 41282.00      20.11    600.51      0.00      0.00    600.58       .07       .25       .02    591.50
  10500.       7497.     3003.        0.     6166.      863.        0.     2751.      437. 100000.00
    2.91       1.22      3.48      0.00      .070      .032      .065      .039    580.40    140.00
 .000209       2000.     2480.     1200.         2         0         0      0.00   1412.76   1826.02

1490 NH CARD USED
*SECNO 43007.000

3265 DIVIDED FLOW

3280 CROSS SECTION  43007.00 EXTENDED       .51 FEET

  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST

3470 ENCROACHMENT STATIONS=       90.0     2300.0  TYPE=      1  TARGET=     2210.000

          8500I U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VS=33          SEC. L

 43007.00      19.11    600.81      0.00      0.00    600.93       .12       .33       .02    601.30
  10500.       1248.     3994.     5258.     2010.      960.     3732.     2927.      479.    589.40
    3.66        .62      4.16      1.41      .075      .033      .077      .040    581.70     90.00
 .000317        750.     1725.     1600.         2         0         0      0.00   2207.40   2300.00

*SECNO 46107.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=      375.0     3487.0  TYPE=      1  TARGET=     -375.000

          11600I U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VS=34         SEC. M

 46107.00      16.59    601.19      0.00      0.00    601.21       .02       .25       .03    592.80
  10500.       8505.     1995.        0.    12131.     1136.        0.     3360.      586. 100000.00
    3.73        .70      1.76      0.00      .060      .032      .070      .041    584.60    375.00
 .000057       1700.     3350.     1800.         2         0         0      0.00   3064.80   3478.79
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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
**************************************************

T1      5850-03-1,  FIS - MACOMB TOWNSHIP,  PM = OLE N. ANDERSON
T2      500-YEAR FLOOD
T3      NORTH BRANCH - CLINTON RIVER

J1  ICHECK    INQ      NINV     IDIR     STRT      METRIC    HVINS     Q        WSEL      FQ
       -1.      5.       0.       0.   0.000000    0.00      0.0       0.    599.788    0.000

J2  NPROF     IPLOT    PRFVS    XSECV    XSECH     FN        ALLDC     IBW      CHNIM     ITRACE
     15.000    0.000   -1.000    0.000    0.000    0.000     0.000    0.000     0.000     0.000
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*PROF 4

CCHV=     .300 CEHV=      .500
1490 NH CARD USED
*SECNO 19401.000

3265 DIVIDED FLOW

      SECNO       DEPTH       CWSEL       CRIWS       WSELK       EG          HV          HL          OLOSS     BANK ELEV
      Q           QLOB        QCH         QROB        ALOB        ACH         AROB        VOL         TWA     LEFT/RIGHT
      TIME        VLOB        VCH         VROB        XNL         XNCH        XNR         WTN         ELMIN        SSTA
      SLOPE       XLOBL       XLCH        XLOBR       ITRIAL      IDC         ICONT       CORAR       TOPWID       ENDST


3470 ENCROACHMENT STATIONS=          .0      1926.6  TYPE=       1  TARGET=     1926.599

           U/S FACE OF HALL ROAD CULVERT                                               SEC. A

  19401.00      19.29     599.79       0.00     599.79     600.07        .28       0.00       0.00     597.40
   13100.        317.     12783.         0.       418.      2966.         0.         0.         0.      599.90
     0.00         .76       4.31       0.00       .054       .090      0.000      0.000     580.50     485.33
  .001292         39.        39.        39.          0          0          0       0.00     977.45    1926.60

*SECNO 23221.000
3280 CROSS SECTION   23221.00 EXTENDED       3.41 FEET


           3820I U/S FROM U/S FACE OF HALL ROAD CULVERT, VS=23                         SEC. B

  23221.00      22.71     600.61       0.00       0.00     600.65        .04        .51        .07     586.10
   15300.       9887.      4879.       534.     14139.      1727.      1016.       468.        58.      589.60
      .60         .70       2.83        .53       .080       .032       .075       .041     577.90       0.00
  .000072       1300.      3820.      3850.          3          0          0       0.00    1930.00    1930.00

*SECNO 26721.000
3280 CROSS SECTION   26721.00 EXTENDED        .78 FEET


3470 ENCROACHMENT STATIONS=        10.0      2700.0  TYPE=       1  TARGET=     2690.000

           7320I U/S FROM U/S FACE OF HALL ROAD CULVERT, VS=24                         SEC. C

  26721.00      21.88     600.78       0.00       0.00     600.80        .02        .14        .01     597.20
   15300.        111.      3536.     11652.       350.      1719.     19786.      1474.       176.      588.30
     1.34         .32       2.06        .59       .075       .031       .075       .042     578.90      10.00
  .000045       1200.      3500.      2800.          2          0          0       0.00    2690.00    2700.00

*SECNO 29421.000
3280 CROSS SECTION   29421.00 EXTENDED        .85 FEET


3470 ENCROACHMENT STATIONS=          .0      1600.0  TYPE=       1  TARGET=     1599.999

           10020I U/S FROM U/S FACE OF HALL ROAD CULVERT, VS=25                        SEC. D
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   29421.00     22.55    600.85      0.00      0.00    601.03       .18       .15       .08    590.90
    15300.     1878.     9084.     4338.     1690.     2112.     4210.     1985.      245.    590.10
      1.52      1.11      4.30      1.03      .065      .032      .050      .043    578.30       .00
   .000178     2600.     2700.     1200.         2         0         0      0.00   1600.00   1600.00

 *SECNO 31221.000
 3280 CROSS SECTION   31221.00 EXTENDED      1.23 FEET

      SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS  BANK ELEV
      Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
      TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN     ELMIN       SSTA
      SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR   TOPWID     ENDST

 3470 ENCROACHMENT STATIONS=         .0     1450.0  TYPE=      1  TARGET=    1449.999

            3260' D/S FROM D/S FACE OF 21 MILE ROAD, VS=26                    SEC. E

   31221.00     21.03    601.23      0.00      0.00    601.29       .06       .23       .03100000.00
    15300.        0.     4969.    10331.        0.     1656.     7732.     2231.      283.    592.20
      1.73      0.00      3.00      1.34      .065      .033      .052      .043    580.20     40.02
   .000154     1600.     1800.     1000.         2         0         0      0.00   1409.98   1450.00

 *SECNO 32611.000
 3280 CROSS SECTION   32611.00 EXTENDED      1.41 FEET

 3470 ENCROACHMENT STATIONS=      100.0      960.0  TYPE=      1  TARGET=    -100.000

            1870' D/S FROM D/S FACE OF 21 MILE ROAD, VS=27                    SEC. F

   32611.00     20.81    601.41      0.00      0.00    601.52       .11       .20       .02    591.90
    15200.     9226.     5791.      183.     6287.     1522.      278.     2483.      315.    598.20
      1.88      1.47      3.81       .66      .062      .031      .050      .042    580.60    100.00
   .000163     1400.     1390.     1100.         2         0         0      0.00    860.00    960.00

 *SECNO 34411.000
 3280 CROSS SECTION   34411.00 EXTENDED      2.65 FEET

 3470 ENCROACHMENT STATIONS=      180.0     1110.0  TYPE=      1  TARGET=     930.000

            70' D/S FROM D/S FACE OF 21 MILE ROAD CULVERT, VS=28              SEC. G

   34411.00     23.75    601.65      0.00      0.00    601.74       .09       .21       .01    599.70
    15200.      362.     6053.     8785.      633.     1822.     6095.     2758.      343.    587.20
      2.08       .57      3.32      1.44      .060      .032      .055      .041    577.90    180.00
   .000122     1200.     1800.     1500.         0         0         0      0.00    930.00   1110.00

 *SECNO 34481.000
 3280 CROSS SECTION   34481.00 EXTENDED      3.49 FEET

 3470 ENCROACHMENT STATIONS=      240.0     1170.0  TYPE=      1  TARGET=     930.000
   34481.00     20.29    601.59      0.00      0.00    601.82       .23       .01       .07    596.80
    15200.      464.    11151.     3585.      547.     2507.     3106.     2767.      344.    596.80
      2.08       .85      4.45      1.15      .060      .032      .055      .041    581.30    240.00
   .000223       70.       70.       45.         2         0         0      0.00    930.00   1170.00
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*SECNO 34482.000
3280 CROSS SECTION  34482.00 EXTENDED      3.65 FEET


3370 NORMAL BRIDGE,NRD= 19 MIN ELTRD=  596.40 MAX ELLC=  593.40

3470 ENCROACHMENT STATIONS=      240.0     1170.0  TYPE=     1  TARGET=     930.000
            D/S FACE OF 21 MILE ROAD CULVERT, BS=29                          SEC. H

 34482.00     20.45    601.75      0.00      0.00    601.86       .11       .00       .04    596.80
   15200.     1170.     5907.     8123.      572.     2007.     3206.     2767.      344.     596.80
     2.08      2.05      2.94      2.53      .035      .030      .035      .041    581.30    240.00
  .000417        1.        1.        1.         2         0         0   -520.40    930.00   1170.00

*SECNO 34506.000
3280 CROSS SECTION  34506.00 EXTENDED      3.65 FEET

    SECNO     DEPTH     CWSEL     CRIWS     WSELK       EG        HV        HL     OLOSS   BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST

3370 NORMAL BRIDGE,NRD= 19 MIN ELTRD=  596.40 MAX ELLC=  593.40

3470 ENCROACHMENT STATIONS=      240.0     1170.0  TYPE=     1  TARGET=     930.000
            U/S FACE OF 21 MILE ROAD CULVERT, BS=29                          SEC. H

 34506.00     20.46    601.76      0.00      0.00    601.87       .11       .01       .00    596.80
   15200.     1172.     5901.     8127.      573.     2008.     3211.     2770.      345.     596.80
     2.08      2.04      2.94      2.53      .035      .030      .035      .041    581.30    240.00
  .000415       24.       24.       24.         0         0         0   -520.40    930.00   1170.00

*SECNO 34507.000
3280 CROSS SECTION  34507.00 EXTENDED      3.59 FEET


3470 ENCROACHMENT STATIONS=      240.0     1170.0  TYPE=     1  TARGET=     930.000
 34507.00     20.39    601.69      0.00      0.00    601.94       .25       .00       .07    596.80
   15200.      497.    11497.     3206.      562.     2520.     3168.     2770.      345.     596.80
     2.08       .88      4.56      1.01      .060      .032      .065      .041    581.30    240.00
  .000233        1.        1.        1.         2         0         0      0.00    930.00   1170.00

*SECNO 36107.000
3280 CROSS SECTION  36107.00 EXTENDED      5.98 FEET


3470 ENCROACHMENT STATIONS=         .0      640.0  TYPE=     1  TARGET=     639.999
            1600I U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VS=30           SEC. I

 36107.00     21.69    602.19      0.00      0.00    602.33       .14       .36       .03    588.30
   15200.      740.     4253.    10206.      404.      856.     5705.     2983.      370.     589.90
     2.24      1.83      4.97      1.79      .060      .032      .065      .040    580.50       .00
  .000261     1650.     1600.     1300.         0         0         0      0.00    640.00    640.00
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*SECNO 38802.000
3280 CROSS SECTION   38802.00 EXTENDED       2.83 FEET


3470 ENCROACHMENT STATIONS=         .0     1140.0  TYPE=      1  TARGET=     1139.999

          4295' U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VS=31          SEC. J

  38802.00    21.93    602.63     0.00     0.00   602.67      .04      .31      .03   588.20
   15200.     2943.     3070.    9187.    2724.    1040.    8507.    3433.     410.    589.70
     2.65      1.08      2.95     1.08     .062     .033     .065     .041   580.70      .00
  .000091     1125.     2695.    2150.        2        0        0     0.00  1140.00  1140.00

*SECNO 41282.000

3470 ENCROACHMENT STATIONS=      140.0     1835.0  TYPE=      1  TARGET=     -140.000

          6775' U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VS=32          SEC. K

  41282.00    22.45    602.85     0.00     0.00   602.91      .06      .23      .01   591.50
   15000.    11507.     3493.      0.     9844.    1020.      0.     3897.     469. 100000.00
     2.95      1.17      3.43     0.00     .070     .032     .065     .041   580.40   140.00
  .000175     2000.     2480.    1200.        2        0        0     0.00  1689.59  1829.59

1490 NH CARD USED
*SECNO 43007.000
3280 CROSS SECTION   43007.00 EXTENDED       2.78 FEET

   SECNO     DEPTH     CWSEL     CRIWS    WSELK      EG       HV       HL      OLOSS   BANK ELEV
   Q         QLOB      QCH       QROB     ALOB       ACH      AROB     VOL     TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB     XNL        XNCH     XNR      WTN     ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR    ITRIAL     IDC      ICONT    CORAR   TOPWID     ENDST


3470 ENCROACHMENT STATIONS=       90.0     2300.0  TYPE=      1  TARGET=     2210.000

          8500' U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VS=33          SEC. L

  43007.00    21.38    603.08     0.00     0.00   603.17      .09      .24      .02   601.30
   15000.     3747.     4488.    6765.    4696.    1128.    4754.    4152.     513.    589.40
     3.12       .80      3.98     1.42     .075     .033     .078     .041   581.70    90.00
  .000237      750.     1725.    1600.        2        0        0     0.00  2210.00  2300.00

*SECNO 46107.000

3470 ENCROACHMENT STATIONS=      375.0     3487.0  TYPE=      1  TARGET=     -375.000

          11600' U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VS=34          SEC. M

  46107.00    18.76    603.36     0.00     0.00   603.37      .01      .19      .02   592.80
   15000.    12709.     2291.      0.    18658.    1354.      0.     4801.     621. 100000.00
     3.81       .68      1.69     0.00     .060     .032     .070     .042   584.60   375.00
  .000046     1700.     3350.    1800.        2        0        0     0.00  3110.37  3485.37
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  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

NORTH BRANCH - CLINTON R

SUMMARY PRINTOUT

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	HV	HL	OLOSS	QCH	DEPTH	TOPWID
19401.000	39.00	0.00	0.00	580.50	5440.00	593.61	.17	0.00	0.00	5440.00	13.11	201.95
19401.000	39.00	0.00	0.00	580.50	8410.00	596.37	.23	0.00	0.00	8410.00	15.87	214.60
19401.000	39.00	0.00	0.00	580.50	9720.00	597.37	.25	0.00	0.00	9720.00	16.87	214.60
19401.000	39.00	0.00	0.00	580.50	13100.00	599.79	.28	0.00	0.00	12782.69	19.29	977.45
23221.000	3820.00	0.00	0.00	577.90	5440.00	594.12	.07	.38	.03	3246.14	16.22	1466.42
23221.000	3820.00	0.00	0.00	577.90	8970.00	596.91	.06	.33	.05	3940.27	19.01	1794.76
23221.000	3820.00	0.00	0.00	577.90	10700.00	597.94	.05	.32	.06	4253.47	20.04	1909.55
23221.000	3820.00	0.00	0.00	577.90	15300.00	600.61	.04	.51	.07	4878.83	22.71	1930.00
26721.000	3500.00	0.00	0.00	578.90	5440.00	594.44	.03	.26	.01	2227.71	15.54	1563.75
26721.000	3500.00	0.00	0.00	578.90	8970.00	597.15	.02	.19	.01	2756.43	18.25	2131.79
26721.000	3500.00	0.00	0.00	578.90	10700.00	598.16	.02	.18	.01	3024.29	19.26	2690.00
26721.000	3500.00	0.00	0.00	578.90	15300.00	600.78	.02	.14	.01	3536.26	21.88	2690.00
29421.000	2700.00	0.00	0.00	578.30	5440.00	594.62	.17	.25	.07	4943.04	16.32	331.20
29421.000	2700.00	0.00	0.00	578.30	8970.00	597.26	.24	.22	.11	7408.32	18.96	524.80
29421.000	2700.00	0.00	0.00	578.30	10700.00	598.26	.26	.21	.12	8378.93	19.96	1250.10
29421.000	2700.00	0.00	0.00	578.30	15300.00	600.85	.18	.15	.08	9084.06	22.55	1600.00
31221.000	1800.00	0.00	0.00	580.20	5440.00	595.09	.12	.40	.01	3340.03	14.89	659.82
31221.000	1800.00	0.00	0.00	580.20	8970.00	597.82	.09	.36	.05	4093.22	17.62	995.33
31221.000	1800.00	0.00	0.00	580.20	10700.00	598.83	.08	.34	.05	4410.23	18.63	1399.94
31221.000	1800.00	0.00	0.00	580.20	15300.00	601.23	.06	.23	.03	4968.87	21.03	1409.98
32611.000	1390.00	0.00	0.00	580.60	5390.00	595.44	.08	.30	.01	2913.38	14.84	636.16
32611.000	1390.00	0.00	0.00	580.60	8890.00	598.07	.09	.25	.00	3998.86	17.47	684.30
32611.000	1390.00	0.00	0.00	580.60	10600.00	599.06	.09	.24	.00	4527.48	18.46	797.49
32611.000	1390.00	0.00	0.00	580.60	15200.00	601.41	.11	.20	.02	5791.38	20.81	860.00
34411.000	1800.00	0.00	0.00	577.90	5390.00	595.68	.07	.22	.00	3134.43	17.78	627.66
34411.000	1800.00	0.00	0.00	577.90	8890.00	598.31	.07	.21	.00	4265.85	20.41	756.96
34411.000	1800.00	0.00	0.00	577.90	10600.00	599.30	.08	.22	.00	4777.12	21.40	855.02
34411.000	1800.00	0.00	0.00	577.90	15200.00	601.65	.09	.21	.01	6053.15	23.75	930.00
34481.000	70.00	0.00	0.00	581.30	5390.00	595.65	.15	.01	.04	5390.00	14.35	129.00
34481.000	70.00	0.00	0.00	581.30	8890.00	598.23	.24	.01	.08	8341.12	16.93	849.67
34481.000	70.00	0.00	0.00	581.30	10600.00	599.23	.24	.01	.08	9289.59	17.93	922.37
34481.000	70.00	0.00	0.00	581.30	15200.00	601.59	.23	.01	.07	11151.10	20.29	930.00

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	HV	HL	OLOSS	QCH	DEPTH	TOPWID
34482.000	1.00	596.40	593.40	581.30	5390.00	595.60	.24	.00	.05	5390.00	14.30	129.00
34482.000	1.00	596.40	593.40	581.30	8890.00	598.23	.25	.00	.01	6843.05	16.93	849.68
34482.000	1.00	596.40	593.40	581.30	10600.00	599.33	.17	.00	.02	6391.53	18.03	930.00
34482.000	1.00	596.40	593.40	581.30	15200.00	601.75	.11	.00	.04	5907.34	20.45	930.00
34506.000	24.00	596.40	593.40	581.30	5390.00	595.62	.24	.02	.00	5390.00	14.32	129.00
34506.000	24.00	596.40	593.40	581.30	8890.00	598.27	.24	.03	.00	6810.65	16.97	850.87
34506.000	24.00	596.40	593.40	581.30	10600.00	599.35	.16	.02	.00	6373.77	18.05	930.00
34506.000	24.00	596.40	593.40	581.30	15200.00	601.76	.11	.01	.00	5900.87	20.46	930.00
34507.000	1.00	0.00	0.00	581.30	5390.00	595.74	.15	.00	.03	5390.00	14.44	129.00
34507.000	1.00	0.00	0.00	581.30	8890.00	598.27	.24	.00	.00	8403.95	16.97	851.48
34507.000	1.00	0.00	0.00	581.30	10600.00	599.31	.25	.00	.04	9408.95	18.01	929.08
34507.000	1.00	0.00	0.00	581.30	15200.00	601.69	.25	.00	.07	11497.35	20.39	930.00
36107.000	1600.00	0.00	0.00	580.50	5390.00	596.10	.13	.33	.01	2394.39	15.60	624.35
36107.000	1600.00	0.00	0.00	580.50	8890.00	598.80	.12	.37	.04	3066.82	18.30	629.60
36107.000	1600.00	0.00	0.00	580.50	10600.00	599.84	.13	.37	.04	3393.36	19.34	637.00
36107.000	1600.00	0.00	0.00	580.50	15200.00	602.19	.14	.36	.03	4253.47	21.69	640.00
38802.000	2695.00	0.00	0.00	580.70	5390.00	596.60	.04	.38	.03	1786.15	15.90	1020.43
38802.000	2695.00	0.00	0.00	580.70	8890.00	599.23	.04	.32	.03	2259.24	18.53	1102.31
38802.000	2695.00	0.00	0.00	580.70	10600.00	600.27	.04	.31	.03	2483.51	19.57	1138.92
38802.000	2695.00	0.00	0.00	580.70	15200.00	602.63	.04	.31	.03	3069.90	21.93	1140.00
41282.000	2480.00	0.00	0.00	580.40	5290.00	596.88	.07	.30	.02	2080.19	16.48	733.22
41282.000	2480.00	0.00	0.00	580.40	8760.00	599.47	.07	.26	.02	2707.39	19.07	805.28
41282.000	2480.00	0.00	0.00	580.40	10500.00	600.51	.07	.25	.02	3002.65	20.11	1412.76
41282.000	2480.00	0.00	0.00	580.40	15000.00	602.85	.06	.23	.01	3493.31	22.45	1689.59
43007.000	1725.00	0.00	0.00	581.70	5290.00	597.28	.14	.43	.04	2852.68	15.58	621.17
43007.000	1725.00	0.00	0.00	581.70	8760.00	599.80	.13	.36	.03	3728.61	18.10	1474.14
43007.000	1725.00	0.00	0.00	581.70	10500.00	600.81	.12	.33	.02	3993.61	19.11	2207.40
43007.000	1725.00	0.00	0.00	581.70	15000.00	603.08	.09	.24	.02	4488.23	21.38	2210.00
46107.000	3350.00	0.00	0.00	584.60	5290.00	597.77	.02	.33	.04	1371.19	13.17	1241.06
46107.000	3350.00	0.00	0.00	584.60	8760.00	600.22	.02	.27	.03	1830.08	15.62	2742.91
46107.000	3350.00	0.00	0.00	584.60	10500.00	601.19	.02	.25	.03	1994.69	16.59	3064.80
46107.000	3350.00	0.00	0.00	584.60	15000.00	603.36	.01	.19	.02	2291.14	18.76	3110.37

SUMMARY OF ERRORS

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**** 7000 SCOPE 2.1 LVL  221  06/01/78  07.42.50  06/29/78      78180
SYS DEVICES 819/ 4/PF FLS=200K FLL=764K MXS=160K MXL=453K MXB=453B

HH.MM.SS CPU SECOND ORIGIN
         13.13.30.MFA. J3      LV461 NOSBE B+W LYNRELEASE447 R.B 10.09
13.14.31 00000.006 MFZ.     -MACJ003,T10,STMFZ.  MACOMB TWP FIS                              000100
13.14.31 00000.023 USR.      CHARGE,810-0037-45-78-5803,JANDA,001,0,JANDA.                   CHARGE
13.14.31 00000.055 LOD.     -INFORM.  MAIL OUTPUT TO MSJ3 (3 COPIES)  VIA UPS
13.14.32 00000.084 JOB.     -ATTACH,LGO,HEC2N76V2,ID=HEC.
13.14.32 00000.089 MFZ.        PF254 - CYCLE    1 ATTACHED FROM SN=SYSTEM
13.14.32 00000.089 LOD.     -LGO(PL=999999).
13.14.33 00000.916 MFZ.        LD610 - FLS REQUIRED TO LOAD - 0027777 OU.COG
13.14.33 00000.919 MFZ.        LD603 - EXECUTION INITIATED OS.EXP
13.14.33 00000.920 USR.      FORTRAN LIBRARY 439          05/14/78
13.14.35 00001.911 USR.          STOP
13.14.35 00001.911 USR.             .990 CP SECONDS EXECUTION TIME
13.14.35 00001.915 MFZ.        RM770 - MAXIMUM ACTIVE FILES                    6
13.14.35 00001.915 MFZ.        RM771 - OPEN/CLOSE CALLS                       32
13.14.35 00001.915 MFZ.        RM772 - DATA TRANSFER CALLS                 2,595
13.14.35 00001.916 MFZ.        RM773 - CONTROL/POSITIONING CALLS              66
13.14.35 00001.916 MFZ.        RM774 - BM DATA TRANSFER CALLS                483
13.14.35 00001.916 MFZ.        RM775 - BM CONTROL/POSITIONING CALLS           79
13.14.35 00001.916 MFZ.        RM776 - QUEUE MANAGER CALLS                    96
13.14.35 00001.916 MFZ.        RM777 - RECALL CALLS                           82
13.14.35 00001.917 MFZ.        BWMSG - NUMBER OF TAPES MOUNTED
13.14.35 00001.917 MFZ.        SRU                     2.052  SEC
13.14.35 00001.917 MFZ.        SCM                    37.208  KWS
13.14.35 00001.918 MFZ.        I/O                     0.040  MW
13.14.35 00001.918 MFZ.        RMS                     0.034  MWS
13.14.35 00001.918 MFZ.        USER                    0.747  SEC
13.14.35 00001.918 MFZ.        JOB                     1.920  SEC
13.14.35 00001.919 MFZ.        SC050 - 000001 SC/LC SWAPS
13.14.35 00001.919 MFZ.      MACJOYP    MACJOYP
13.14.35.EJ  END OF JOB

***********          IMSJ306  //// END OF LIST ////
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***********          IMSJ306  //// END OF LIST ////
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00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Macomb Twp

3) WATERCOURSE: North Branch Clinton River

4) DOCUMENT TYPE: Encroached Run

00BREAK00

5850-03-1-18

Macomb Township

N. B. Clinton River

(Encroached Run)

IMSJ3FP

IMSJ3FP LQ43
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MACJOEB  JANDA                  06/30/78  11.39.08  7600    J3

**** 7000 SCOPE 2.1 LVL  221  06/01/78  07.42.50  06/30/78        78181

SYS DEVICES 819/ 4/PF FLS=200K FLL=764K MXS=160K MXL=453K MXB=453B

HH.MM.SS CPU SECOND ORIGIN
         11.40.01.MFA.  J3      LV461 NOSBE 3+W LYNRELEASE447 02/04/78
11.39.06 00000.005 MFZ.        -MACJ003,T10,STMFZ.  MACOMB TWP FIS                                000100
11.39.07 00000.023 USR.         CHARGE.810-0037-45-78-5803,JANDA,001,D,JANDA.                     CHARGE
11.39.08 00000.058 LOD.        -INFORM.   MAIL OUTPUT IMSJ3 (3 COPIES)   VIA UPS
11.39.24 00000.084 JOB.        -ATTACH,LGD,HEC2N76V2,ID=HEC.
11.39.24 00000.089 MFZ.          PF254 - CYCLE    1 ATTACHED FROM SN=SYSTEM
11.39.24 00000.090 LOD.        -LGO(PL=999999).
11.39.27 00000.917 MFZ.          LD510 - FLS REQUIRED TO LOAD - 0027777 OU.COG
11.39.29 00000.921 MFZ.          LD003 - EXECUTION INITIATED OS.EXP
11.39.28 00000.921 USR.         FORTRAN LIBRARY 439                  05/14/78
11.39.32 00001.901 USR.            STOP
11.39.32 00001.901 USR.              .979 CP SECONDS EXECUTION TIME
11.39.32 00001.905 MFZ.           RM770 - MAXIMUM ACTIVE FILES                        6
11.39.32 00001.905 MFZ.           RM771 - OPEN/CLOSE CALLS                           32
11.39.32 00001.906 MFZ.           RM772 - DATA TRANSFER CALLS                     2,577
11.39.32 00001.906 MFZ.           RM773 - CONTROL/POSITIONING CALLS                  66
11.39.32 00001.906 MFZ.           RM774 - BM DATA TRANSFER CALLS                    434
11.39.32 00001.906 MFZ.           RM775 - BM CONTROL/POSITIONING CALLS               79
11.39.32 00001.907 MFZ.           RM776 - QUEUE MANAGER CALLS                        96
11.39.32 00001.907 MFZ.           RM777 - RECALL CALLS                               31
11.39.32 00001.907 MFZ.           BWMSG - NUMBER OF TAPES MOUNTED
11.39.32 00001.908 MFZ.           SRU                     2.043   SEC
11.39.32 00001.908 MFZ.           SCM                    36.913   KWS
11.39.32 00001.908 MFZ.           I/O                     0.040   MW
11.39.32 00001.908 MFZ.           RMS                     0.034   MWS
11.39.32 00001.908 MFZ.           USER                    0.736   SEC
11.39.32 00001.909 MFZ.           JOB                     1.910   SEC
11.39.32 00001.909 MFZ.           SC050 - 000021 SC/LC SWAPS
11.39.32 00001.909 MFZ.         MACJOEB   MACJOEB
11.39.32.EJ  END OF JOB
MACJOEB  JANDA                  06/30/78  11.39.08  7600    J3
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S C O P E   2   L O A D   M A P   LOADER VERSION 1.0   06/30/78   11.39.27   PAGE   1

PROGRAM WILL BE ENTERED AT MAIN   (355)   SCM LENGTH   64711   LCM LENGTH   0

BLOCK	ADDRESS	LENGTH
/CONTRL/	100	17
MAIN	117	253
/DOUBLE/	372	10
/NAMES/	402	202
H2MAIN	604	15337
ADDPTS	16143	321
BLFLC	16464	1021
BLOCK	17505	261
BWEIR	17766	1427
CARD	21415	2453
CHIMP	24100	1650
DC	25750	705
DONE	26656	60
FLOHAZ	26736	2220
FLOPIC	31156	453
BLKDAT.	31631	0
NEAR	31631	16
PRIAH	31647	251
PROF	32120	1142
SCALE	33262	236
SLAPA	33520	243
SUMPO	33763	2744
XSEC	36727	1256
YCRIT	40205	122
MAPIT	40327	50
OVAR	40377	24
SAVEIT	40423	24
/STP.END/	40447	1
/FCL.C./	40450	23
/QB.IO./	40473	140
Q8NTRY=	40633	1
COMIO=	40634	44
ENDFIL=	40720	45
EOF	40745	20
FECMSK=	40765	41
FLTIN=	41026	156
FLTOUT=	41204	315
FMTAP=	41521	372
FORSYS=	42113	561
FORUTL=	42674	16
GETFIT=	42712	43
INCOM=	42755	256
/IO.BUF./	43233	227
INPB=	43462	324
INPC=	44006	173
KODER=	44201	467
KRAKER=	44670	454
OUTB=	45344	246
/HEADING/	45612	16
/LIN.CNT/	45630	1
OUTC=	45631	1054
OUTCOM=	46705	204

REWIND=	47111	36
GOTOEP=	47147	14
ALOG	47163	77
EXP	47262	102
ITOJ*	47364	52
SQRT	47436	46
SYSAID=	47504	1
SYS=1ST	47505	62
XTCV*	47567	55
//	47644	15040

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*****************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
*****************************************************
```

T1 5850-03-1, FIS - MACOMB TOWNSHIP, PM = OLE N. ANDERSON
T2 10-YEAR FLOOD
T3 NORTH BRANCH - CLINTON RIVER

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-1.	2.	0.	0.	0.000000	0.00	0.0	0.	593.614	0.000

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	1.000	0.000	-1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

J3 VARIABLE CODES FOR SUMMARY PRINTOUT

38.000	39.000	40.000	41.000	42.000	43.000	1.000	10.000	11.000	12.000
14.000	8.000	4.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

NC	.080	.075	.032	.300	.500	0.000	0.000	0.000	0.000	0.000
QT	4.000	5440.000	6410.000	9720.000	13100.000	0.000	0.000	0.000	0.000	0.000
NH	5.000	.050	1647.000	.094	1708.300	.050	1807.000	.098	1926.600	.060
NH	3600.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

U/S FACE OF HALL ROAD CULVERT SEC. A

X1	19401.000	64.000	1700.000	1926.600	39.000	39.000	39.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	1926.600	599.900	0.000	0.000	0.000
GR	603.800	0.000	602.900	100.000	601.300	200.000	601.100	300.000	600.300	400.000
GR	599.700	500.000	599.200	600.000	599.000	700.000	599.000	800.000	599.000	900.000
GR	599.600	1100.000	600.200	1400.000	600.400	1600.000	600.400	1647.000	597.400	1700.000
GR	594.000	1700.000	593.000	1708.000	586.300	1726.000	582.300	1736.100	583.500	1736.100
GR	583.500	1736.600	597.700	1736.600	597.700	1739.600	583.500	1739.600	583.500	1740.100
GR	581.500	1740.100	580.800	1750.000	580.500	1770.000	581.000	1780.000	581.400	1786.100
GR	583.500	1786.100	583.500	1786.600	597.800	1786.600	597.800	1789.600	583.500	1789.600
GR	585.600	1800.000	586.800	1820.000	586.700	1836.600	597.800	1836.600	597.800	1839.600
GR	585.900	1839.600	586.200	1850.000	586.100	1879.000	585.900	1886.600	597.700	1886.600
GR	597.700	1889.600	584.500	1889.600	585.600	1897.000	594.400	1919.000	595.300	1926.600
GR	587.400	1926.600	587.400	1926.600	587.400	1926.600	587.600	1973.000	589.000	2173.000
GR	592.600	2373.000	600.200	2530.000	600.200	2800.000	600.400	2900.000	600.500	3000.000
GR	600.200	3300.000	600.000	3400.000	600.100	3500.000	601.100	3600.000	0.000	0.000
QT	4.000	5440.000	8970.000	10700.000	15300.000	0.000	0.000	0.000	0.000	0.000
NC	.080	.075	.032	0.000	0.000	0.000	0.000	0.000	0.000	0.000

3820[illegible] U/S FROM U/S FACE OF HALL ROAD CULVERT, VSE23 SEC. B

X1	23221.000	25.000	1653.000	1738.000	1300.000	3850.000	3820.000	0.000	0.000	0.000
GR	598.200	0.000	598.000	15.000	596.000	200.000	594.000	310.000	592.300	575.000
GR	593.600	800.000	591.600	900.000	591.600	1000.000	591.300	1100.000	591.300	1200.000
GR	587.800	1300.000	587.400	1400.000	587.600	1500.000	590.300	1600.000	586.100	1653.000
GR	579.300	1670.000	578.900	1680.000	579.000	1690.000	577.900	1700.000	578.200	1710.000

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GR    578.000   1723.000    580.200   1727.000    589.800   1730.000    594.300   1775.000    597.200   1900.000
NC       .075       .075       .031      0.000      0.000      0.000      0.000      0.000      0.000      0.000

        7320C U/S FROM U/S FACE OF HALL ROAD CULVERT, VSE24          SEC. C

X1  26721.000     28.000    100.000    200.000   1200.000   2800.000   3500.000      0.000      0.000      0.000
X3      0.000      0.000      0.000    100.000      0.000   1600.000      0.000      0.000      0.000      0.000
GR    596.500      0.000    597.200    130.000    579.700    132.000    578.900    142.000    578.900    152.000
GR    579.500    162.000    580.000    172.000    588.300    200.000    590.100    300.000    589.500    400.000
GR    591.800    500.000    590.800    500.000    590.100    700.000    588.300    800.000    588.000    900.000
GR    588.700   1000.000    590.600   1100.000    589.700   1300.000    590.300   1400.000    589.900   1500.000
GR    591.000   1610.000    596.000   1700.000    596.000   1800.000    597.500   2125.000    598.000   2500.000
GR    596.700   2650.000    598.000   2950.000    600.000   3220.000      0.000      0.000      0.000      0.000
NC       .065       .050       .032      0.000      0.000      0.000      0.000      0.000      0.000      0.000

        1002.0 U/S FROM U/S FACE OF HALL ROAD CULVERT, VSE25          SEC. D

X1  28421.000     25.000    274.000    385.000   2600.000   1200.000   2700.000      0.000      0.000      0.000
X3      0.000      0.000      0.000    115.000      0.000    615.000      0.000      0.000      0.000      0.000
GR    600.000      0.000    598.000     30.000    596.000     70.000    595.500    120.000    591.900    220.000
GR    593.900    274.000    590.600    293.000    579.500    305.000    578.700    315.000    578.600    325.000
GR    578.300    335.000    580.500    345.000    580.700    355.000    581.100    363.000    590.100    385.000
GR    583.200    420.000    597.000    500.000    598.000    700.000    598.300    890.000    598.300   1165.000
GR    598.000   1300.000    597.800   1440.000    597.000   1650.000    598.000   1800.000    600.000   2050.000
NC       .045       .052       .073      0.000      0.000      0.000      0.000      0.000      0.000      0.000

        3260C D/S FROM D/S FACE OF 21 MILE ROAD, VSE26          SEC. E

X1  31221.000     21.000      0.000    167.000   1600.000   1000.000   1800.000      0.000      0.000      0.000
X3      0.000      0.000      0.000      0.000      0.000    850.000      0.000      0.000      0.000      0.000
GR    610.800      0.000    587.600     97.000    583.000    103.000    581.500    110.000    580.500    120.000
GR  [illegible] [illegible]   580.900    140.000    583.200    150.000    582.200    167.000    593.600    200.000
GR    591.600    300.000    590.300    400.000    591.500    500.000    591.000    600.000    594.500    700.000
GR    596.800    800.000    598.000   1095.000    598.400   1200.000    598.600   1450.000    598.000   1780.000
GR    600.000   1950.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
NC       .062       .050       .071      0.000      0.000      0.000      0.000      0.000      0.000      0.000
QT      4.000   5390.000   9800.000  13600.000  15200.000      0.000      0.000      0.000      0.000      0.000

        1870C D/S FROM D/S FACE OF 21 MILE ROAD, VSE27          SEC. F

X1  32611.000     16.000    750.000    840.000   1400.000   1100.000   1390.000      0.000      0.000      0.000
X3      0.000      0.000      0.000    230.000      0.000    840.000      0.000      0.000      0.000      0.000
GR    599.300      0.000    598.400    150.000    592.500    230.000    587.300    350.000    588.300    440.000
GR    591.000    550.000    592.600    650.000    591.900    750.000    582.000    770.000    581.400    780.000
GR    581.200    790.000    580.700    800.000    580.500    810.000    581.200    818.000    599.200    840.000
GR    600.000    960.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
NC       .060       .035       .032      0.000      0.000      0.000      0.000      0.000      0.000      0.000

        70C D/S FROM D/S FACE OF 21 MILE ROAD CULVERT, VSE28          SEC. G

X1  34411.000     25.000    400.000    504.000   1200.000   1500.000   1900.000      0.000      0.000      0.000
X3      0.000      0.000      0.000    400.000      0.000   1000.000      0.000      0.000      0.000      0.000
GR    599.800      0.000    598.500    120.000    599.700    300.000    593.000    350.000    596.000    375.000
GR    599.700 [illegible]   589.000    420.000    587.700    430.000    582.200    437.000    580.700    439.000
GR    577.300    451.000    578.100    463.000    578.300    474.000    581.100    484.000    582.500    490.000
GR    583.900    495.000    587.200    504.000    590.600    610.000    590.100    700.000    590.000    800.000
GR    591.000    900.000    595.000   1000.000    594.000   1010.000    596.000   1040.000    598.000   1115.000
GR    599.000   1200.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000

X1  34481.000     20.000    460.000    520.000     70.000     45.000     70.000      0.000      0.000      0.000
X3      0.000      0.000      0.000    400.000      0.000   1000.000      0.000      0.000      0.000      0.000
GR    600.700 [illegible]   600.200    100.000    599.800    200.000    598.600    300.000    596.800    400.000
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GR	[illegible].200	4[illegible].000	5[illegible].500	410.000	581.300	4[illegible].000	581.400	430.000	582.200	440.000
GR	582.800	450.000	582.600	460.000	583.200	462.000	583.200	466.000	582.500	470.000
GR	581.800	480.000	581.400	490.000	581.400	500.000	581.600	510.000	582.100	520.000
GR	584.300	529.000	596.900	529.000	596.400	600.000	596.400	700.000	596.400	800.000
GR	596.700	900.000	596.900	1000.000	598.100	1260.000	0.000	0.000	0.000	0.000
NC	.035	.035	.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D/S FACE OF 21 MILE ROAD CULVERT, BSE29 SEC. H

X1	34482.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	400.000	0.000	1000.000	0.000	0.000	0.000	0.000
BT	19.000	0.000	600.700	0.000	100.000	600.200	0.000	200.000	599.800	0.000
BT	300.000	595.600	0.000	400.000	596.300	0.000	400.000	596.800	585.200	400.000
BT	596.800	593.400	432.000	596.800	593.400	462.000	596.800	583.200	466.000	596.800
BT	583.200	466.000	596.800	593.400	529.000	596.800	593.400	529.000	596.800	584.300
BT	529.000	596.600	0.000	600.000	596.400	0.000	700.000	596.400	0.000	800.000
BT	596.400	0.000	900.000	595.700	0.000	1000.000	596.900	0.000	0.000	0.000

U/S FACE OF 21 MILE ROAD CULVERT, BSE29 SEC. H

X1	34506.000	0.000	0.000	0.000	24.000	24.000	24.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	1.000
X3	7.000	0.000	0.000	400.000	0.000	1000.000	0.000	0.000	0.000	0.000
NC	.060	.065	.032	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	34507.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	400.000	0.000	1000.000	0.000	0.000	0.000	0.000

1600' U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VSE30 SEC. I

X1	36107.000	13.000	47.000	92.000	1650.000	1300.000	1600.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	25.000	0.000	600.000	0.000	0.000	0.000	0.000
GR	600.200	0.000	599.000	10.000	591.300	25.000	588.300	47.000	582.600	51.000
GR	581.500	55.000	581.300	60.000	580.500	65.000	581.000	70.000	581.800	75.000
GR	582.900	80.000	583.900	92.000	589.100	110.000	590.200	210.000	589.500	310.000
GR	593.000	410.000	593.700	510.000	594.700	610.000	596.200	710.000	0.000	0.000
NC	.062	.065	.033	0.000	0.000	0.000	0.000	0.000	0.000	0.000

4295' U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VSE31 SEC. J

X1	38602.000	27.000	292.000	346.000	1125.000	2150.000	2695.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	1140.000	0.000	0.000	0.000	0.000
GR	600.300	0.000	599.300	37.000	592.300	106.000	590.300	272.000	588.200	292.000
GR	582.400	302.000	581.000	307.000	580.700	313.000	581.600	320.000	582.300	325.000
GR	582.300	333.000	583.400	335.000	589.700	346.000	589.300	432.000	590.700	542.000
GR	591.700	632.000	591.200	732.000	591.100	822.000	591.200	912.000	595.000	1142.000
GP	595.200	1062.000	598.000	1162.000	599.300	1500.000	0.000	0.000	0.000	0.000
NC	.070	.065	.032	0.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	4.000	5280.000	8760.000	10500.000	15000.000	0.000	0.000	0.000	0.000	0.000

6775' U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VSE32 SEC. K

X1	41262.000	34.000	1761.000	1835.000	2000.000	1200.000	2480.000	0.000	0.000	0.000
X3	0.000	1.000	0.000	1150.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	601.300	0.000	600.000	200.000	599.900	300.000	600.000	400.000	601.000	580.000
GR	601.200	715.000	600.000	800.000	599.700	900.000	600.200	1000.000	596.400	1100.000
GR	594.500	1144.000	590.700	1174.000	592.100	1200.000	591.500	1300.000	592.000	1400.000
GR	591.400	1500.000	592.300	1600.000	590.700	1700.000	581.500	1761.000	584.500	1775.000
GR	591.200	1785.000	580.400	1795.000	585.400	1803.000	606.400	1835.000	0.000	0.000
NH	4.000	.075	1275.000	.033	1349.000	.060	1475.000	.090	1800.000	0.000

6500. U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VSE33 SEC. L

X1	43007.000	33.000	1275.000	1349.000	750.000	1600.000	1725.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	830.000	0.000	2300.000	0.000	0.000	0.000	0.000
GR	601.200	0.000	600.000	145.000	599.000	325.000	600.000	490.000	600.800	570.000
GR	600.000	635.000	599.600	830.000	598.000	890.000	597.500	935.000	598.000	1000.000
GR	596.000	1060.000	595.800	1070.000	596.000	1100.000	598.000	1140.000	600.000	1270.000
GR	601.300	1275.000	590.200	1291.000	590.500	1304.000	585.200	1308.000	581.800	1318.000
GR	581.700	1328.000	584.700	1339.000	589.400	1349.000	591.300	1375.000	592.700	1475.000
GR	592.800	1575.000	592.300	1675.000	593.100	1775.000	597.500	1800.000	598.000	1930.000
GR	600.000	1955.000	600.200	2050.000	600.300	2350.000	0.000	0.000	0.000	0.000
NC	.060	.070	.032	0.000	0.000	0.000	0.000	0.000	0.000	0.000

11600. U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VSE34 SEC. M

X1	46107.000	39.000	3382.000	3487.000	1700.000	1800.000	3350.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	1300.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	600.000	0.000	599.800	140.000	600.000	230.000	602.500	340.000	600.000	400.000
GR	600.700	500.000	600.000	575.000	599.000	660.000	600.000	735.000	600.200	825.000
GR	600.000	960.000	599.800	1265.000	600.000	1425.000	600.200	1700.000	600.000	1840.000
GR	600.000	1915.000	601.400	2015.000	600.000	2175.000	598.600	2210.000	593.910	2310.000
GR	591.900	2410.000	591.800	2510.000	591.400	2610.000	591.600	2710.000	591.800	2810.000
GR	591.600	2910.000	592.100	3010.000	592.200	3110.000	591.900	3200.000	595.600	3310.000
GR	593.500	3330.000	592.800	3382.000	585.600	3392.000	584.900	3407.000	584.600	3422.000
GR	585.900	3432.000	588.900	3443.000	600.600	3477.000	603.900	3487.000	0.000	0.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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*PROF 1

CCHV=      .300 CEHV=      .500
1490 NH CARD USED
*SECNO 19401.000

3265 DIVIDED FLOW

   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST


3470 ENCROACHMENT STATIONS=        .0     1926.6  TYPE=     1  TARGET=    1926.599

          U/S FACE OF HALL ROAD CULVERT                                   SEC. 4

 19401.00     13.11    593.61      0.00    593.61    593.79       .17      0.00      0.00    597.40
  5440.          0.     5440.        0.        0.     1624.        0.        0.        0.    599.90
   0.00        .00      3.34       .00     0.000      .062     0.000     0.000    580.50   1703.09
 .000114        20.       30.       30.         1         0         0      0.00    201.95   1917.04

*SECNO 23221.000

          3820 U/S FROM U/S FACE OF HALL ROAD CULVERT, VSE23              SEC. B

 23221.00     16.22    594.12      0.00      0.00    594.20       .07       .30       .03    586.10
  5440.      2168.     3246.       26.     4111.     1176.       71.      187.       34.    589.50
    .50        .53      2.76       .36      .080      .032      .075      .037    577.90    303.16
 .000115      1200.     3820.     3850.         2         0         0      0.00   1466.42   1769.58

*SECNO 26721.000

3470 ENCROACHMENT STATIONS=     100.0     1600.0  TYPE=     1  TARGET=    1500.000

          7320 U/S FROM U/S FACE OF HALL ROAD CULVERT, VSE24              SEC. C

 26721.00     15.54    594.44      0.00      0.00    594.47       .03       .26       .01    597.20
  5440.         0.     2241.     3199.        0.     1093.     6558.      548.      106.    588.30
   1.19       0.00      2.05       .49      .075      .031      .075      .037    578.90    105.04
 .000075      1200.     3500.     2800.         2         0         0      0.00   1494.95   1600.00

*SEGNO 29421.000

3470 ENCROACHMENT STATIONS=     115.0      615.0  TYPE=     1  TARGET=     500.000

          10020 U/S FROM U/S FACE OF HALL ROAD CULVERT, VSE25             SEC. D

 29421.00     15.32    594.62      0.00      0.00    594.80       .17       .25       .07    590.90
  5440.       163.     4943.      334.      277.     1421.      325.      729.      137.    590.10
   1.38        .59      3.48      1.03      .065      .032      .050      .039    579.30    144.31
 .000199      2600.     2700.     1200.         2         0         0      0.00    331.33    475.64

*SECNO 31221.000
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
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   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

3470 ENCROACHMENT STATIONS=          .0      850.0  TYPE=      1  TARGET=      849.999
         32600 D/S FROM D/S FACE OF 21 MILE ROAD, VSE26                    SEC. E

 31221.00    14.59    595.09      0.00      0.00    595.21       .12       .40       .01100000.00
  5440.         0.     3339.     2101.        0.      956.     1780.      808.      151.    592.20
    1.55      0.00      3.49      1.18      .065      .033      .052      .038    580.20     65.69
 .000323     1600.     1800.     1000.         2         0         0      0.00    659.96    725.64

*SECNO 32611.000
3470 ENCROACHMENT STATIONS=      230.0      840.0  TYPE=      1  TARGET=      610.000
         18700 D/S FROM D/S FACE OF 21 MILE ROAD, VSE27                    SEC. F

 32611.00    14.85    595.45      0.00      0.00    595.53       .08       .30       .01    591.90
  5390.     2475.     2915.        0.     2607.      989.        0.      303.      169. 100000.00
    1.74       .95      2.95      0.00      .062      .031      .050      .037    580.60    230.00
 .000163     1400.     1390.     1100.         1         0         0      0.00    606.42    836.42

*SECNO 34411.000
3470 ENCROACHMENT STATIONS=      400.0     1000.0  TYPE=      1  TARGET=      600.000
         700 D/S FROM D/S FACE OF 21 MILE ROAD CULVERT, VSE28              SEC. G

 34411.00    17.78    595.58      0.00      0.00    595.75       .07       .22       .00    599.70
  5390.        0.     3140.     2250.        0.     1216.     2533.     1028.      189.    587.20
    1.97      0.00      2.58       .89      .060      .032      .055      .037    577.90    407.51
 .000114     1200.     1800.     1500.         2         0         0      0.00    592.49   1000.00

*SECNO 34481.000
3470 ENCROACHMENT STATIONS=      400.0     1000.0  TYPE=      1  TARGET=      600.000
 34481.00    14.35    595.55      0.00      0.00    595.80       .15       .01       .04    596.80
  5390.        0.     5390.        0.        0.     1741.        0.     1032.      189.    596.80
    1.98      0.00      3.10      0.00      .060      .032      .055      .037    581.30    400.00
 .000172       70.       70.       45.         2         0         0      0.00    129.00    529.00

*SECNO 34482.000
3370 NORMAL BRIDGE,NRD= 10 MIN ELTRD=  596.40 MAX ELLC=  593.40

3470 ENCROACHMENT STATIONS=      400.0     1000.0  TYPE=      1  TARGET=      600.000
         D/S FACE OF 21 MILE ROAD CULVERT, BSE29                           SEC. H

 34482.00    14.30    595.60      0.00      0.00    595.84       .24       .00       .05    596.80
  5390.        0.     5390.        0.        0.     1369.        0.     1032.      189.    596.80
    1.98      0.00      3.94      0.00      .035      .030      .035      .037    581.30    400.00
 .000750        1.        1.        1.         2         0         0   -365.95    129.00    529.00

*SECNO 34506.000
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST
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3370 NORMAL BRIDGE,NRD= 19 MIN ELTRD=  596.40 MAX ELLC=  593.40

3470 ENCROACHMENT STATIONS=      400.0     1000.0  TYPE=      1  TARGET=     600.000

            U/S FACE OF 21 MILE ROAD CULVERT, SSE29                              SEC. H

  34506.00      14.32     595.62      0.00      0.00    595.86       .24       .02       .00    596.80
    5390.          0.      5390.         0.        0.     1369.         0.     1033.      189.    596.80
     1.98        0.00       3.94      0.00      .035      .030      .035      .037    581.30    400.00
  .000750         24.        24.        24.        0         0         0   -367.33    123.00    529.00

*SECNO 34507.000

3470 ENCROACHMENT STATIONS=      400.0     1000.0  TYPE=      1  TARGET=     600.000
  34507.00      14.44     595.74      0.00      0.00    595.89       .15       .00       .03    596.80
    5390.          0.      5390.         0.        0.     1753.         0.     1033.      189.    596.80
     1.98        0.00       3.07      0.00      .060      .032      .065      .037    581.30    400.00
  .000165          1.         1.         1.        2         0         0      0.00    123.00    529.00

*SECNO 36107.000

3470 ENCROACHMENT STATIONS=       25.0      600.0  TYPE=      1  TARGET=     575.000

            1600 U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, WSE30                SEC. I

  36107.00      15.60     596.10      0.00      0.00    596.23       .13       .34       .00    588.30
    5390.        179.      2423.      2788.      139.      582.     2324.     1113.      201.    589.90
     2.15        1.29       4.16      1.20      .060      .032      .065      .037    580.50     25.00
  .000306       1650.      1600.      1300.        2         0         0      0.00    575.00    600.00

*SECNO 38802.000

3470 ENCROACHMENT STATIONS=         .0     1140.0  TYPE=      1  TARGET=    1139.999

            4295 U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, WSE31                SEC. J

  38802.00      15.91     596.61      0.00      0.00    596.64       .04       .35       .03    598.20
    5390.        840.      1784.      2766.     1119.      715.     3754.     1319.      238.    589.70
     2.62         .75       2.50       .74      .062      .033      .065      .037    580.70     63.55
  .000107       1125.      2695.      2150.        2         0         0      0.00   1021.03   1084.58

*SECNO 41282.000

3470 ENCROACHMENT STATIONS=     1150.0     1835.0  TYPE=      1  TARGET=   -1150.000

            6775 U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VSE32                SEC. K

  41282.00      16.49     596.33      0.00      0.00    596.97       .38       .30       .32    591.50
    5290.       3195.      2195.         0.     3194.      638.         0.     1508.      270. 100000.00
     2.91        1.00       3.23      0.00      .070      .032      .065      .037    580.40   1150.00
  .000245       2000.      2430.      1200.        2         0         0      0.00    670.51   1820.51

1490 NH CARD USED
*SECNO 43007.000

3265 DIVIDED FLOW

     SECNO      DEPTH      CWSEL      CRIWS      WSELK        EG        HV        HL     OLOSS  BANK ELEV
     Q          QLOB       QCH        QROB       ALOB        ACH       AROB      VOL     TWA   LEFT/RIGHT
     TIME       VLOB       VCH        VROB       XNL         XNCH      XNR       WTN     ELMIN      SSTA
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    SLOPE      ELSL     XLCH      XLOBR     ITRIAL   IDC       ICONT    CORAR    TOP ID     ENDST

3470 ENCROACHMENT STATIONS=      830.0    2300.0  TYPE=     1  TARGET=     1470.000
          8500E U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VSE33          SEC. L
  43007.00      15.59    597.29      0.00       0.00    597.43      .14      .43       .03   601.30
   5290.          39.     2349.     2401.        97.      711.    2144.    1603.      287.    589.40
   3.06          .41      4.01      1.12       .075      .033     .076     .037    581.70   1021.36
 .000395        750.     1725.     1600.          2         0        0     0.00    621.89   1798.27

*SECNO 46107.000
3470 ENCROACHMENT STATIONS=     1300.0    3487.0  TYPE=     1  TARGET=    -1300.000
          11600E U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VSE34          SEC. M
  46107.00      13.18    597.78      0.00       0.00    597.79      .02      .32       .04   592.80
   5290.        3920.     1370.        0.      6120.      823.       0.    1327.      327. 100000.00
   3.79          .64      1.66      0.00       .260      .032     .070     .034    584.60   2227.51
 .000068       1700.     3350.     1900.          2         0        0     0.00   1241.29   3468.80
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*****************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
*****************************************************

T1      5850-03-1,  FIS - MACOMB TOWNSHIP,  BY = OLE W. ANDERSON
T2      50-YEAR FLOOD
T3      NORTH BRANCH - CLINTON RIVER

J1  ICHECK     INQ       NINV       IDIR      STRT       METRIC    HVINS      Q         WSEL       FQ
       -1.        3.        0.        0.  0.000000      0.00       0.0       0.    596.365     0.000

J2  NPROF      IPLOT      PRFVS      XSECV     XSECH      FN        ALLDC     IBW       CHNIM      ITRACE
       2.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
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*PROF 2

CCHV=     .300 CEHV=     .500
1490 NH CARD USED
*SECNO 19401.000

3265 DIVIDED FLOW

   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA    LEFT/RIGHT
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN       SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID      ENDST


3470 ENCROACHMENT STATIONS=          .0     1926.6   TYPE=      1   TARGET=     1926.593

           U/S FACE OF HALL ROAD CULVERT                                         SEC. A

  19401.00      15.37     596.37       0.00     596.37     596.59        .23       0.00       0.00     597.40
   8410.         0.      8410.         0.         0.      2207.         0.         0.         0.       599.90
     0.00       0.00      3.81        0.00      0.000       .062      0.000      0.000     580.50    1700.00
  .000121        30.       30.        30.          0          0          0       0.00     214.60    1926.60

*SECNO 23221.000

           3820C U/S FROM U/S FACE OF HALL ROAD CULVERT, VSE23                   SEC. B

  23221.00      19.01     596.91       0.00       0.00     596.97        .06        .33        .05     596.10
   8970.      4913.      3340.       117.      6102.      1413.       309.       293.        44.       589.60
      .56        .81       2.79        .38       .080       .032       .075       .039     577.90     115.75
  .000092      1300.      3320.      3850.          2          0          0       0.00    1794.76    1910.51

*SECNO 26721.000

3470 ENCROACHMENT STATIONS=       100.0     1600.0   TYPE=      1   TARGET=     1500.000

           7320C U/S FROM U/S FACE OF HALL ROAD CULVERT, VSE24                   SEC. C

  26721.00      18.25     597.15       0.00       0.00     597.17        .02        .20        .01     597.20
   8970.         0.      2814.      6156.         0.      1357.     10347.       859.       123.       588.30
     1.25       0.00       2.07        .59       .075       .031       .075       .040     573.90     100.09
  .000062      1200.      3510.      2800.          2          0          0       0.00    1499.90    1600.00

*SECNO 29421.000

3470 ENCROACHMENT STATIONS=       115.0      615.0   TYPE=      1   TARGET=      500.000

           10020C U/S FROM U/S FACE OF HALL ROAD CULVERT, VSE25                  SEC. D

  29421.00      18.37     597.27       0.00       0.00     597.51        .25        .23        .11     590.90
   9970.       663.      7435.       872.       692.      1714.       607.      1125.       156.       590.10
     1.40        .97       4.34       1.44       .065       .032       .050       .040     573.30     115.00
  .000240      2600.      2700.      1200.          2          0          0       0.00     438.53     553.53

*SECNO 31221.000
   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA    LEFT/RIGHT
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN       SSTA
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   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

3470 ENCROACHMENT STATIONS=          .0        850.0  TYPE=       1  TARGET=       849.999

         32600 D/S FROM D/S FACE OF 21 MILE ROAD, VSE26                         SEC. E

  31221.00      17.63     597.83      0.00       0.00     597.92       .09        .36        .05100000.00
   8970.         0.       4096.      4874.        0.      1249.      3495.      1246.       173.     592.20
     1.99        0.00       3.28       1.39       .065      .033       .052       .040     580.20     54.24
   .000229      1600.      1300.      1000.         2          0          0       0.00     795.75    850.00

*SECNO 32611.000

3470 ENCROACHMENT STATIONS=       230.0        540.0  TYPE=       1  TARGET=       610.000

         18700 D/S FROM D/S FACE OF 21 MILE ROAD, VSE27                         SEC. F

  32611.00      17.40     598.08      0.00       0.00     598.17       .09        .25        .00     591.90
   8690.       4857.      4033.        0.       3984.      1222.        0.       1393.       193. 100000.00
     1.76        1.22       3.30       0.00       .062      .031       .050       .039     580.60    230.00
   .000164      1400.      1390.      1100.         2          0          0       0.00     609.85    839.85

*SECNO 34411.000

3470 ENCROACHMENT STATIONS=       400.0       1000.0  TYPE=       1  TARGET=       600.000

         700 D/S FROM D/S FACE OF 21 MILE ROAD CULVERT, VSE28                   SEC. G

  34411.00      20.42     598.32      0.00       0.00     598.40       .08        .22        .00     599.70
   8890.         0.       4337.      4553.        0.      1478.      3843.      1570.       213.     587.20
     1.97        0.00       2.94       1.15       .060      .032       .055       .039     577.90    402.58
   .000122      1210.      1300.      1500.         2          0          0       0.00     597.42   1000.00

*SECNO 34481.000
3280 CROSS SECTION  34481.00 EXTENDED        .15 FEET


3470 ENCROACHMENT STATIONS=       400.0       1000.0  TYPE=       1  TARGET=       600.000
  34481.00      16.95     598.25      0.00       0.00     598.49       .24        .01        .08     596.80
   8890.         0.       8410.       480.        0.      2076.       602.      1575.       214.     595.80
     1.97        0.00       4.05        .60       .060      .032       .055       .039     581.30    400.00
   .000241        70.        70.        45.         2          0          0       0.00     600.00   1000.00

*SECNO 34482.000
3280 CROSS SECTION  34482.00 EXTENDED        .14 FEET


3370 NORMAL BRIDGE,NRD= 19 MIN ELTRD=  596.40 MAX ELLC=  593.40

3470 ENCROACHMENT STATIONS=       400.0       1000.0  TYPE=       1  TARGET=       600.000

         D/S FACE OF 21 MILE ROAD CULVERT, BSE29                                SEC. H

  34482.00      16.93     599.23      0.00       0.00     598.51       .27        .00        .02     596.80
   8890.         0.       7077.      1813.        0.      1555.       798.      1576.       214.     595.80
     1.97        0.00       4.55       2.27       .035      .030       .035       .039     581.30    400.00
   .001408        1.         1.         1.          1          0          0    -520.40     600.00   1000.00
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S UNO 34506.000
3280 CROSS SECTION  34506.00 EXTENDED        .16 FEET

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


3370 NORMAL BRIDGE,NRD= 18 MIN ELTRD=  596.40 MAX ELLC=  593.40

3470 ENCROACHMENT STATIONS=      400.0     1000.0  TYPE=      1  TARGET=      600.000

             U/S FACE OF 21 MILE ROAD CULVERT, RSE29                            SEC. H

  34506.00     16.97    596.27      0.00      0.00    598.54       .27       .03       .00    596.80
    8890.        0.     7053.     1837.        0.     1556.      308.     1577.      214.     596.80
     1.98      0.00      4.53      2.27      .035      .030      .035      .039    581.30    400.00
  .001391       24.       24.       24.         1         0         0   -520.40    600.00   1000.00

*SECNO 34507.000
3280 CROSS SECTION  34507.00 EXTENDED        .20 FEET


3470 ENCROACHMENT STATIONS=      400.0     1000.0  TYPE=      1  TARGET=      600.000
  34507.00     17.00    593.30      0.00      0.00    598.55       .24       .00       .01    596.80
    8890.        0.     8461.      429.        0.     2034.      528.     1577.      214.     596.80
     1.98      0.00      4.06       .52      .060      .032      .065      .039    581.30    400.00
  .000241        1.        1.        1.         2         0         0      0.00    600.00   1000.00

*SECNO 36107.000
3280 CROSS SECTION  36107.00 EXTENDED       2.64 FEET


3470 ENCROACHMENT STATIONS=       25.0      600.0  TYPE=      1  TARGET=      575.000

             1610C U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VSE30             SEC. I

  36107.00     15.34    598.84      0.00      0.00    598.97       .13       .38       .03    588.30
    8890.      289.     3150.     5432.      199.      705.     3715.     1700.      232.     589.90
     2.14      1.45      4.46      1.47      .060      .032      .055      .038    580.50     25.00
  .000273     1650.     1600.     1300.         2         0         0      0.00    575.00    600.00

*SECNO 38802.000

3470 ENCROACHMENT STATIONS=         .0     1140.0  TYPE=      1  TARGET=     1139.999

             4295C U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VSE31             SEC. J

  38802.00     16.58    599.23      0.00      0.00    599.32       .04       .33       .03    588.20
    8890.     1553.     2249.     5082.     1757.      659.     5853.     2010.      271.     589.70
     2.61       .88      3.62       .87      .062      .033      .065      .039    580.70     37.14
  .000092     1125.     2595.     2150.         2         0         0      0.00   1102.86   1140.00

*SECNO 41282.000

3470 ENCROACHMENT STATIONS=     1150.0     1835.0  TYPE=      1  TARGET=    -1150.000

             6775C U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VSE32             SEC. K
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41282.00	19.12	599.52	0.00	0.00	599.60	.08	.26	.02	591.50
8760.	5984.	2776.	3.	4803.	800.	0.	2238.	305.	100000.00
2.88	1.25	3.47	0.00	.070	.032	.065	.039	580.40	1150.00
.000222	2000.	2480.	1200.	2	0	0	0.00	674.52	1824.52

1490 NH CARD USED
*SECNO 43007.000

3265 DIVIDED FLOW

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3470 ENCROACHMENT STATIONS= 830.0 2300.0 TYPE= 1 TARGET= 1470.000

*5000 U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VSE33 SEC. L

43007.00	10.16	599.86	0.00	0.00	599.99	.13	.36	.03	601.30
8760.	560.	3718.	4482.	853.	891.	3304.	2431.	328.	589.40
3.03	.66	4.17	1.36	.075	.033	.077	.039	581.70	830.00
.000342	750.	1725.	1600.	2	0	0	0.00	1107.09	1953.25

*SECNO 46107.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 1300.0 3487.0 TYPE= 1 TARGET= -1300.000

11600 U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VSE34 SEC. M

46107.00	15.68	600.28	0.00	0.00	600.29	.02	.27	.03	592.80
8760.	6971.	1329.	0.	9221.	1049.	0.	2771.	592.	100000.00
3.66	.76	1.74	0.00	.060	.032	.070	.040	594.60	1300.00
.000060	1700.	3350.	1800.	2	0	0	0.00	1967.35	3476.06

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*********************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
*********************************************

T1      5850-03-1, FIS - MACOMB TOWNSHIP,  PM = OLE N. ANDERSON
T2      100-YEAR FLOOD
T3      NORTH BRANCH - CLINTON RIVER

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
       -1.       4.        0.        0.  0.000000      0.00      0.0       0.   597.367     0.000

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
      3.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
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*PROF 3

CCHV=      .300 CEHV=      .500
1490 NH CARD USED
*SECNO 19401.000

3265 DIVIDED FLOW

     SECNO       DEPTH      CWSEL      CRIWS      WSELK      EG         HV        HL         OLOSS    BANK ELEV
     Q           QLOB       QCH        QROB       ALOB       ACH        AROB      VOL        TWA     LEFT/RIGHT
     TIME        VLOB       VCH        VROB       XNL        XNCH       XNR       WTN        ELMIN      SSTA
     SLOPE       XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT     CORAR      TOPWID     ENDST


3470 ENCROACHMENT STATIONS=         .0     1926.6   TYPE=      1  TARGET=     1926.599

         U/S FACE OF HALL ROAD CULVERT                                        SEC. A

  19401.00     16.87    597.37       0.00    597.37    597.62       .25      0.00       0.00    597.40
     9723.        0.     9720.         0.        0.     2422.        0.        0.         0.    599.90
      0.00      0.00      4.01       0.00     0.000      .062     0.000     0.000     580.50   1700.00
   .000126       39.       39.        39.         0         0         0      0.00     214.60   1926.60

*SECNO 23221.000
3280 CROSS SECTION  23221.00 EXTENDED       .74 FEET


         38200 U/S FROM U/S FACE OF HALL ROAD CULVERT, VSE23                  SEC. B

  23221.00     20.04    597.94       0.00      0.00    597.99       .05       .32        .06    596.10
    10700.     6240.     4253.       206.     9735.     1500.      504.      339.        46.    599.60
       .57       .64      2.84        .41      .050      .032      .075      .040     577.90     20.45
   .000097     1300.     3420.      3850.         2         0         0      0.00    1909.55   1930.00

*SECNO 26721.000

3470 ENCROACHMENT STATIONS=      100.0     1600.0   TYPE=      1  TARGET=     1500.000

         73200 U/S FROM U/S FACE OF HALL ROAD CULVERT, VSE24                  SEC. C

  26721.00     19.26    598.16       0.00      0.00    598.19       .03       .19        .01    597.20
    10700.        0.     3130.     7570.        0.     1458.    11770.      937.       127.    588.30
      1.23      0.00      2.15        .64      .075      .031      .075      .041     578.90    100.00
   .000061     1200.     3500.     2800.         2         0         0      0.00    1500.00   1600.00

*SECNO 29421.000

3470 ENCROACHMENT STATIONS=      115.0      615.0   TYPE=      1  TARGET=      500.000

         100200 U/S FROM U/S FACE OF HALL ROAD CULVERT, VSE25                 SEC. C

  29421.00     19.97    598.27       0.00      0.00    598.54       .27       .23        .12    590.90
    10700.      955.     8507.      1238.      842.     1826.      828.     1237.       161.    590.10
      1.37      1.13      4.66       1.49      .065      .032      .050      .041     578.30    115.00
   .000254     2600.     2700.     1200.         2         0         0      0.00     500.00    615.00

*SECNO 31221.000
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK      EG        HV        HL       OLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB       ACH       AROB      VOL      TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL        XNCH      XNR       WTN      ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL     IDC       ICONT     CORAR    TOPWID     ENDST


3470 ENCROACHMENT STATIONS=        .0     650.0  TYPE=     1  TARGET=     849.999

          3260I D/S FROM D/S FACE OF 21 MILE ROAD, VSE26                  SEC. E

 31221.00    18.60    594.86     0.00      0.00    598.95      .09       .35      .06100000.00
   10700.       0.     4481.    6219.        0.    1367.     4201.     1427.      179.    592.20
    1.55      0.00     3.28      1.46      .065     .033      .052      .041    580.20    49.92
 .000213     1600.    1300.     1000.        2        0         0      0.00    800.08    850.00

*SECNO 32611.000

3470 ENCROACHMENT STATIONS=     230.0     840.0  TYPE=     1  TARGET=     610.000

          1370I D/S FROM D/S FACE OF 21 MILE ROAD, VSE27                  SEC. F

 32611.00    18.50    599.10     0.00      0.00    599.20      .10       .25       .00    591.90
   13500.    6073.     4577.       0.     4514.    1314.        0.     1595.      199. 100000.00
    1.72      1.33     3.49      0.00      .062     .031      .050      .040    580.60    230.00
 .000168     1400.    1390.     1100.        2        0         0      0.00    610.00    840.00

*SECNO 34411.000
3280 CROSS SECTION  34411.00 EXTENDED       .35 FEET


3470 ENCROACHMENT STATIONS=     400.0    1000.0  TYPE=     1  TARGET=     600.000

          700 D/S FROM D/S FACE OF 21 MILE ROAD CULVERT, VSE28            SEC. G

 34411.00    21.45    599.35     0.00      0.00    599.43      .05       .23       .00    599.70
   10600.       0.     4303.    5597.        0.    1583.     4352.     1792.      219.    587.20
    1.92      0.00     3.10      1.31      .060     .032      .055      .139    577.90    400.66
 .000127     1200.    1800.     1500.        2        0         0      0.00    599.34   1000.00

*SECNO 34481.000
3280 CROSS SECTION  34481.00 EXTENDED      1.17 FEET


3470 ENCROACHMENT STATIONS=     400.0    1000.0  TYPE=     1  TARGET=     600.000
 34481.00    17.97    594.27     0.00      0.00    599.53      .26       .01       .03    596.80
   10600.       0.     9525.    1075.        0.    2208.     1282.     1798.      220.    596.80
    1.93      0.00     4.31       .24      .080     .032      .055      .039    581.30    400.00
 .000254       70.      70.       45.        2        0         0      0.00    600.00   1000.00

*SECNO 34482.000
3280 CROSS SECTION  34482.00 EXTENDED      1.23 FEET


3370 NORMAL BRIDGE,NRD= 19 MIN ELTRD=  596.40 MAX ELLC=  593.40

3470 ENCROACHMENT STATIONS=     470.0    1000.0  TYPE=     1  TARGET=     600.000

          D/S FACE OF 21 MILE ROAD CULVERT, BSE29                         SEC. H
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 34502.00     18.05    599.35      0.00      0.00    599.54       .22       .00       .01    596.80
  10600.        0.     7543.     3557.        0.     1695.     1310.     1798.      220.    596.80
   1.93      0.00      4.15      2.72      .035      .030      .035      .039    581.30    400.00
 .001050        1.        1.        1.         2         0         0   -520.40    600.00   1000.00

*SECNO 34506.000
3260 CROSS SECTION   34516.00 EXTENDED        1.25 FEET

   SECNO     DEPTH     CWSEL     CRIWS     WSELK       EG        HV        HL      OLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB       ACH      AROB       VOL       TWA   LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH       XNR       WTN      ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL     IDC      ICONT     CORAR    TOPWID      ENDST

3370 NORMAL BRIDGE, NRD= 13 MIN ELTRD=  596.40 MAX ELLC=  593.40

3470 ENCROACHMENT STATIONS=      400.0     1100.0  TYPE=     1  TARGET=     600.000

        U/S FACE OF 21 MILE ROAD CULVERT, 3SE29                       SEC. H

 34506.00     18.05    599.36      0.00      0.00    599.57       .21       .03       .00    596.80
  10600.        0.     7019.     3511.        0.     1698.     1320.     1799.      220.    596.50
   1.93      0.00      4.13      2.71      .035      .030      .035      .039    581.30    400.00
 .001037       24.       24.       24.         1         0         0   -520.40    600.00   1000.00

*SECNO 34507.000
3280 CROSS SECTION   34507.00 EXTENDED        1.23 FEET

3470 ENCROACHMENT STATIONS=      400.0     1000.0  TYPE=     1  TARGET=     600.000
 34507.00     18.03    599.33      0.00      0.00    599.60       .27       .00       .03    596.80
  10600.        0.     9650.      950.        0.     2216.     1310.     1800.      220.    596.80
   1.93      0.00      4.36       .72      .060      .032      .065      .039    581.30    400.00
 .000258        1.        1.        1.         2         0         0      0.00    600.00   1000.00

*SECNO 36107.000
3285 CROSS SECTION   36107.00 EXTENDED        3.69 FEET

3470 ENCROACHMENT STATIONS=       25.0      600.0  TYPE=     1  TARGET=     575.000

        1600I U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VSE30        SEC. I

 36107.00     19.39    599.89      0.00      0.00    600.03       .14       .39       .04    588.30
  10600.      339.     3506.     5755.      222.      753.     4252.     1941.      238.    589.90
   2.09      1.52      4.66      1.59      .060      .032      .065      .039    580.50     25.00
 .000272     1650.     1500.     1300.         2         0         0      0.00    575.00    600.00

*SECNO 38802.000
3280 CROSS SECTION   38802.00 EXTENDED         .54 FEET

3470 ENCROACHMENT STATIONS=         .0     1140.0  TYPE=     1  TARGET=    1139.999

        4295I U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VSE31        SEC. J

 38802.00     19.64    600.34      0.00      0.00    600.38       .04       .32       .03    588.20
  10600.     1926.     2471.     6203.     2356.      916.     6693.     2292.      277.    589.70
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 .000090     1125.     2595.     2150.         2         0         C      0.00  1140.00  1140.00

*SECNO 41282.000

3470 ENCROACHMENT STATIONS=     1150.0    1635.0  TYPE=      1  TARGET=   -1150.000

          67750 U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VSE32          SEC. K

 41283.00     20.17    600.37      0.00      0.00    600.65       .08       .25       .02   591.50
  10500.     7375.     3125.        0.     5444.      868.        0.     2538.      312. 100000.00
   2.80      1.35      3.63      0.00      .070      .032      .065      .039    530.40   1150.00
 .000223     2000.     2480.     1200.         2         0         0      0.00    676.12   1825.12

1490 NH CARD USED
*SECNO 43007.000

3265 DIVIDED FLOW

3280 CROSS SECTION  43007.00 EXTENDED        .60 FEET

  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

3470 ENCROACHMENT STATIONS=      830.0    2300.0  TYPE=      1  TARGET=    1470.000

          85000 U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VSE33          SEC. L

 43007.00     19.20    600.97      0.00      0.00    601.02       .12       .35       .02   601.30
  10500.     1024.     4073.     5403.     1311.      967.     3773.     2771.      342.    589.40
   2.95       .78      4.21      1.43      .075      .033      .077      .040    581.70    830.00
 .000323      750.     1725.     1600.         2         0         0      0.00   1467.88   2300.00

*SECNO 46107.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=     1300.0    3487.0  TYPE=      1  TARGET=   -1300.000

          116000 U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VSE34          SEC. M

 46107.00     16.59    601.29      0.00      0.00    601.31       .02       .25       .03   592.80
  10500.     8473.     2027.        0.    11216.     1146.        0.     3175.      417. 100000.00
   3.60       .76      1.77      0.00      .060      .032      .070      .040    584.60   1300.00
 .000058     1700.     3300.     1300.         2         0         0      0.00   2158.68   3479.09
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*************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
*************************************************

T1        5350-03-1,  FIS - MACOMB TOWNSHIP,  PM = OLE N. ANDERSON
T2        500-YEAR FLOOD
T3        NORTH BRANCH - CLINTON RIVER

J1  ICHECK    INQ      NINV     IDIR      STRT     METRIC    HVINS     Q        WSEL      FQ
      -1.       5.       0.       0.   0.000000    0.00      0.0       0.   599.788    0.000

J2  NPROF     IPLOT    PRFVS    XSECV     XSECH     FN       ALLDC     IBW      CHNIM     ITRACE
     15.000    0.000   -1.000    0.000     0.000    0.000    0.000    0.000    0.000     0.000
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*PROF 4

CCHV=     .300 CEHV=      .500
1490 NH CARD USED
*SECNO 19401.000

3265 DIVIDED FLOW

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA     LEFT/RIGHT
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN       SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID      ENDST


3470 ENCROACHMENT STATIONS=         .0      1926.6  TYPE=       1  TARGET=     1926.599

          U/S FACE OF HALL ROAD CULVERT                                        SEC. A

  19401.00     19.29     599.79      0.00     599.79     600.07        .28       0.00       0.00    597.40
   13100.       317.     12783.        0.       415.      2966.         0.         0.         0.     599.90
    0.00        .76       4.31      0.00       .354       .091      0.000      1.000     580.50    465.33
   .001292       39.        39.       39.          0          0          0       0.00     977.45   1926.60

*SECNO 23221.000
3280 CROSS SECTION  23221.00 EXTENDED       3.41 FEET


          33201 U/S FROM U/S FACE OF HALL ROAD CULVERT, VSE23                  SEC. B

  23221.00     22.71     600.61      0.00       0.00     600.65        .04        .51        .07    586.10
   15300.      9857.      4379.      534.     14139.      1727.      1016.       468.        58.    589.60
     .60        .70       2.83       .53        .060       .032       .075       .041     577.90      0.00
  .000072      1300.      3320.      3850.         7          0          0       5.00    1930.00   1930.00

*SECNO 26721.000
3280 CROSS SECTION  26721.00 EXTENDED        .79 FEET


3470 ENCROACHMENT STATIONS=      100.0      1600.0  TYPE=       1  TARGET=     1500.000

          73201 U/S FROM U/S FACE OF HALL ROAD CULVERT, VSE24                  SEC. C

  26721.00     21.09     600.79      0.00       0.00     600.81        .03        .16        .01    597.20
   15300.        0.      3899.     11401.        0.      1721.     15141.      1330.       139.     568.30
    1.21       0.00       2.27       .74        .075       .031       .075       .042     573.00    100.00
  .000057      1200.      3500.      2800.         2          0          0       0.00    1500.00   1600.00

*SECNO 29421.000
3280 CROSS SECTION  29421.00 EXTENDED        .66 FEET


3470 ENCROACHMENT STATIONS=      115.0       615.0  TYPE=       1  TARGET=      500.000

          100201 U/S FROM U/S FACE OF HALL ROAD CULVERT, VSE25                 SEC. D

  29421.00     22.56     600.86      0.00       0.00     601.17        .31        .21        .14    590.90
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  15300.    [illegible]   10924.     2545.  [illegible]   2115.  [illegible]  [illegible]    173.  [illegible]
    1.35       1.46       5.17       1.79       .065       .032       .050       .042     573.30     115.00
 .000258      2600.      2700.      1200.          2          0          0       0.00     500.00     615.00

*SECNO 31221.000
3280 CROSS SECTION   31221.00 EXTENDED      1.46 FEET

   SECNO     DEPTH      CWSEL      CRIWS      WSELK       EG         HV         HL       OLOSS   BANK ELEV
     Q       QLOB        QCH       QROB       ALOB       ACH        AROB       VOL        TWA   LEFT/RIGHT
   TIME      VLOB        VCH       VROB        XNL       XNCH        XNR       WTN       ELMIN      SSTA
   SLOPE     XLOBL       XLCH      XLOBR      ITRIAL      IDC       ICONT     CORAR      TOPWID     ENDST

3470 ENCROACHMENT STATIONS=   [illegible]     850.0  TYPE=      1  TARGET=     849.999

        3260' D/S FROM D/S FACE OF 21 MILE ROAD, VSE26                   SEC. E

31221.00     21.26     601.46       0.00       0.00     601.54        .08        .31        .07100000.00
  15300.  [illegible]   5441.      9859.         0.      1695.      5975.      1905.       191.     592.20
    1.53      0.00       3.23       1.65       .065       .033       .052       .042     580.20      39.06
 .000175     1800.      1900.      1000.          2          0          0       0.00     810.94     850.00

*SECNO 32611.000
3280 CROSS SECTION   32611.00 EXTENDED      1.07 FEET

3470 ENCROACHMENT STATIONS=      230.0      840.0  TYPE=      1  TARGET=     610.000

        1870' D/S FROM D/S FACE OF 21 MILE ROAD, VSE27                   SEC. F

32611.00     21.07     601.67       0.00       0.00     601.78        .11        .23        .01     591.90
  15200.     3259.      5941.         0.      5847.      1545.         0.      2126.       212.  100000.00
    1.68      1.58       3.85       0.00       .062       .031       .050       .041     580.60     230.00
 .000171     1400.      1390.      1100.          2          0          0       0.00     610.00     840.00

*SECNO 34411.000
3280 CROSS SECTION   34411.00 EXTENDED      2.92 FEET

3470 ENCROACHMENT STATIONS=      400.0     1000.0  TYPE=      1  TARGET=     600.000

        700' D/S FROM D/S FACE OF 21 MILE ROAD CULVERT, VSE28            SEC. G

34411.00     24.02     601.92       0.00       0.00     602.01        .10        .23        .00     599.70
  15200.        0.      6360.      8840.         0.      1650.      5629.      2373.       232.     587.20
    1.86      0.00       3.44       1.57       .060       .032       .055       .041     577.90     400.00
 .000132     1200.      1800.      1500.          1          0          0       0.00     600.00    1000.00

*SECNO 34481.000
3280 CROSS SECTION   34481.00 EXTENDED      3.74 FEET

3470 ENCROACHMENT STATIONS=      400.0     1000.0  TYPE=      1  TARGET=     600.000
34481.00     20.54     601.84       0.00       0.00     602.11        .28        .01        .09     596.80
  15200.        0.     11947.      3253.         0.      2539.      2492.      2381.       232.     596.80
    1.86      0.00       4.70       1.31       .060       .032       .055       .041     581.30     400.00
 .000256       70.        70.        45.          2          0          0       0.00     600.00    1000.00
```

```
SECNO 34482.000
3280 CROSS SECTION  34482.00 EXTENDED       3.87 FEET

3370 NORMAL BRIDGE,NRD= 19 MIN ELTRD=  596.40 MAX ELLC=  593.40

3470 ENCROACHMENT STATIONS=      400.0     1000.0  TYPE=      1  TARGET=     600.000

          D/S FACE OF 21 MILE ROAD CULVERT, BSE29                         SEC. H

  34482.00     20.67    601.97     0.00      0.00    602.15       .17       .00       .03    596.80
   15200.         0.     7123.     8077.       0.     2036.     2555.     2331.      232.     596.60
     1.86       0.00      3.50      3.16      .035      .030      .035      .041    581.30    400.00
  .000587         1.        1.        1.         2         0         0   -520.40    600.00   1000.00

*SECNO 34506.000
3280 CROSS SECTION  34506.00 EXTENDED       3.88 FEET

    SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS   BANK ELEV
    Q         QLOB      QCH       QROB      ALOB       ACH       AROB      VOL       TWA   LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL        XNCH      XNR       WTN     ELMIN        SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL     IDC       ICONT     CORAR    TOPWID       ENDST

3370 NORMAL BRIDGE,NRD= 19 MIN ELTRD=  596.40 MAX ELLC=  593.40

3470 ENCROACHMENT STATIONS=      400.0     1000.0  TYPE=      1  TARGET=     600.000

          U/S FACE OF 21 MILE ROAD CULVERT, DSE29                         SEC. H

  34506.00     20.69    601.99      0.00      0.00    602.16       .17       .01       .00    596.30
   15200.         0.     7116.     8084.        0.     2038.     2561.     2384.      233.     596.90
     1.87       0.00      3.49      3.16      .035      .030      .035      .040    581.30    400.00
  .000585        24.       24.       24.         0         0         0   -520.40    600.00   1000.00

*SECNO 34507.000
3280 CROSS SECTION  34507.00 EXTENDED       3.83 FEET

3470 ENCROACHMENT STATIONS=      400.0     1000.0  TYPE=      1  TARGET=     600.000
  34507.00     20.63    601.93      0.00      0.00    602.22       .30       .00       .06    596.80
   15200.         0.    12306.     2894.        0.     2551.     2534.     2334.      233.     596.30
     1.87       0.00      4.82      1.14      .060      .032      .065      .040    581.30    400.00
  .000263         1.        1.        1.         2         0         0      0.00    600.00   1000.00

*SECNO 36107.000
3280 CROSS SECTION  36107.00 EXTENDED       6.30 FEET

3470 ENCROACHMENT STATIONS=       25.0      600.0  TYPE=      1  TARGET=     575.000

          1600C U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VSE30          SEC. I

  36107.00     22.00    602.50      0.00      0.00    602.65       .15       .39       .04    588.30
   15200.       464.     4402.    10334.      280.      871.     5578.     2573.      251.     589.90
     2.01       1.66      5.06      1.85      .060      .032      .065      .040    580.50     25.00
  .000264      1650.     1600.     1300.         2         0         0      0.00    575.00    600.00
```

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*SECNO 38802.000
3280 CROSS SECTION  38802.00 EXTENDED       3.15 FEET


3470 ENCROACHMENT STATIONS=         .0     1140.0  TYPE=      1  TARGET=    1139.999

          42950 U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VSE31         SEC. J

 38802.00     22.25    602.95      0.00      0.00    602.99       .04       .30       .03    588.20
  15200.      2965.     3018.     9217.     2317.     1057.     8762.     3027.      290.    589.70
    2.44      1.05      2.36      1.15      .062      .033      .065      .040    580.70      .00
 .000083     1125.     2695.     2150.         2         0         0      0.00   1140.00   1140.00

*SECNO 41282.000

3470 ENCROACHMENT STATIONS=     1150.0     1335.0  TYPE=      1  TARGET=   -1150.000

          67750 U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VSE32         SEC. K

 41282.00     22.75    603.16      0.00      0.00    603.25       .09       .24       .02    591.50
  15000.     11023.     3977.        0.     7023.     1041.        0.     3433.      325. 100000.00
    2.68      1.57      3.92      0.00      .070      .032      .065      .040    580.40   1150.00
 .000214     2000.     2480.     1200.         2         0         0      0.00    580.06   1830.06

1490 NH CARD USED
*SECNO 43007.000
3280 CROSS SECTION  43007.00 EXTENDED       3.14 FEET

  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST


3470 ENCROACHMENT STATIONS=      830.0     2300.0  TYPE=      1  TARGET=    1470.000

          85000 U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VSE33         SEC. L

 43007.00     21.74    603.44      0.00      0.00    603.56       .11       .30       .01    601.30
  15000.      2492.     4939.     7569.     2443.     1155.     4920.     3648.      355.    589.40
    2.83      1.02      4.23      1.54      .075      .033      .078      .041    581.70    830.00
 .000266      750.     1725.     1600.         2         0         0      0.00   1470.00   2300.00

*SECNO 46107.000

3470 ENCROACHMENT STATIONS=     1300.0     3487.0  TYPE=      1  TARGET=   -1300.000

          115000 U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VSE34        SEC. M

 46107.00     19.17    603.77      0.00      0.00    603.79       .02       .20       .03    592.80
  15000.     12576.     2424.        0.    16392.     1396.        0.     4215.      431. 100000.00
    3.47       .77      1.74      0.00      .060      .032      .070      .042    584.60   1300.00
 .000347     1700.     3350.     1900.         2         0         0      0.00   2186.61   3486.61
```

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*****************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

NORTH BRANCH - CLINTON R

SUMMARY PRINTOUT

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	HV	HL	OLOSS	QCH	DEPTH	TOPWID
19401.000	30.00	0.00	0.00	580.50	5440.00	593.61	.17	0.00	0.00	5440.00	13.11	201.95
19401.000	30.00	0.00	0.00	580.50	6410.00	596.37	.23	0.00	0.00	6410.00	15.87	214.60
19401.000	30.00	0.00	0.00	580.50	8720.00	597.37	.25	0.00	0.00	8720.00	16.87	214.60
19401.000	30.00	0.00	0.00	580.50	13100.00	599.79	.28	0.00	0.00	12732.69	19.29	977.45
23221.000	3820.00	0.00	0.00	577.90	5440.00	594.12	.07	.36	.03	3246.14	16.22	1466.42
23221.000	3820.00	0.00	0.00	577.90	6970.00	596.91	.06	.33	.05	3940.27	19.01	1794.76
23221.000	3820.00	0.00	0.00	577.90	10700.00	597.94	.05	.32	.06	4253.47	20.04	1909.55
23221.000	3820.00	0.00	0.00	577.90	15300.00	600.61	.04	.51	.07	4873.83	22.71	1930.00
26721.000	3500.00	0.00	0.00	578.90	5440.00	594.44	.03	.26	.01	2240.95	15.54	1494.95
26721.000	3500.00	0.00	0.00	578.90	6970.00	597.15	.02	.20	.01	2813.63	18.25	1499.90
26721.000	3500.00	0.00	0.00	578.90	10700.00	598.16	.03	.19	.01	3130.32	19.26	1500.00
26721.000	3500.00	0.00	0.00	578.90	15300.00	600.79	.03	.16	.01	3898.52	21.89	1500.00
29421.000	2700.00	0.00	0.00	578.30	5440.00	594.62	.17	.26	.07	4942.53	16.32	331.33
29421.000	2700.00	0.00	0.00	578.30	6970.00	597.27	.25	.23	.11	7435.17	18.97	438.53
29421.000	2700.00	0.00	0.00	578.30	10700.00	598.27	.27	.23	.12	8516.91	19.97	500.00
29421.000	2700.00	0.00	0.00	578.30	15300.00	600.86	.31	.21	.14	10924.42	22.56	500.00
31221.000	1800.00	0.00	0.00	580.20	5440.00	595.09	.12	.40	.01	3338.81	14.89	659.96
31221.000	1800.00	0.00	0.00	580.20	6970.00	597.83	.09	.36	.05	4096.27	17.63	795.76
31221.000	1800.00	0.00	0.00	580.20	10700.00	598.86	.09	.35	.06	4420.67	18.66	800.08
31221.000	1800.00	0.00	0.00	580.20	15300.00	601.46	.08	.31	.07	5440.93	21.26	810.94
32611.000	1390.00	0.00	0.00	580.60	5390.00	595.45	.08	.30	.01	2915.48	14.85	606.42
32611.000	1390.00	0.00	0.00	580.60	6890.00	598.03	.09	.25	.00	4033.14	17.43	609.85
32611.000	1390.00	0.00	0.00	580.60	10600.00	599.10	.10	.25	.00	4576.80	18.50	610.00
32611.000	1390.00	0.00	0.00	580.60	15200.00	601.67	.11	.23	.01	5940.37	21.07	610.00
34411.000	1800.00	0.00	0.00	577.90	5390.00	595.68	.07	.22	.03	3133.55	17.78	592.49
34411.000	1800.00	0.00	0.00	577.90	6890.00	598.32	.08	.22	.00	4336.68	20.42	597.42
34411.000	1800.00	0.00	0.00	577.90	10600.00	599.35	.08	.23	.00	4902.57	21.45	599.34
34411.000	1800.00	0.00	0.00	577.90	15200.00	601.92	.10	.23	.00	6360.43	24.02	600.00
34481.000	70.00	0.00	0.00	581.30	5390.00	595.65	.15	.01	.04	5390.00	14.35	129.00
34481.000	70.00	0.00	0.00	581.30	6890.00	598.25	.24	.01	.08	6409.58	16.95	600.00
34481.000	70.00	0.00	0.00	581.30	10600.00	599.27	.26	.01	.09	9524.99	17.97	600.00
34481.000	70.00	0.00	0.00	581.30	15200.00	601.84	.28	.01	.09	11947.01	20.54	600.00

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	HV	HL	OLOSS	QCH	DEPTH	TOPWID
34482.000	1.00	596.40	593.40	581.30	5390.00	595.60	.24	.00	.05	5390.00	14.30	129.00
34482.000	1.00	596.40	593.40	581.30	8890.00	598.23	.27	.00	.02	7077.11	16.93	600.00
34482.000	1.00	596.40	593.40	581.30	10600.00	599.33	.22	.00	.01	7042.53	18.03	600.00
34482.000	1.00	596.40	593.40	581.30	15200.00	601.97	.17	.00	.03	7123.39	20.67	600.00
34506.000	24.00	596.40	593.40	581.30	5390.00	595.62	.24	.02	.00	5390.00	14.32	129.00
34506.000	24.00	596.40	593.40	581.30	8890.00	598.27	.27	.03	.00	7052.86	16.97	600.00
34506.000	24.00	596.40	593.40	581.30	10600.00	599.35	.21	.03	.00	7018.85	18.06	600.00
34506.000	24.00	596.40	593.40	581.30	15200.00	601.99	.17	.01	.00	7115.78	20.69	600.00
34507.000	1.00	0.00	0.00	581.30	5390.00	595.74	.15	.00	.03	5390.00	14.44	129.00
34507.000	1.00	0.00	0.00	581.30	8890.00	598.30	.24	.00	.01	8460.87	17.00	600.00
34507.000	1.00	0.00	0.00	581.30	10600.00	599.33	.27	.00	.03	9650.26	18.03	600.00
34507.000	1.00	0.00	0.00	581.30	15200.00	601.93	.30	.00	.06	12306.31	20.63	600.00
36107.000	1600.00	0.00	0.00	580.50	5390.00	596.10	.13	.34	.00	2423.09	15.60	575.00
36107.000	1600.00	0.00	0.00	580.50	8890.00	598.84	.13	.38	.03	3149.76	18.34	575.00
36107.000	1600.00	0.00	0.00	580.50	10600.00	599.83	.14	.39	.04	3505.80	19.39	575.00
36107.000	1600.00	0.00	0.00	580.50	15200.00	602.50	.15	.39	.04	4401.93	22.00	575.00
38802.000	2695.00	0.00	0.00	580.70	5390.00	596.61	.04	.34	.03	1784.14	15.91	1021.03
38802.000	2695.00	0.00	0.00	580.70	8890.00	599.23	.04	.33	.03	2248.97	18.59	1102.86
38802.000	2695.00	0.00	0.00	580.70	10600.00	600.34	.04	.32	.03	2470.59	19.64	1140.00
38802.000	2695.00	0.00	0.00	580.70	15200.00	602.95	.04	.30	.03	3018.25	22.25	1140.00
41282.000	2480.00	0.00	0.00	580.40	5290.00	596.89	.08	.30	.02	2095.42	16.49	670.51
41282.000	2480.00	0.00	0.00	580.40	8760.00	599.52	.08	.26	.02	2775.77	19.12	674.52
41282.000	2480.00	0.00	0.00	580.40	10500.00	600.57	.08	.25	.02	3124.55	20.17	676.12
41282.000	2480.00	0.00	0.00	580.40	15000.00	603.16	.09	.24	.02	3977.32	22.76	680.06
43007.000	1725.00	0.00	0.00	581.70	5290.00	597.29	.14	.43	.03	2849.29	15.59	621.88
43007.000	1725.00	0.00	0.00	581.70	8760.00	599.86	.13	.36	.03	3717.72	18.16	1107.09
43007.000	1725.00	0.00	0.00	581.70	10500.00	600.90	.12	.35	.02	4072.72	19.20	1467.88
43007.000	1725.00	0.00	0.00	581.70	15000.00	603.44	.11	.30	.01	4939.82	21.74	1470.00
46107.000	3350.00	0.00	0.00	584.60	5290.00	597.78	.02	.32	.04	1369.75	13.18	1241.29
46107.000	3350.00	0.00	0.00	584.60	8760.00	600.28	.02	.27	.03	1828.95	15.68	1367.35
46107.000	3350.00	0.00	0.00	584.60	10500.00	601.29	.02	.25	.03	2026.71	16.69	2158.68
46107.000	3350.00	0.00	0.00	584.60	15000.00	603.77	.02	.20	.03	2424.48	19.17	2186.61

SUMMARY OF ERRORS

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Macomb Twp

3) WATERCOURSE: North Branch Clinton River

4) DOCUMENT TYPE: Hydraulic Analysis

00BREAK00

HYDRAULIC ANALYSIS

Introduction

The stream being analyzed is the North Branch of the Clinton River in the Township of Macomb, Macomb County, Michigan. The study starts from Hall Road, the southern corporate boundary of the Township, to 22 Mile Road (extended). The total reach length is about 5.1 miles. The 10-, 50-, 100- and 500-year flood frequency flows were determined by a gaging analysis method using the records at gaging stations near Meade and Mt. Clemens. These flows have been approved by the Michigan Department of Natural Resources (MDNR), Water Management Division. The project manager of this study is Ole Anderson.

Method of Analysis

The flood profiles were calculated by the HEC-2 computer program developed by the U.S. Corps of Engineers (Reference 1). All bridges have been modeled by the requirements of the HEC-2 normal bridge routine.

Variables and Coefficients

The roughness factors (Manning's "n") were determined by comparing the descriptions in Ven Te Chow's Open-Channel Hydraulics (Reference 2) with photographs and field descriptions of the sections taken in the Township by survey crews in January 1978. To reflect the changes in cross-section geometry, the contraction and expansion coefficients used in this study were 0.3 and 0.5, respectively; "n" values are indicative of summer conditions.

Starting Conditions

The starting water-surface elevations for the North Branch of the Clinton River at the Township of Macomb were obtained from the Township of Clinton Flood Insurance Study done by Johnson & Anderson, Inc.

The stationing of this study is in feet from the mouth of the North Branch of the Clinton River.

Discussions

1. In general, the study area is very flat such that a significant reduction in the floodway can be expected without raising water-surface elevations by more than 0.1 ft.

2. There are several small footbridges inside the golf course at the study area. Due to the high submergence, these footbridges were not taken into consideration.

3. Ten year flood at 21 Mile Road appears to be pressure flow. A hand calculation has been checked. It was found that the headwater elevation obtained from hand-calculation was almost the same as that obtained from HEC-2 (only 0.02' difference).

References

1. U.S. Army Corps of Engineers, Hydrologic Engineering Center, HEC-2 Water Surface Profiles Users Manual, October 1973.

2. Chow, Ven Te, Open-Channel Hydraulics, McGraw-Hill, 1959, pp. 101-123.

Township of Macomb
North Branch Clinton River
5850-03-1
MSC 6-28-78

Original Cross Section Location

Cross Section	J & A Section No.	SECNO	Location
A		19401	u/s face of Hall Road Culvert
B	23	23221	±3820' u/s from u/s face of Hall Road Culvert
C	24	26721	±7320' u/s from u/s face of Hall Road Culvert
D	25	29421	±10020' u/s from u/s face of Hall Road Culvert
E	26	31221	±3260' d/s from d/s face of 21 Mile Road Culvert
F	27	32611	±1870' d/s from d/s face of 21 Mile Road Culvert
G	28	34411	±70' d/s from d/s face of 21 Mile Road Culvert
H	29	34506	u/s face of 21 Mile Road Culvert
I	30	36107	±1600' u/s from u/s face of 21 Mile Road Culvert
J	31	38802	±4295' u/s from u/s face of 21 Mile Road Culvert
K	32	41282	±6775' u/s from u/s face of 21 Mile Road Culvert
L	33	43007	±8500' u/s from u/s face of 21 Mile Road Culvert
M	34	46107	±11600' u/s from u/s Face of 21 MIle Road Culvert

1

Johnson & Anderson, Inc.
Consulting Engineers
P.O. Box 1166 2300 Dixie Highway Pontiac, Michigan 48056

HYDRAULIC STRUCTURAL DATA

Code No. 5850-03-BS#29

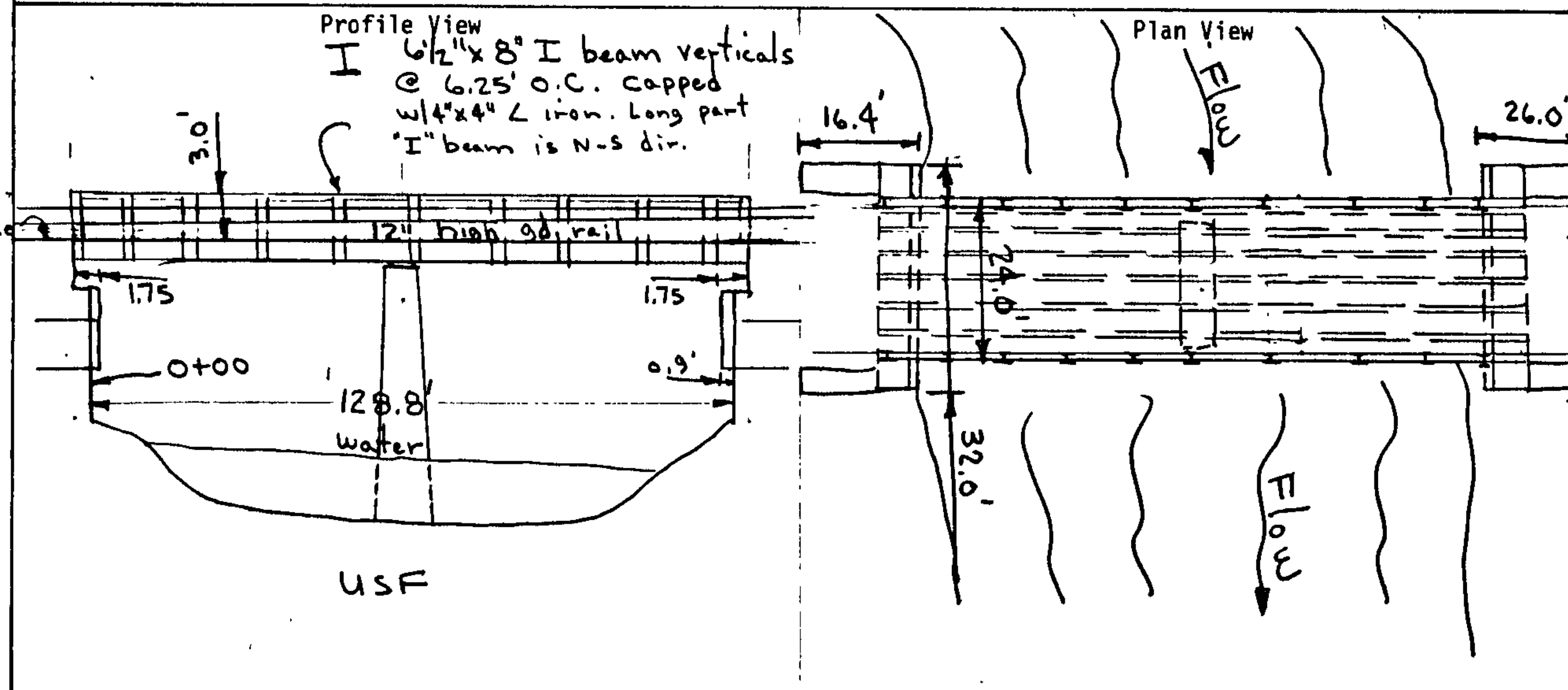
Job Name: Macomb Twp FIS	By: Mapley Lehmoine Janette

Date: 12-16-77	Feature: 21 mile Rd. bridge	Water Course: North Branch Clinton River

Remarks: Pier shape is rectangular as shown; conc. is badly spalled & corners are rounded & irregular

Width of Piers: Top 3.0 4' wd at water elev	Pier Shape:	No. of Piers: 1	Area:
Water Elevation:	Length: 128.8'	Width of Deck: 24.0'	Skew: —

FIELD SKETCH



00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Macomb Twp

3) WATERCOURSE: North Branch Clinton River

4) DOCUMENT TYPE: Natural Encroachment

00BREAK00

5850 - 03 - 1 - 13

Macomb Township

N. B. Clinton River

(Natural Encroachment)

IMSJ306

IMSJ306 LQ42
IMSJ306 LQ42
IMSJ306 LQ42
IMSJ306 LQ42
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IMSJ306 LQ42
IMSJ306 LQ42
IMSJ306 LQ42

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*****************************************************
   HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
   ERROR CORR -   01,02
   MODIFICATION -  50,51,52,53
*****************************************************

C
T1       5853-03-1,  FIS - MACOMB TOWNSHIP,  PM = OLE N. ANDERSON
T2       10-YEAR FLOOD
T3       NORTH BRANCH - CLINTON RIVER

J1   ICHECK      INQ       NINV      IDIR      STRT     METRIC    HVINS        Q       WSEL       FQ

       -1.        2.        0.        0.   0.000000     0.00      0.0        0.    593.614     0.000

J2   NPROF      IPLOT     PRFVS     XSECV     XSECH       FN      ALLOC      IBW      CHNIM     ITRACE

      1.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

J3   VARIABLE CODES FOR SUMMARY PRINTOUT

     38.000    39.000    40.000    41.000    42.000    43.000     1.000    10.000    11.000    12.000

     14.000     8.000     4.000     0.000     0.000     0.000     0.000     0.000     0.000     1.000

NC       .080       .075       .032       .300       .500      0.000      0.000      0.000      0.000      0.000
QT      4.000   5440.000   8410.000   9720.000  13100.000      0.000      0.000      0.000      0.000      0.000
NH      5.000       .050   1647.000       .094   1708.000       .050   1897.000       .090   1926.600       .060
NH   3600.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000

          U/S FACE OF HALL ROAD CULVERT                              SEC. A

X1  19401.000     64.000   1700.000   1926.600     39.000     39.000     39.000      0.000      0.000      0.000
X3      0.000      0.000      0.000      0.000      0.000   1926.600    599.900      0.000      0.000      0.000
GR    603.800      0.000    602.900    100.000    601.900    200.000    601.100    300.000    600.300    400.000
GR    599.700    500.000    599.200    600.000    599.000    700.000    599.000    800.000    599.000    900.000
GR    599.600   1100.000    600.200   1400.000    600.400   1600.000    600.400   1647.000    597.400   1700.000
GR    594.000   1700.000    593.000   1708.000    586.300   1726.000    582.300   1736.100    583.500   1736.100
GR    583.500   1736.600    597.700   1736.600    597.700   1739.600    583.500   1739.600    583.500   1740.100
GR    581.500   1740.100    580.800   1750.000    580.500   1770.000    581.000   1780.000    581.400   1786.100
GR    583.500   1786.100    583.500   1786.600    597.800   1786.600    597.800   1789.600    583.500   1789.600
GR    585.600   1800.000    586.600   1820.000    586.700   1836.600    597.800   1836.600    597.800   1839.600
GR    585.900   1839.600    586.200   1860.000    586.100   1875.000    585.900   1886.600    597.700   1886.600
GR    597.700   1889.600    584.500   1889.600    585.600   1897.000    594.400   1919.000    595.300   1926.600
GR    587.400   1926.600    587.400   1926.600    587.400   1926.600    587.600   1973.000    589.000   2173.000
GR    592.600   2373.000    600.200   2530.000    600.200   2800.000    600.400   2900.000    600.500   3000.000
GR    600.200   3300.000    600.000   3400.000    600.100   3500.000    601.100   3600.000      0.000      0.000
QT      4.000   5440.000   8970.000  10700.000  15300.000      0.000      0.000      0.000      0.000      0.000
NC       .080       .075       .032      0.000      0.000      0.000      0.000      0.000      0.000      0.000

          38201 U/S FROM U/S FACE OF HALL ROAD CULVERT, VS=23        SEC. B

X1  23221.000     25.000   1653.000   1738.000   1300.000   3150.000   3120.000       0.00      0.000      0.000
GR    598.200      0.000    598.00      15.000    596.000    [illegible]    594.000    310.00     592.3     575.000
GR    593.600    840.000    591.60     900.00     591.600   1[illegible]    591.3     1110.00     591.3     1210.0
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GR	579.90	1670.0[illegible]	578.[illegible]	16[illegible]	[illegible].8[illegible]	1[illegible].000	577.9[illegible]	17[illegible]	57[illegible]	1710.[illegible]
GR	578.800	1720.000	580.200	1727.[illegible]	589.600	173[illegible].000	594.9[illegible]	177[illegible]	597.[illegible]	1930.000
NC	.075	.075	.031	0.[illegible]	0.000	0.000	0.000	[illegible]	0.[illegible]	0.000

7320' U/S FROM U/S FACE OF HALL ROAD CULVERT, VS=24 SEC. C

X1	26721.000	28.000	100.000	200.000	1200.000	2800.000	3500.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	10.000	0.000	2700.000	0.000	0.000	0.000	0.000
GR	596.500	0.000	597.200	100.000	579.700	132.000	578.900	142.000	578.900	152.000
GR	579.500	162.000	580.300	172.000	588.300	200.000	590.100	300.000	589.500	400.000
GR	590.800	500.000	590.800	600.000	590.100	700.000	588.300	800.000	588.000	900.000
GR	588.700	1000.000	590.600	1100.000	589.700	1300.000	590.300	1400.000	589.900	1500.000
GR	591.000	1600.000	596.000	1700.000	596.000	1800.000	597.500	2125.000	598.000	2500.000
GR	596.700	2650.000	598.000	2950.000	600.000	3220.000	0.000	0.000	0.000	0.000
NC	.065	.050	.032	0.000	0.000	0.000	0.000	0.000	0.000	0.000

10020' U/S FROM U/S FACE OF HALL ROAD CULVERT, VS=25 SEC. D

X1	29421.000	25.000	274.000	385.000	2600.000	1200.000	2700.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	1600.000	0.000	0.000	0.000	0.000
GR	600.000	0.000	598.000	30.000	596.000	70.000	595.500	120.000	591.900	220.000
GR	590.900	274.000	580.600	293.000	579.500	305.000	578.700	315.000	578.600	325.000
GR	578.300	335.000	580.500	345.000	580.700	355.000	581.100	363.000	590.100	385.000
GR	589.200	420.000	597.000	500.000	598.000	700.000	598.300	890.000	598.300	1165.000
GR	598.000	1300.000	597.800	1440.000	597.000	1650.000	598.000	1800.000	600.000	2050.000
NC	.065	.052	.033	0.000	0.000	0.000	0.000	0.000	0.000	0.000

3260' D/S FROM D/S FACE OF 21 MILE ROAD, VS=26 SEC. E

X1	31221.000	21.000	0.000	167.000	1600.000	1000.000	1800.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	1450.000	0.000	0.000	0.000	0.000
GR	610.800	0.000	587.600	97.000	583.000	103.000	581.500	110.000	580.500	120.000
GR	580.200	130.000	580.900	140.000	583.200	150.000	592.200	167.000	593.600	200.000
GR	591.600	300.000	590.300	400.000	591.500	500.000	591.000	600.000	594.500	700.000
GR	596.800	800.000	598.000	1095.000	598.400	1200.000	598.600	1450.000	598.000	1780.000
GR	600.000	1950.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.062	.050	.031	0.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	4.000	5390.000	8890.000	10600.000	15200.000	0.000	0.000	0.000	0.000	0.000

1870' D/S FROM D/S FACE OF 21 MILE ROAD, VS=27 SEC. F

X1	32611.000	16.000	750.000	840.000	1400.000	1100.000	1390.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	100.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	599.300	0.000	598.400	150.000	592.500	250.000	587.300	350.000	588.300	440.000
GR	591.000	550.000	592.600	650.000	591.900	750.000	582.000	770.000	581.400	780.000
GR	581.200	790.000	580.700	800.000	580.600	810.000	581.200	818.000	598.200	840.000
GR	600.000	960.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.060	.055	.032	0.000	0.000	0.000	0.000	0.000	0.000	0.000

70' D/S FROM D/S FACE OF 21 MILE ROAD CULVERT, VS=28 SEC. G

X1	34411.000	26.000	400.000	504.000	1200.000	1500.000	1800.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	180.000	0.000	1110.000	0.000	0.000	0.000	0.000
GR	599.800	0.000	598.500	120.000	599.700	300.000	598.000	350.000	596.000	375.000
GR	599.700	400.000	589.000	420.000	587.700	430.000	582.200	437.000	580.700	439.000
GR	577.900	451.000	578.100	463.000	578.300	474.000	581.100	484.000	582.500	490.000
GR	583.900	495.000	587.200	504.000	590.600	600.000	590.100	700.000	590.000	800.000
GR	591.000	900.000	595.000	1000.000	594.000	1010.000	596.000	1040.000	598.000	1115.000
GR	599.000	1200.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	34481.000	28.000	400.00[illegible]	529.0[illegible]	7[illegible].000	[illegible]45.000	7[illegible]	0.0[illegible]	[illegible]	0.000

GR	600.[illegible]	[illegible]	600.2[illegible]	100.	59[illegible].800	[illegible]00.0[illegible]	598.[illegible]00	30[illegible].000	596.8[illegible]	40[illegible]
GR	585.200	40[illegible].[illegible]00	581.500	410.000	581.300	420.000	581.700	43[illegible].000	582.200	440.000
GR	582.800	450.000	582.600	460.000	583.200	462.000	583.200	466.000	582.500	470.000
GR	581.800	480.000	581.400	490.000	581.400	500.000	581.600	510.000	582.100	520.000
GR	584.300	529.000	596.800	529.000	596.400	600.000	596.400	700.000	596.400	800.000
GR	596.700	900.000	596.900	1000.000	598.100	1260.000	0.000	0.000	0.000	0.000
NC	.035	.035	.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D/S FACE OF 21 MILE ROAD CULVERT, BS=29 SEC. H

X1	34482.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	240.000	0.000	1170.000	0.000	0.000	0.000	0.000
BT	19.000	0.000	600.700	0.000	100.000	600.200	0.000	200.000	599.800	0.000
BT	300.000	598.600	0.000	400.000	596.800	0.000	400.000	596.800	585.200	400.000
BT	596.800	593.400	462.000	596.800	593.400	462.000	596.800	583.200	466.000	596.800
BT	583.200	466.000	596.800	593.400	529.000	596.800	593.400	529.000	596.800	584.300
BT	529.000	596.800	0.000	600.000	596.400	0.000	700.000	596.400	0.000	800.000
BT	596.400	0.000	900.000	596.700	0.000	1000.000	596.900	0.000	0.000	0.000

U/S FACE OF 21 MILE ROAD CULVERT, BS=29 SEC. H

X1	34506.000	0.000	0.000	0.000	24.000	24.000	24.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	240.000	0.000	1170.000	0.000	0.000	0.000	0.000
NC	.060	.065	.032	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	34507.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	240.000	0.000	1170.000	0.000	0.000	0.000	0.000

1600' U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VS=30 SEC. I

X1	36107.000	19.000	47.000	92.000	1650.000	1300.000	1600.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	640.000	0.000	0.000	0.000	0.000
GR	600.200	0.000	599.000	10.000	591.300	25.000	588.300	47.000	582.600	51.000
GR	581.800	55.000	581.300	60.000	580.500	65.000	581.000	70.000	581.800	75.000
GR	582.900	80.000	589.900	92.000	589.100	110.000	590.200	210.000	589.500	310.000
GR	593.000	410.000	593.700	510.000	594.700	610.000	596.200	710.000	0.000	0.000
NC	.062	.065	.033	0.000	0.000	0.000	0.000	0.000	0.000	0.000

4295' U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VS=31 SEC. J

X1	38802.000	23.000	292.000	346.000	1125.000	2150.000	2695.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	1140.000	0.000	0.000	0.000	0.000
GR	600.300	0.000	599.300	37.000	592.300	106.000	590.300	272.000	588.200	292.000
GR	582.400	302.000	581.000	307.000	580.700	313.000	581.600	320.000	582.300	325.000
GR	582.300	330.000	583.400	335.000	589.700	346.000	589.800	432.000	590.700	542.000
GR	591.700	632.000	591.200	732.000	591.100	822.000	591.200	912.000	595.000	1042.000
GR	596.200	1062.000	598.000	1162.000	599.800	1500.000	0.000	0.000	0.000	0.000
NC	.070	.065	.032	0.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	4.000	5290.000	8760.000	10500.000	15000.000	0.000	0.000	0.000	0.000	0.000

6775' U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VS=32 SEC. K

X1	41282.000	24.000	1761.000	1835.000	2000.000	1200.000	2480.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	140.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	601.300	0.000	600.000	200.000	599.900	300.000	600.000	400.000	601.000	580.000
GR	601.200	715.000	600.300	800.000	599.700	900.000	600.200	1000.000	596.400	1100.000
GR	594.500	1144.000	590.700	1174.000	592.100	1200.000	591.500	1300.000	592.000	1400.000
GR	591.400	1500.000	592.300	1600.000	590.700	1700.000	591.500	1761.000	584.500	1775.000
GR	581.200	1785.000	580.400	1795.000	585.400	1803.000	606.400	1835.000	0.000	0.000
NH	4.000	.075	1275.000	.033	1349.000	.060	1475.000	.090	1800.000	0.000

8500I U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VS=33 SEC. L

X1	43007.000	33.000	1275.000	1349.000	750.000	1600.000	1725.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	90.000	0.000	2300.000	0.000	0.000	0.000	0.000
GR	601.200	0.000	600.000	145.000	599.000	325.000	600.000	490.000	600.800	570.000
GR	600.000	635.000	599.600	830.000	598.000	890.000	597.500	935.000	598.000	1000.000
GR	596.000	1060.000	595.800	1070.000	596.000	1100.000	598.000	1140.000	600.000	1270.000
GR	601.300	1275.000	590.200	1291.000	590.500	1304.000	585.200	1308.000	581.800	1318.000
GR	581.700	1328.000	584.700	1338.000	589.400	1349.000	591.300	1375.000	592.700	1475.000
GR	592.800	1575.000	592.300	1675.000	593.100	1775.000	597.600	1800.000	598.000	1930.000
GR	600.000	1955.000	600.200	2050.000	600.300	2350.000	0.000	0.000	0.000	0.000
NC	.060	.070	.032	0.000	0.000	0.000	0.000	0.000	0.000	0.000

1160.I U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VS=34 SEC. M

X1	46107.000	39.000	3382.000	3487.000	1700.000	1800.000	3350.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	375.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	600.000	0.000	599.800	140.000	600.000	280.000	602.500	340.000	600.000	400.000
GR	600.700	500.000	600.000	575.000	599.000	660.000	600.000	735.000	600.200	825.000
GR	600.000	960.000	599.800	1265.000	600.000	1425.000	600.200	1700.000	600.000	1840.000
GR	600.300	1915.000	601.400	2015.000	600.000	2175.000	598.600	2210.000	593.900	2310.000
GR	591.900	2410.000	591.800	2510.000	591.400	2610.000	591.600	2710.000	591.800	2810.000
GR	591.600	2910.000	592.100	3010.000	592.200	3110.000	591.900	3200.000	595.600	3310.000
GR	593.500	3330.000	592.800	3382.000	585.600	3392.000	584.900	3407.000	584.600	3422.000
GR	585.900	3432.000	588.900	3443.000	600.600	3477.000	603.900	3487.000	0.000	0.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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*PROF 1

CCHV=     .300 CEHV=     .500
1490 NH CARD USED
*SECNO 19401.000

3265 DIVIDED FLOW

     SECNO      DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
     Q          QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
     TIME       VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
     SLOPE      XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


3470 ENCROACHMENT STATIONS=          .0     1926.6  TYPE=      1  TARGET=    1926.599

          U/S FACE OF HALL ROAD CULVERT                                     SEC. A

   19401.00     13.11    593.61      0.00    593.61    593.79       .17      0.00      0.00    597.40
     5440.         0.     5440.        0.        0.     1628.        0.        0.        0.    599.90
      0.00       0.00      3.34      0.00     0.000      .062     0.000     0.000    580.50   1703.09
   .000114        39.       39.       39.         0         0         0      0.00    201.95   1917.04

*SECNO 23221.000

          3820I U/S FROM U/S FACE OF HALL ROAD CULVERT, VS=23               SEC. B

   23221.00     16.22    594.12      0.00      0.00    594.20       .07       .38       .03    586.10
     5440.      2168.     3246.       26.     4111.     1176.       71.      187.       34.    589.60
       .50        .53      2.76       .36      .080      .032      .075      .037    577.90    303.16
   .000115      1300.     3820.     3850.         2         0         0      0.00   1466.42   1769.58

*SECNO 26721.000

3470 ENCROACHMENT STATIONS=        10.0     2700.0  TYPE=      1  TARGET=    2690.000

          7320I U/S FROM U/S FACE OF HALL ROAD CULVERT, VS=24               SEC. C

   26721.00     15.54    594.44      0.00      0.00    594.47       .03       .26       .01    597.20
     5440.         0.     2228.     3212.        0.     1093.     6674.      552.      108.    588.30
      1.20       0.00      2.04       .48      .075      .031      .075      .037    578.90    105.05
   .000075      1200.     3500.     2800.         2         0         0      0.00   1563.75   1668.80

*SECNO 29421.000

3470 ENCROACHMENT STATIONS=          .0     1600.0  TYPE=      1  TARGET=    1599.999

          10020I U/S FROM U/S FACE OF HALL ROAD CULVERT, VS=25              SEC. D

   29421.00     16.32    594.62      0.00      0.00    594.79       .17       .25       .07    590.90
     5440.       163.     4943.      334.      277.     1421.      325.      735.      140.    590.10
      1.39        .59      3.48      1.03      .065      .032      .050      .038    578.30    144.40
   .000198      2600.     2700.     1200.         2         0         0      0.00    331.20    475.60

*SECNO 31221.000
     SECNO      DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
     Q          QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
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   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3470 ENCROACHMENT STATIONS=          .0      1450.0  TYPE=      1  TARGET=    1449.999

          3260' D/S FROM D/S FACE OF 21 MILE ROAD, VS=26                      SEC. E

  31221.00     14.89     595.09      0.00       0.00     595.21        .12        .40        .01100000.00
   5440.          0.      3340.     2100.          0.       955.      1778.       813.       154.     592.20
    1.56        0.00       3.50      1.18       .065       .033       .052       .038     580.20      65.70
  .000323      1600.      1800.     1000.          2          0          0       0.00     659.82     725.52

*SECNO 32611.000

3470 ENCROACHMENT STATIONS=       100.0       960.0  TYPE=      1  TARGET=    -100.000

          1870' D/S FROM D/S FACE OF 21 MILE ROAD, VS=27                      SEC. F

  32611.00     14.84     595.44      0.00       0.00     595.52        .08        .30        .01     591.90
   5390.       2477.      2913.        0.      2632.       988.         0.       909.       173.     598.20
    1.74         .94       2.95      0.00       .062       .031       .050       .037     580.60     200.27
  .000163      1400.      1390.     1100.          1          0          0       0.00     636.16     836.42

*SECNO 34411.000

3470 ENCROACHMENT STATIONS=       180.0      1110.0  TYPE=      1  TARGET=     930.000

          70' D/S FROM D/S FACE OF 21 MILE ROAD CULVERT, VS=28                SEC. G

  34411.00     17.78     595.68      0.00       0.00     595.74        .07        .22        .00     599.70
   5390.          0.      3134.     2256.         0.      1216.      2565.      1035.       193.     587.20
    1.98        0.00       2.58       .88       .060       .032       .055       .037     577.90     407.52
  .000114      1200.      1800.     1500.          2          0          0       0.00     627.66    1035.18

*SECNO 34481.000

3470 ENCROACHMENT STATIONS=       240.0      1170.0  TYPE=      1  TARGET=     930.000
  34481.00     14.35     595.65      0.00       0.00     595.79        .15        .01        .04     596.80
   5390.          0.      5390.        0.         0.      1743.         0.      1038.       194.     596.80
    1.99        0.00       3.10      0.00       .060       .032       .055       .037     581.30     400.00
  .000172        70.        70.       45.          2          0          0       0.00     129.00     529.00

*SECNO 34482.000

3370 NORMAL BRIDGE,NRD= 19 MIN ELTRD=  596.40 MAX ELLC=  593.40

3470 ENCROACHMENT STATIONS=       240.0      1170.0  TYPE=      1  TARGET=     930.000

          D/S FACE OF 21 MILE ROAD CULVERT, BS=29                             SEC. H

  34482.00     14.30     595.60      0.00       0.00     595.84        .24        .00        .05     596.80
   5390.          0.      5390.        0.         0.      1369.         0.      1038.       194.     596.80
    1.99        0.00       3.94      0.00       .035       .030       .035       .037     581.30     400.00
  .000750         1.         1.        1.          2          0          0    -365.61     129.00     529.00

*SECNO 34506.000
   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS     BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA     LEFT/RIGHT
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST
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3370 NORMAL BRIDGE,NRD= 19 MIN ELTRD= 596.40 MAX ELLC= 593.40

3470 ENCROACHMENT STATIONS= 240.0 1170.0 TYPE= 1 TARGET= 930.000

U/S FACE OF 21 MILE ROAD CULVERT, BS=29 SEC. H

34506.00	14.32	595.62	0.00	0.00	595.86	.24	.02	.00	596.80
5390.	0.	5390.	0.	0.	1369.	0.	1039.	194.	596.80
1.99	0.00	3.94	0.00	.035	.030	.035	.037	581.30	400.00
.000750	24.	24.	24.	0	0	0	-367.04	129.00	529.00

*SECNO 34507.000

3470 ENCROACHMENT STATIONS= 240.0 1170.0 TYPE= 1 TARGET= 930.000

34507.00	14.44	595.74	0.00	0.00	595.89	.15	.00	.03	596.80
5390.	0.	5390.	0.	0.	1753.	0.	1039.	194.	596.80
1.99	0.00	3.08	0.00	.060	.032	.065	.037	581.30	400.00
.000169	1.	1.	1.	2	0	0	0.00	129.00	529.00

*SECNO 36107.000

3470 ENCROACHMENT STATIONS= .0 640.0 TYPE= 1 TARGET= 639.999

1600E U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VS=30 SEC. I

36107.00	15.60	596.10	0.00	0.00	596.23	.13	.33	.01	588.30
5390.	217.	2394.	2779.	161.	582.	2374.	1120.	206.	589.90
2.16	1.35	4.11	1.17	.060	.032	.065	.037	580.50	15.65
.000299	1650.	1600.	1300.	2	0	0	0.00	624.35	640.00

*SECNO 38802.000

3470 ENCROACHMENT STATIONS= .0 1140.0 TYPE= 1 TARGET= 1139.999

4295E U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VS=31 SEC. J

38802.00	15.90	596.60	0.00	0.00	596.64	.04	.38	.03	588.20
5390.	840.	1786.	2764.	1117.	714.	3747.	1328.	244.	589.70
2.63	.75	2.50	.74	.062	.033	.065	.037	580.70	63.64
.000108	1125.	2695.	2150.	2	0	0	0.00	1020.43	1084.07

*SECNO 41282.000

3470 ENCROACHMENT STATIONS= 140.0 1835.0 TYPE= 1 TARGET= -140.000

6775E U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VS=32 SEC. K

41282.00	16.48	596.88	0.00	0.00	596.96	.07	.30	.02	591.50
5290.	3210.	2080.	0.	3272.	638.	0.	1519.	278.	100000.00
2.93	.98	3.26	0.00	.070	.032	.065	.037	580.40	1087.28
.000242	2000.	2480.	1200.	2	0	0	0.00	733.22	1820.50

1490 NH CARD USED
*SECNO 43007.000

3265 DIVIDED FLOW

SECNO DEPTH CWSEL CRIWS WSELK EG HV HL OLOSS BANK ELEV

```
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNL       WTN       ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST

3470 ENCROACHMENT STATIONS=       90.0     2300.0  TYPE=      1  TARGET=     2210.000

          8500' U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VS=33          SEC. L

  43007.00     15.58    597.28      0.00      0.00    597.42       .14       .43       .04    601.30
    5290.        39.     2853.     2399.        96.      710.     2139.     1614.      296.    589.40
     3.07        .41      4.02      1.12      .075      .033      .076      .037    581.70   1021.74
  .000398       750.     1725.     1600.         2         0         0      0.00    621.17   1798.20

*SECNO 46107.000

3470 ENCROACHMENT STATIONS=      375.0     3487.0  TYPE=      1  TARGET=     -375.000

          11600' U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VS=34          SEC. M

  46107.00     13.17    597.77      0.00      0.00    597.78       .02       .33       .04    592.80
    5290.      3919.     1371.        0.     6109.      822.        0.     1838.      336. 100000.00
     3.80        .64      1.67      0.00      .060      .032      .070      .038    584.60   2227.71
  .000069      1700.     3350.     1900.         2         0         0      0.00   1241.06   3468.77
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*************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
*************************************************

T1      5850-03-1,  FIS - MACOMB TOWNSHIP,  PM = OLE N. ANDERSON
T2      50-YEAR FLOOD
T3      NORTH BRANCH - CLINTON RIVER

J1  ICHECK     INQ       NINV       IDIR      STRT      METRIC    HVINS      Q       WSEL       FQ
       -1.       3.        0.         0.  0.000000      0.00      0.0       0.   596.365    0.000

J2  NPROF      IPLOT     PRFVS      XSECV     XSECH     FN        ALLDC     IBW      CHNIM      ITRACE
      2.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000    0.000      0.000
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*PROF 2

CCHV=     .300 CEHV=      .500
1490 NH CARD USED
*SECNO 19401.000

3265 DIVIDED FLOW

      SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
      Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA    LEFT/RIGHT
      TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN       SSTA
      SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID      ENDST


3470 ENCROACHMENT STATIONS=          .0     1926.6  TYPE=      1  TARGET=     1926.599

          U/S FACE OF HALL ROAD CULVERT                                        SEC. A

   19401.00      15.87     596.37       0.00     596.37     596.59        .23       0.00       0.00     597.40
     8410.         0.      8410.         0.         0.      2207.         0.         0.         0.       599.90
      0.00       0.00       3.81       0.00      0.000       .062      0.000      0.000     581.50    1700.00
    .000121       39.        39.        39.          0          0          0       0.00     214.60    1926.60

*SECNO 23221.000

          3820E U/S FROM U/S FACE OF HALL ROAD CULVERT, VS=23                  SEC. B

   23221.00      19.01     596.91       0.00       0.00     596.97        .06        .33        .05     586.10
     8970.       4913.      3940.       117.      8102.      1413.       309.       293.        44.      589.60
       .56        .61       2.79        .38       .080       .032       .075       .039     577.90     115.75
    .000392      1300.      3823.      3850.          2          0          0       0.00    1794.76    1910.51

*SECNO 26721.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=        10.0     2700.0  TYPE=      1  TARGET=     2690.000

          7320E U/S FROM U/S FACE OF HALL ROAD CULVERT, VS=24                  SEC. C

   26721.00      18.25     597.15       0.00       0.00     597.17        .02        .19        .01     597.20
     8970.         2.      2756.      6212.        24.      1356.     10994.       880.       142.      588.30
      1.27        .07       2.03        .57       .075       .031       .075       .040     578.90      10.00
    .000060      1200.      3500.      2800.          2          0          0       0.00    2131.79    2700.00

*SECNO 29421.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=          .0     1600.0  TYPE=      1  TARGET=     1599.999

          10020E U/S FROM U/S FACE OF HALL ROAD CULVERT, VS=25                 SEC. D

   29421.00      18.96     597.26       0.00       0.00     597.50        .24        .22        .11     590.90
     8970.        695.      7408.       867.       704.      1713.       60[illegible].      1158.       187.      590.10
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 .00 238     2600.     2700.     1200.        2                              0.10    24.     1600.

*SECNO 31221.000
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST


3470 ENCROACHMENT STATIONS=        .0      1450.0  TYPE=     1  TARGET=    1449.999

        3260' D/S FROM D/S FACE OF 21 MILE ROAD, VS=26                      SEC. E

  31221.00     17.62    597.82      0.00      0.00    597.91       .09       .36      .05100000.00
   8970.         0.     4093.     4877.        0.     1247.     3568.     1281.      208.    592.20
     1.62      0.00      3.28      1.37      .065      .033      .052      .040    580.20     54.29
  .000229     1600.     1800.     1000.         2         0         0      0.00    995.33   1049.62

*SECNO 32611.000

3470 ENCROACHMENT STATIONS=      100.0      960.0  TYPE=     1  TARGET=    -100.000

        1870' D/S FROM D/S FACE OF 21 MILE ROAD, VS=27                      SEC. F

  32611.00     17.47    598.07      0.00      0.00    598.16       .09       .25       .00    591.90
   8890.     4891.     3999.        0.     4141.     1221.        0.     1432.      232.    598.20
     1.79      1.18      3.28      0.00      .062      .031      .050      .039    580.60    155.54
  .000162     1400.     1390.     1100.         2         0         0      0.00    684.30    839.84

*SECNO 34411.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=      180.0     1110.0  TYPE=     1  TARGET=     930.000

        70' D/S FROM D/S FACE OF 21 MILE ROAD CULVERT, VS=28                SEC. G

  34411.00     20.41    598.31      0.00      0.00    598.38       .07       .21       .00    599.70
   8890.       16.     4266.     4608.       52.     1476.     4068.     1616.      255.    587.20
     2.01       .31      2.89      1.13      .060      .032      .055      .039    577.90    341.01
  .000118     1200.     1800.     1500.         2         0         0      0.00    756.96   1110.00

*SECNO 34481.000
3280 CROSS SECTION  34481.00 EXTENDED       .13 FEET


3470 ENCROACHMENT STATIONS=      240.0     1170.0  TYPE=     1  TARGET=     930.000
  34481.00     16.93    598.23      0.00      0.00    598.47       .24       .01       .08    596.80
   8890.       17.     8341.      532.       57.     2074.      955.     1621.      256.    596.80
     2.01       .30      4.02       .56      .060      .032      .055      .039    581.30    320.33
  .000234       70.       70.       45.         2         0         0      0.00    849.67   1170.00

*SECNO 34482.000
3280 CROSS SECTION  34482.00 EXTENDED       .13 FEET


3370 NORMAL BRIDGE,NRD= 19 MIN ELTRD=  596.40 MAX ELLC=  593.40
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3470 ENCROACHMENT STATIONS=      240.0     1170.0  TYPE=     1  TARGET=      930.000
          D/S FACE OF 21 MILE ROAD CULVERT, BS=29                             SEC. H

  34482.00     16.93    598.23      0.00      0.00    598.48       .25       .00       .01    596.80
    8890.        70.     6843.     1977.        57.     1554.      955.     1621.      256.    596.80
     2.01       1.23      4.40      2.07      .035      .030      .035      .039    581.30    320.32
  .001312         1.        1.        1.         0         0         0   -520.40    849.68   1170.00

*SECNO 34506.000
3280 CROSS SECTION  34506.00 EXTENDED        .16 FEET

   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST

3370 NORMAL BRIDGE,NRD= 19 MIN ELTRD=  596.40 MAX ELLC=  593.40

3470 ENCROACHMENT STATIONS=      240.0     1170.0  TYPE=     1  TARGET=      930.000
          U/S FACE OF 21 MILE ROAD CULVERT, BS=29                             SEC. H

  34506.00     16.97    598.27      0.00      0.00    598.51       .24       .03       .00    596.80
    8890.        73.     6811.     2007.        59.     1557.      969.     1623.      257.    596.80
     2.02       1.23      4.37      2.07      .035      .030      .035      .039    581.30    319.13
  .001292        24.       24.       24.         1         0         0   -520.40    850.87   1170.00

*SECNO 34507.000
3280 CROSS SECTION  34507.00 EXTENDED        .17 FEET

3470 ENCROACHMENT STATIONS=      240.0     1170.0  TYPE=     1  TARGET=      930.000
  34507.00     16.97    598.27      0.00      0.00    598.51       .24       .00       .00    596.80
    8890.        18.     8404.      468.        60.     2079.      976.     1623.      257.    596.80
     2.02        .31      4.04       .48      .060      .032      .065      .039    581.30    318.52
  .000236         1.        1.        1.         0         0         0      0.00    851.48   1170.00

*SECNO 36107.000
3280 CROSS SECTION  36107.00 EXTENDED       2.60 FEET

3470 ENCROACHMENT STATIONS=         .0      640.0  TYPE=     1  TARGET=      639.999
          1600' U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VS=30              SEC. I

  36107.00     18.30    598.80      0.00      0.00    598.92       .12       .37       .04    588.30
    8890.       389.     3067.     5434.       253.      704.     3851.     1752.      280.    589.90
     2.19       1.54      4.36      1.41      .060      .032      .065      .038    580.50     10.40
  .000261      1650.     1600.     1300.         2         0         0      0.00    629.60    640.00

*SECNO 38802.000
3470 ENCROACHMENT STATIONS=         .0     1140.0  TYPE=     1  TARGET=     1139.999
          4295' U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VS=31              SEC. J
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8[illegible]90.	155.[illegible]	225[illegible].	5074.	1753.	85[illegible].	5809.	2064.	32[illegible].	[illegible]9.70
[illegible].65	.89	2.64	.87	.062	.033	.065	.039	580.70	[illegible]7.69
.000094	1125.	2695.	2150.	2	0	0	0.00	1102.31	1140.00

*SECNO 41282.000

3470 ENCROACHMENT STATIONS= 140.0 1835.0 TYPE= 1 TARGET= -140.000

6775I U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VS=32 SEC. K

41282.00	19.07	599.47	0.00	0.00	599.54	.07	.26	.02	591.50
8760.	6053.	2707.	0.	5104.	797.	0.	2349.	357.	100000.00
2.93	1.19	3.40	0.00	.070	.032	.065	.039	580.40	1019.16
.000214	2000.	2480.	1200.	2	0	0	0.00	805.28	1824.44

1490 NH CARD USED
*SECNO 43007.000

3265 DIVIDED FLOW

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3470 ENCROACHMENT STATIONS= 90.0 2300.0 TYPE= 1 TARGET= 2210.000

8500I U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VS=33 SEC. L

43007.00	18.10	599.80	0.00	0.00	599.93	.13	.36	.03	601.30
8760.	565.	3729.	4467.	945.	887.	3276.	2494.	384.	589.40
3.08	.60	4.21	1.36	.075	.033	.077	.039	581.70	181.34
.000350	750.	1725.	1600.	2	0	0	0.00	1474.14	1952.48

*SECNO 46107.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 375.0 3487.0 TYPE= 1 TARGET= -375.000

11600I U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VS=34 SEC. M

46107.00	15.62	600.22	0.00	0.00	600.24	.02	.27	.03	592.80
8760.	6930.	1830.	0.	9382.	1044.	0.	2838.	470.	100000.00
3.74	.74	1.75	0.00	.060	.032	.070	.040	584.60	394.67
.000061	1700.	3350.	1800.	2	0	0	0.00	2742.91	3475.90

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******************************************************
  HEC2 RELEASE DATED [illegible]
  [illegible]
  [illegible]
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T1      [illegible], FIS - MACOMB TOWNSHIP, FM = OLE M. ANDERSON
T2      [illegible]
T3      NORTH BRANCH - CLINTON RIVER
J1   ICHECK      INQ      NINV      IDIR      STRT      METRIC      HVINS      Q      WSEL      FQ
       -1.        4.        0.        0.   0.000000     0.00        0.0      0.   597.367   0.000
J2   NPROF      IPLOT     PRFVS     XSECV     XSECH      FN        ALLDC      IBW    CHNIM     ITRACE
     [illegible] 0.000   -1.000   [illegible] [illegible] 0.000    0.000     0.000   0.000     0.000
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The questionable flow distribution is due to meandering or S-shaped alluvial valley. Based on the topo furnished it appears to be reasonable the shifting of flow.

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*PROF 3

CCHV= .3[illegible] CEHV= .[illegible]
[illegible] NH CARD USED
*SECNO 19[illegible]1.[illegible]

3265 DIVIDED FLOW

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG       HV       HL       OLOSS    BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH      AROB     VOL      TWA    LEFT/RIGHT
     TIME      VLOB      VCH       VROB      XNL       XNCH     XNR      WTN      ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC      ICONT    CORAR    TOPWID    ENDST

3470 ENCROACHMENT STATIONS=        .0     1926.6   TYPE=      1  TARGET=     1926.599
         U/S FACE OF HALL ROAD CULVERT                                        SEC. A
  19[illegible]1.00    16.27   [illegible]    [illegible]   597.[illegible]   5[illegible].42    .25    0.00      0.00    5[illegible]
  [illegible]     [illegible]     [illegible]     [illegible]     [illegible]     [illegible]     [illegible]     [illegible]     [illegible]    [illegible]
  [illegible]     0.00     [illegible]     0.[illegible]     0.0[illegible]     .00[illegible]    0.00[illegible]   0.0[illegible]    5[illegible]   17[illegible]
  .000126      39.      39.      39.        0        0        0     0.00   214.60   1926.60

*SECNO 23221.000
3280 CROSS SECTION   23221.00 EXTENDED      .[illegible] FEET

        3820( U/S FROM U/S FACE OF HALL ROAD CULVERT, VS=23                   SEC. B
  23221.00    20.04    597.94     0.00     0.00   597.99      .05      .22      .06   5[illegible]
  [illegible]     [illegible]     [illegible]     [illegible]     [illegible]     [illegible]     [illegible]     [illegible]     [illegible]    [illegible]
  [illegible]     [illegible]     [illegible]     [illegible]     [illegible]     [illegible]     .075     [illegible]   577.[illegible]   [illegible]
  .000[illegible]7     1200.    [illegible]     [illegible]        [illegible]        0        0     0.0[illegible]  19[illegible]   19[illegible]

*SECNO 26721.000
3470 ENCROACHMENT STATIONS=      10.0     2700.0   TYPE=      1  TARGET=     2690.000
        7320( U/S [illegible] FACE OF HALL [illegible], VS=2[illegible]             SEC. C
  26721.00    19.[illegible]   [illegible]     [illegible]     [illegible]     [illegible]      .[illegible]     .[illegible]      .[illegible]   597.[illegible]
  1[illegible]     [illegible]     [illegible]     [illegible]     [illegible]     [illegible]   [illegible]    10[illegible].     [illegible]    [illegible]
  1.2[illegible]     .17     [illegible]     [illegible]     .0[illegible]     .0[illegible]     .075     .0[illegible]   57[illegible]   [illegible]
  .000057     1200.    [illegible]     [illegible]        2        0        0     0.00  2690.00  2700.00

*SECNO 29[illegible]21.000
3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=        .0     1600.0   TYPE=      1  TARGET=     1599.999
        [illegible]
                                                                              SEC. D
  [illegible]    19.[illegible]    [illegible]     [illegible]     [illegible]     [illegible]     [illegible]     [illegible]     [illegible]    [illegible]
  10700.    1035.    [illegible]    12[illegible]    1[illegible]    [illegible]    1071.    1360.     227.   5[illegible].10
  1.[illegible]     1.0[illegible]    [illegible]    1.[illegible]    .0[illegible]    [illegible]     .050     .0[illegible]   578.30    26.17
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agree with study approved profile p's and through Hall Rd

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 .00 248    2600.     27[illegible]0.     1200.         2         0                  0.0   125[illegible].1   16[illegible].0

*SECNO 31221.000
    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA    LEFT/RIGHT
    TIME       VLOB       VCH        VROB       XNL        XKNCH      XNR        WTN        ELMIN       SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IOC        ICONT      CORAR      TOPWID      ENDST


3470 ENCROACHMENT STATIONS=        .0     1450.0  TYPE=      1  TARGET=     1449.999

          3260I D/S FROM D/S FACE OF 21 MILE ROAD, VS=26                    SEC. E

  31221.00     18.63     598.83       0.00       0.00     598.91        .08        .34        .05100000.00
   10700.         0.      4410.      6290.         0.      1363.      4650.      1518.        261.     592.20
     1.63       0.00       3.23       1.35       .065       .033       .052       .041     580.20      50.06
  .000208      1600.      1800.      1000.          2          0          0       0.00    1399.94    1450.00

*SECNO 32611.000

3470 ENCROACHMENT STATIONS=     100.0      960.0  TYPE=      1  TARGET=     -100.000

          1870I D/S FROM D/S FACE OF 21 MILE ROAD, VS=27                    SEC. F

  32611.00     18.46     599.06       0.00       0.00     599.16        .09        .24        .00     591.90
   10600.      6067.      4527.         5.      4760.      1310.        25.      1696.        292.     598.20
     1.79       1.27       3.46        .22       .062       .031       .050       .040     580.60     100.00
  .000164      1400.      1390.      1100.          2          0          0       0.00     797.49     897.49

*SECNO 34411.000

3265 DIVIDED FLOW

3280 CROSS SECTION  34411.00 EXTENDED        .30 FEET


3470 ENCROACHMENT STATIONS=     180.0     1110.0  TYPE=      1  TARGET=      930.000

          70I D/S FROM D/S FACE OF 21 MILE ROAD CULVERT, VS=28              SEC. G

  34411.00     21.40     599.30       0.00       0.00     599.38        .08        .22        .00     599.70
   10600.        48.      4777.      5775.       131.      1578.      4672.      1904.        318.     587.20
     2.00        .36       3.03       1.24       .060       .032       .055       .039     577.90     180.00
  .000122      1200.      1800.      1500.          2          0          0       0.00     855.02    1110.00

*SECNO 34481.000
3280 CROSS SECTION  34481.00 EXTENDED       1.13 FEET


3470 ENCROACHMENT STATIONS=     240.0     1170.0  TYPE=      1  TARGET=      930.000
  34481.00     17.93     599.23       0.00       0.00     599.47        .24        .01        .08     596.80
   10600.        80.      9290.      1230.       169.      2203.      1592.      1911.        319.     596.80
     2.01        .47       4.22        .77       .060       .032       .055       .039     581.30     247.63
  .000238        70.        70.        45.          2          0          0       0.00     922.37    1170.00

*SECNO 34482.000
3280 CROSS SECTION  34482.00 EXTENDED       1.23 FEET
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3370 NORMAL BRIDGE,NRD= 19 MIN ELTRD=  596.40 MAX ELLC=  593.40

3470 ENCROACHMENT STATIONS=      240.0     1170.0  TYPE=      1  TARGET=      930.000

          D/S FACE OF 21 MILE ROAD CULVERT, BS=29                            SEC. H

 34482.00    18.03    599.33     0.00      0.00   599.50      .17      .00      .02   596.80
  10600.      294.     6392.     3914.     185.    1695.     1657.    1911.     319.    596.80
    2.01      1.59      3.77      2.36     .035     .030      .035     .039   581.30   240.00
 .000857       1.        1.        1.        2        0         0  -520.40   930.00  1170.00

*SECNO 34506.000
3280 CROSS SECTION  34506.00 EXTENDED       1.24 FEET

   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST

3370 NORMAL BRIDGE,NRD= 19 MIN ELTRD=  596.40 MAX ELLC=  593.40

3470 ENCROACHMENT STATIONS=      240.0     1170.0  TYPE=      1  TARGET=      930.000

          U/S FACE OF 21 MILE ROAD CULVERT, BS=29                            SEC. H

 34506.00    18.05    599.35     0.00      0.00   599.52      .16      .02      .00   596.80
  10600.      298.     6374.     3929.     187.    1697.     1665.    1913.     320.    596.80
    2.01      1.59      3.76      2.36     .035     .030      .035     .039   581.30   240.00
 .000849      24.       24.       24.        0        0         0  -520.40   930.00  1170.00

*SECNO 34507.000
3260 CROSS SECTION  34507.00 EXTENDED       1.21 FEET


3470 ENCROACHMENT STATIONS=      240.0     1170.0  TYPE=      1  TARGET=      930.000
 34507.00    18.01    599.31      0.00      0.00   599.56      .25      .00      .04   596.80
  10600.       89.     9409.     1102.     182.    2213.     1644.    1913.     320.    596.80
    2.01       .49      4.25       .67     .060     .032      .065     .039   581.30   240.92
 .000240       1.        1.        1.        2        0         0     0.00   929.08  1170.00

*SECNO 36107.000
3280 CROSS SECTION  36107.00 EXTENDED       3.64 FEET

3470 ENCROACHMENT STATIONS=         .0      640.0  TYPE=      1  TARGET=      639.999

          1600I U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VS=30            SEC. I

 36107.00    19.34    599.84     0.00      0.00   599.97      .13      .37      .04   588.30
  10600.      479.     3393.     6728.     294.     751.     4424.    2067.     345.    589.90
    2.18      1.63      4.52      1.52     .060     .032      .065     .039   580.50     2.99
 .000257     1650.     1600.     1300.       2        0         0     0.00   637.00   640.00

*SECNO 38802.000
3280 CROSS SECTION  38802.00 EXTENDED        .47 FEET
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3470 ENCROACHMENT STATIONS=          .0      1140.0   TYPE=      1  TARGET=     1139.999

          4295I U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VS=31          SEC. J

   36802.00     19.57    600.27      0.00      0.00    600.31       .04       .31       .03    588.20
    10600.      1922.     2484.     6195.     2035.      912.     6636.     2421.      385.    589.70
      2.62        .94      2.72       .93      .062      .033      .065      .039    580.70      1.08
   .000092      1125.     2695.     2150.         2         0         0      0.00   1138.92   1140.00

*SECNO 41282.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=       140.0      1835.0   TYPE=      1  TARGET=     -140.000

          6775I U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VS=32          SEC. K

   41282.00     20.11    600.51      0.00      0.00    600.58       .07       .25       .02    591.50
    10500.      7497.     3003.        0.     6166.      863.        0.     2751.      437. 100000.00
      2.91       1.22      3.48      0.00      .070      .032      .065      .039    580.40    140.00
   .000209      2000.     2480.     1200.         2         0         0      0.00   1412.76   1826.02

1490 NH CARD USED
*SECNO 43007.000

3265 DIVIDED FLOW

3280 CROSS SECTION  43007.00 EXTENDED        .51 FEET

     SECNO      DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS   BANK ELEV
     Q          QLOB      QCH       QROB      ALOB       ACH       AROB      VOL       TWA   LEFT/RIGHT
     TIME       VLOB      VCH       VROB      XNL        XNCH      XNR       WTN       ELMIN      SSTA
     SLOPE      XLOBL     XLCH      XLOBR     ITRIAL     IDC       ICONT     CORAR     TOPWID     ENDST

3470 ENCROACHMENT STATIONS=        90.0      2300.0   TYPE=      1  TARGET=     2210.000

          8500I U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VS=33          SEC. L

   43007.00     19.11    600.81      0.00      0.00    600.93       .12       .33       .02    601.30
    10500.      1248.     3994.     5258.     2010.      960.     3732.     2927.      479.    589.40
      3.66        .62      4.16      1.41      .075      .033      .077      .040    581.70     90.00
   .000317       750.     1725.     1600.         2         0         0      0.00   2207.40   2300.00

*SECNO 46107.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=       375.0      3487.0   TYPE=      1  TARGET=     -375.000

          11600I U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VS=34         SEC. M

   46107.00     16.59    601.19      0.00      0.00    601.21       .02       .25       .03    592.80
    10500.      8505.     1995.        0.    12131.     1136.        0.     3360.      586. 100000.00
      3.73        .70      1.76      0.00      .060      .032      .070      .041    584.60    375.00
   .000057      1700.     3350.     1600.         2         0         0      0.00   3064.80   3478.79
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*************************************************
 HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
 ERROR CORR -  01,02
 MODIFICATION -  50,51,52,53
*************************************************

T1      5850-03-1,  FIS - MACOMB TOWNSHIP,  PM = OLE N. ANDERSON
T2      500-YEAR FLOOD
T3      NORTH BRANCH - CLINTON RIVER

J1  ICHECK    INQ      NINV      IDIR     STRT      METRIC   HVINS    Q        WSEL     FQ
      -1.      5.       0.        0.  0.000000    0.00     0.0      0.    599.788   0.000

J2  NPROF     IPLOT    PRFVS     XSECV    XSECH     FN       ALLDC    IBW      CHNIM    ITRACE
    15.000    0.000   -1.000     0.000    0.000     0.000    0.000    0.000    0.000    0.000
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*PROF 4

CCHV=     .300 CEHV=     .500
1490 NH CARD USED
*SECNO 19401.000

3265 DIVIDED FLOW

      SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS     BANK ELEV
      Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA      LEFT/RIGHT
      TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN        SSTA
      SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID       ENDST


3470 ENCROACHMENT STATIONS=          .0     1926.6  TYPE=      1  TARGET=     1926.599

           U/S FACE OF HALL ROAD CULVERT                                        SEC. A

  19401.00     19.29     599.79      0.00     599.79     600.07       .28       0.00       0.00    597.40
   13100.       317.     12783.        0.       418.      2966.        0.         0.         0.      599.90
     0.00        .76       4.31      0.00       .054       .090     0.000      0.000     580.50    485.33
  .001292        39.        39.       39.          0          0         0       0.00     977.45   1926.60

*SECNO 23221.000
3280 CROSS SECTION  23221.00 EXTENDED       3.41 FEET


           3820I U/S FROM U/S FACE OF HALL ROAD CULVERT, VS=23                  SEC. B

  23221.00     22.71     600.61      0.00       0.00     600.65       .04        .51        .07    586.10
   15300.      9887.      4879.      534.     14139.      1727.     1016.       468.        58.     589.60
      .60        .70       2.83       .53       .080       .032      .075       .041     577.90      0.00
  .000072      1300.      3820.     3850.          3          0         0       0.00    1930.00   1930.00

*SECNO 26721.000
3280 CROSS SECTION  26721.00 EXTENDED        .78 FEET


3470 ENCROACHMENT STATIONS=        10.0     2700.0  TYPE=      1  TARGET=     2690.000

           7320I U/S FROM U/S FACE OF HALL ROAD CULVERT, VS=24                  SEC. C

  26721.00     21.88     600.78      0.00       0.00     600.80       .02        .14        .01    597.20
   15300.       111.      3536.    11652.       350.      1719.    19786.      1474.       176.     588.30
     1.34        .32       2.06       .59       .075       .031      .075       .042     578.90     10.00
  .000045      1200.      3500.     2800.          2          0         0       0.00    2690.00   2700.00

*SECNO 29421.000
3280 CROSS SECTION  29421.00 EXTENDED        .85 FEET


3470 ENCROACHMENT STATIONS=          .0     1600.0  TYPE=      1  TARGET=     1599.999

           10020I U/S FROM U/S FACE OF HALL ROAD CULVERT, VS=25                 SEC. D
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  29421.00     22.55    600.85      0.00      0.00    601.0        .18       .15       .08    590.90
    15300.     1878.     9084.     4338.     1690.     2112.     4210.     1985.      245.    590.10
      1.52      1.11      4.30      1.03      .065      .032      .050      .043    578.30       .00
   .000178     2600.     2700.     1200.         2         0         0      0.00   1600.00   1600.00

 *SECNO 31221.000
 3280 CROSS SECTION   31221.00 EXTENDED       1.23 FEET

      SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
      Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
      TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
      SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST

 3470 ENCROACHMENT STATIONS=         .0     1450.0  TYPE=      1  TARGET=    1449.999

                3260' D/S FROM D/S FACE OF 21 MILE ROAD, VS=26                  SEC. E

  31221.00     21.03    601.23      0.00      0.00    601.29       .06       .23       .03100000.00
    15300.        0.     4969.    10331.        0.     1656.     7732.     2231.      283.    592.20
      1.73      0.00      3.00      1.34      .065      .033      .052      .043    580.20     40.02
   .000154     1600.     1800.     1000.         2         0         0      0.00   1409.98   1450.00

 *SECNO 32611.000
 3280 CROSS SECTION   32611.00 EXTENDED       1.41 FEET

 3470 ENCROACHMENT STATIONS=      100.0      960.0  TYPE=      1  TARGET=    -100.000

                1870' D/S FROM D/S FACE OF 21 MILE ROAD, VS=27                  SEC. F

  32611.00     20.81    601.41      0.00      0.00    601.52       .11       .20       .02    591.90
    15200.     9226.     5791.      183.     6287.     1522.      278.     2483.      315.    598.20
      1.88      1.47      3.81       .66      .062      .031      .050      .042    580.60    100.00
   .000163     1400.     1390.     1100.         2         0         0      0.00    860.00    960.00

 *SECNO 34411.000
 3280 CROSS SECTION   34411.00 EXTENDED       2.65 FEET

 3470 ENCROACHMENT STATIONS=      180.0     1110.0  TYPE=      1  TARGET=     930.000

                70' D/S FROM D/S FACE OF 21 MILE ROAD CULVERT, VS=28            SEC. G

  34411.00     23.75    601.65      0.00      0.00    601.74       .09       .21       .01    599.70
    15200.      362.     6053.     8785.      633.     1822.     6095.     2758.      343.    587.20
      2.08       .57      3.32      1.44      .060      .032      .055      .041    577.90    180.00
   .000122     1200.     1800.     1500.         0         0         0      0.00    930.30   1110.00

 *SECNO 34481.000
 3280 CROSS SECTION   34481.00 EXTENDED       3.49 FEET

 3470 ENCROACHMENT STATIONS=      240.0     1170.0  TYPE=      1  TARGET=     930.000
  34481.00     20.29    601.59      0.00      0.00    601.82       .23       .01       .07    596.80
    15200.      464.    11151.     3585.      547.     2507.     3106.     2767.      344.    596.80
      2.08       .85      4.45      1.15      .060      .032      .055      .041    581.30    240.00
   .000223       70.       70.       45.         2         0         0      0.00    930.00   1170.00
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*SECNO 34482.000
3280 CROSS SECTION  34482.00 EXTENDED       3.65 FEET


3370 NORMAL BRIDGE,NRD= 19 MIN ELTRD=  596.40 MAX ELLC=  593.40

3470 ENCROACHMENT STATIONS=      240.0     1170.0  TYPE=      1  TARGET=      930.000

          D/S FACE OF 21 MILE ROAD CULVERT, BS=29                          SEC. H

  34482.00     20.45    601.75      0.00      0.00    601.86       .11       .00       .04    596.80
    15200.     1170.     5907.     8123.      572.     2007.     3206.     2767.      344.    596.80
      2.08      2.05      2.94      2.53      .035      .030      .035      .041    581.30    240.00
   .000417        1.        1.        1.         2         0         0   -520.40    930.00   1170.00

*SECNO 34506.000
3280 CROSS SECTION  34506.00 EXTENDED       3.65 FEET

     SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS   BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

3370 NORMAL BRIDGE,NRD= 19 MIN ELTRD=  596.40 MAX ELLC=  593.40

3470 ENCROACHMENT STATIONS=      240.0     1170.0  TYPE=      1  TARGET=      930.000

          U/S FACE OF 21 MILE ROAD CULVERT, BS=29                          SEC. H

  34506.00     20.46    601.76      0.00      0.00    601.87       .11       .01       .00    596.80
    15200.     1172.     5901.     8127.      573.     2008.     3211.     2770.      345.    596.80
      2.08      2.04      2.94      2.53      .035      .030      .035      .041    581.30    240.00
   .000415       24.       24.       24.         0         0         0   -520.40    930.00   1170.00

*SECNO 34507.000
3280 CROSS SECTION  34507.00 EXTENDED       3.59 FEET


3470 ENCROACHMENT STATIONS=      240.0     1170.0  TYPE=      1  TARGET=      930.000
  34507.00     20.39    601.69      0.00      0.00    601.94       .25       .00       .07    596.80
    15200.      497.    11497.     3206.      562.     2520.     3168.     2770.      345.    596.80
      2.08       .88      4.56      1.01      .060      .032      .065      .041    581.30    240.00
   .000233        1.        1.        1.         2         0         0      0.00    930.00   1170.00

*SECNO 36107.000
3280 CROSS SECTION  36107.00 EXTENDED       5.98 FEET


3470 ENCROACHMENT STATIONS=         .0      640.0  TYPE=      1  TARGET=      639.999

          1600I U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VS=30           SEC. I

  36107.00     21.69    602.19      0.00      0.00    602.33       .14       .36       .03    588.30
    15200.      740.     4253.    10206.      404.      856.     5705.     2983.      37[illegible]    589.90
      2.24      1.83      4.97      1.79      .060      .032      .06[illegible]      .040    58[illegible]    [illegible]
[illegible]
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*SECNO 38802.000
3280 CROSS SECTION  38802.00 EXTENDED      2.83 FEET

3470 ENCROACHMENT STATIONS=        .0    1140.0  TYPE=     1  TARGET=    1139.999

          4295C U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VS=31         SEC. J

  38802.00     21.93    602.63      0.00      0.00    602.67       .04       .31       .03    588.20
    15200.     2943.     3070.     9187.     2724.     1040.     8507.     3433.      410.    589.70
      2.65      1.08      2.95      1.08      .062      .033      .065      .041    580.70       .00
   .000091     1125.     2695.     2150.         2         0         0      0.00   1140.00   1140.00

*SECNO 41282.000

3470 ENCROACHMENT STATIONS=     140.0    1835.0  TYPE=     1  TARGET=    -140.000

          6775C U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VS=32         SEC. K

  41282.00     22.45    602.85      0.00      0.00    602.91       .06       .23       .01    591.50
    15000.    11507.     3493.        0.     9844.     1020.        0.     3897.      469. 100000.00
      2.95      1.17      3.43      0.00      .070      .032      .065      .041    580.40    140.00
   .000175     2000.     2480.     1200.         2         0         0      0.00   1689.59   1829.59

1490 NH CARD USED
*SECNO 43007.000
3280 CROSS SECTION  43007.00 EXTENDED      2.78 FEET

   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST

3470 ENCROACHMENT STATIONS=      90.0    2300.0  TYPE=     1  TARGET=    2210.000

          8500C U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VS=33         SEC. L

  43007.00     21.38    603.08      0.00      0.00    603.17       .09       .24       .02    601.30
    15000.     3747.     4488.     6765.     4696.     1128.     4754.     4152.      513.    589.40
      3.12       .80      3.98      1.42      .075      .033      .078      .041    581.70     90.00
   .000237      750.     1725.     1600.         2         0         0      0.00   2210.00   2300.00

*SECNO 46107.000

3470 ENCROACHMENT STATIONS=     375.0    3487.0  TYPE=     1  TARGET=    -375.000

          11600C U/S FROM U/S FACE OF 21 MILE ROAD CULVERT, VS=34        SEC. M

  46107.00     18.76    603.36      0.00      0.00    603.37       .01       .19       .02    592.80
    15000.    12709.     2291.        0.    18658.     1354.        0.     4801.      621. 100000.00
      3.81       .68      1.69      0.00      .060      .032      .070      .042    584.60    375.00
   .000046     1700.     3350.     1800.         2         0         0      0.00   3110.37   3485.37
```

```
*********************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
*********************************************************
```

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

NORTH BRANCH - CLINTON R

SUMMARY PRINTOUT

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	HV	HL	OLOSS	QCH	DEPTH	TOPWID
19401.000	39.00	0.00	0.00	580.50	5440.00	593.61	.17	0.00	0.00	5440.00	13.11	201.95
19401.000	39.00	0.00	0.00	580.50	8410.00	596.37	.23	0.00	0.00	8410.00	15.87	214.60
19401.000	39.00	0.00	0.00	580.50	9720.00	597.37	.25	0.00	0.00	9720.00	16.87	214.60
19401.000	39.00	0.00	0.00	580.50	13130.00	599.79	.28	0.00	0.00	12782.69	19.29	977.45
23221.000	3820.00	0.00	0.00	577.90	5440.00	594.12	.07	.38	.03	3246.14	16.22	1466.42
23221.000	3820.00	0.00	0.00	577.90	8970.00	596.91	.06	.33	.05	3940.27	19.01	1794.76
23221.000	3820.00	0.00	0.00	577.90	10700.00	597.94	.05	.32	.06	4253.47	20.04	1909.55
23221.000	3820.00	0.00	0.00	577.90	15300.00	600.61	.04	.51	.07	4878.83	22.71	1930.00
26721.000	3500.00	0.00	0.00	578.90	5440.00	594.44	.03	.26	.01	2227.71	15.54	1563.75
26721.000	3500.00	0.00	0.00	578.90	8970.00	597.15	.02	.19	.01	2756.43	18.25	2131.79
26721.000	3500.00	0.00	0.00	578.90	10700.00	598.16	.02	.18	.01	3024.29	19.26	2690.00
26721.000	3500.00	0.00	0.00	578.90	15300.00	600.78	.02	.14	.01	3536.26	21.88	2690.00
29421.000	2700.00	0.00	0.00	578.30	5440.00	594.62	.17	.25	.07	4943.04	16.32	331.20
29421.000	2700.00	0.00	0.00	578.30	8970.00	597.26	.24	.22	.11	7408.32	18.96	524.80
29421.000	2700.00	0.00	0.00	578.30	10700.00	598.26	.26	.21	.12	8378.93	19.96	1250.10
29421.000	2700.00	0.00	0.00	578.30	15300.00	600.85	.18	.15	.08	9084.06	22.55	1600.00
31221.000	1800.00	0.00	0.00	580.20	5440.00	595.09	.12	.40	.01	3340.03	14.89	659.82
31221.000	1800.00	0.00	0.00	580.20	8970.00	597.82	.09	.36	.05	4093.22	17.62	995.33
31221.000	1800.00	0.00	0.00	580.20	10700.00	598.83	.08	.34	.05	4410.23	18.63	1399.94
31221.000	1800.00	0.00	0.00	580.20	15300.00	601.23	.06	.23	.03	4968.87	21.03	1409.98
32611.000	1390.00	0.00	0.00	580.60	5390.00	595.44	.08	.30	.01	2913.38	14.84	636.16
32611.000	1390.00	0.00	0.00	580.60	8890.00	598.07	.09	.25	.00	3998.86	17.47	684.30
32611.000	1390.00	0.00	0.00	580.60	10600.00	599.06	.09	.24	.00	4527.48	18.46	797.49
32611.000	1390.00	0.00	0.00	580.60	15200.00	601.41	.11	.20	.02	5791.38	20.81	860.00
34411.000	1800.00	0.00	0.00	577.90	5390.00	595.68	.07	.22	.00	3134.43	17.78	627.66
34411.000	1800.00	0.00	0.00	577.90	8890.00	598.31	.07	.21	.00	4265.85	20.41	756.96
34411.000	1800.00	0.00	0.00	577.90	10600.00	599.30	.08	.22	.00	4777.12	21.40	855.02
34411.000	1800.00	0.00	0.00	577.90	15200.00	601.65	.09	.21	.01	6053.15	23.75	930.00
34481.000	70.00	0.00	0.00	581.30	5390.00	595.65	.15	.01	.04	5390.00	14.35	129.00
34481.000	70.00	0.00	0.00	581.30	8890.00	598.23	.24	.01	.08	8341.12	16.93	849.67
34481.000	70.00	0.00	0.00	581.30	10600.00	599.23	.24	.01	.08	9289.59	17.93	922.37
34481.000	70.00	0.00	0.00	581.30	15200.00	601.59	.23	.01	.07	11151.10	20.29	930.00

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	HV	HL	OLOSS	QCH	DEPTH	TOPWID
34482.000	1.00	596.40	593.40	581.30	5390.00	595.60	.24	.00	.05	5390.00	14.30	129.00
34482.000	1.00	596.40	593.40	581.30	8890.00	598.23	.25	.00	.01	6843.05	16.93	849.68
34482.000	1.00	596.40	593.41	581.30	10600.00	599.33	.17	.00	.02	6391.53	18.03	930.00
34482.000	1.00	596.40	593.40	581.30	15200.00	601.75	.11	.00	.04	5907.34	20.45	930.00
34506.000	24.00	596.40	593.40	581.30	5390.00	595.62	.24	.02	.00	5390.00	14.32	129.00
34506.000	24.00	596.40	593.40	581.30	8890.00	598.27	.24	.03	.00	6810.65	16.97	850.87
34506.000	24.00	596.40	593.40	581.30	10600.00	599.35	.16	.02	.00	6373.77	18.05	930.00
34506.000	24.00	596.40	593.40	581.30	15200.00	601.76	.11	.01	.00	5900.87	20.46	930.00
34507.000	1.00	0.00	0.00	581.30	5390.00	595.74	.15	.00	.03	5390.00	14.44	129.00
34507.000	1.00	0.00	0.00	581.30	8890.00	598.27	.24	.00	.00	8403.95	16.97	851.48
34507.000	1.00	0.00	0.00	581.30	10600.00	599.31	.25	.00	.04	9408.95	18.01	929.08
34507.000	1.00	0.00	0.00	581.30	15200.00	601.69	.25	.00	.07	11497.35	20.39	930.00
36107.000	1600.00	0.00	0.00	580.50	5390.00	596.10	.13	.33	.01	2394.39	15.60	624.35
36107.000	1600.00	0.00	0.00	580.50	8890.00	598.80	.12	.37	.04	3066.82	18.30	629.60
36107.000	1600.00	0.00	0.00	580.50	10600.00	599.84	.13	.37	.04	3393.36	19.34	637.00
36107.000	1600.00	0.00	0.00	580.50	15200.00	602.19	.14	.36	.03	4253.47	21.69	640.00
38802.000	2695.00	0.00	0.00	580.70	5390.00	596.60	.04	.38	.03	1786.15	15.90	1020.43
38802.000	2695.00	0.00	0.00	580.70	8890.00	599.23	.04	.32	.03	2259.24	18.53	1102.31
38802.000	2695.00	0.00	0.00	580.70	10600.00	600.27	.04	.31	.03	2483.51	19.57	1138.92
38802.000	2695.00	0.00	0.00	580.70	15200.00	602.63	.04	.31	.03	3069.90	21.93	1140.00
41282.000	2480.00	0.00	0.00	580.40	5290.00	596.88	.07	.30	.02	2080.19	16.48	733.22
41282.000	2480.00	0.00	0.00	580.40	8760.00	599.47	.07	.26	.02	2707.39	19.07	805.28
41282.000	2480.00	0.00	0.00	580.40	10500.00	600.51	.07	.25	.02	3002.65	20.11	1412.76
41282.000	2480.00	0.00	0.00	580.40	15000.00	602.85	.06	.23	.01	3493.31	22.45	1689.59
43007.000	1725.00	0.00	0.00	581.70	5290.00	597.28	.14	.43	.04	2852.68	15.58	621.17
43007.000	1725.00	0.00	0.00	581.70	8760.00	599.80	.13	.36	.03	3728.61	18.10	1474.14
43007.000	1725.00	0.00	0.00	581.70	10500.00	600.81	.12	.33	.02	3993.61	19.11	2207.40
43007.000	1725.00	0.00	0.00	581.70	15000.00	603.08	.09	.24	.02	4488.23	21.38	2210.00
46107.000	3350.00	0.00	0.00	584.60	5290.00	597.77	.02	.33	.04	1371.19	13.17	1241.06
46107.000	3350.00	0.00	0.00	584.60	8760.00	600.22	.02	.27	.03	1830.08	15.62	2742.91
46107.000	3350.00	0.00	0.00	584.60	10500.00	601.19	.02	.25	.03	1994.69	16.59	3064.80
46107.000	3350.00	0.00	0.00	584.60	15000.00	603.36	.01	.19	.02	2291.14	18.76	3110.37

SUMMARY OF ERRORS

```
**** 7000 SCOPE 2.1 LVL  221  06/01/78  07.42.50  06/29/78      78180

SYS DEVICES 819/ 4/PF FLS=200K FLL=764K MXS=160K MXL=453K MXB=453B

HH.MM.SS CPU SECOND ORIGIN
            13.13.30.MFA. J3     LV461 NOSBE B+W LYNRELEASE447 R.B 10.09
13.14.31 00000.006 MFZ.       -MACJO03,T10,STMFZ.  MACOMB TWP FIS                                    000100
13.14.31 00000.023 USR.        CHARGE,810-0037-45-78-5803,JANDA,001,0,JANDA.                        CHARGE
13.14.31 00000.055 LOD.       -INFORM.  MAIL OUTPUT TO MSJ3 (3 COPIES)  VIA UPS
13.14.32 00000.084 JOB.       -ATTACH,LGO,HEC2N76V2,ID=HEC.
13.14.32 00000.089 MFZ.          PF254 - CYCLE    1 ATTACHED FROM SN=SYSTEM
13.14.32 00000.089 LOD.       -LGO(PL=999999).
13.14.33 00000.916 MFZ.          LD610 - FLS REQUIRED TO LOAD - 0027777 OU.COG
13.14.33 00000.919 MFZ.          LD603 - EXECUTION INITIATED OS.EXP
13.14.33 00000.920 USR.        FORTRAN LIBRARY 439             05/14/78
13.14.35 00001.911 USR.            STOP
13.14.35 00001.911 USR.              .990 CP SECONDS EXECUTION TIME
13.14.35 00001.915 MFZ.          RM770 - MAXIMUM ACTIVE FILES                      6
13.14.35 00001.915 MFZ.          RM771 - OPEN/CLOSE CALLS                         32
13.14.35 00001.915 MFZ.          RM772 - DATA TRANSFER CALLS                   2,595
13.14.35 00001.916 MFZ.          RM773 - CONTROL/POSITIONING CALLS                66
13.14.35 00001.916 MFZ.          RM774 - BM DATA TRANSFER CALLS                  483
13.14.35 00001.916 MFZ.          RM775 - BM CONTROL/POSITIONING CALLS             79
13.14.35 00001.916 MFZ.          RM776 - QUEUE MANAGER CALLS                      96
13.14.35 00001.916 MFZ.          RM777 - RECALL CALLS                             82
13.14.35 00001.917 MFZ.          BWMSG - NUMBER OF TAPES MOUNTED
13.14.35 00001.917 MFZ.          SRU                    2.052  SEC
13.14.35 00001.917 MFZ.          SCM                   37.208  KWS
13.14.35 00001.918 MFZ.          I/O                    0.040  MW
13.14.35 00001.918 MFZ.          RMS                    0.034  MWS
13.14.35 00001.918 MFZ.          USER                   0.747  SEC
13.14.35 00001.918 MFZ.          JOB                    1.920  SEC
13.14.35 00001.919 MFZ.          SC050 - 000001 SC/LC SWAPS
13.14.35 00001.919 MFZ.       MACJOYP    MACJOYP
13.14.35.EJ  END OF JOB

***********          IMSJ306  //// END OF LIST ////
```

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***********          IMSJ306  //// END OF LIST ////
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MACOMB TOWNSHIP

STANDARD NOTES

Notify the Macomb Township Building Department and Sewer & Water Department (286-0621) a minimum of 48 hours prior to the start of construction.

All construction must be conforming to the current standards and specifications adopted by Macomb Township.

Call MISS DIG (1-800-482-7171) a minimum of 48 hours prior to the start of construction.

All soil erosion and silt must be controlled and contained onsite.

All excavation under or within 3 feet of public pavement, existing or proposed shall be backfilled and compacted with sand (Class II MDOT - minimum).

The Contractor is responsible for all damage to existing utilities.

The Contractor is responsible for obtaining all Macomb Township permits including a permit to occupy public utility easements or public right-of-way.

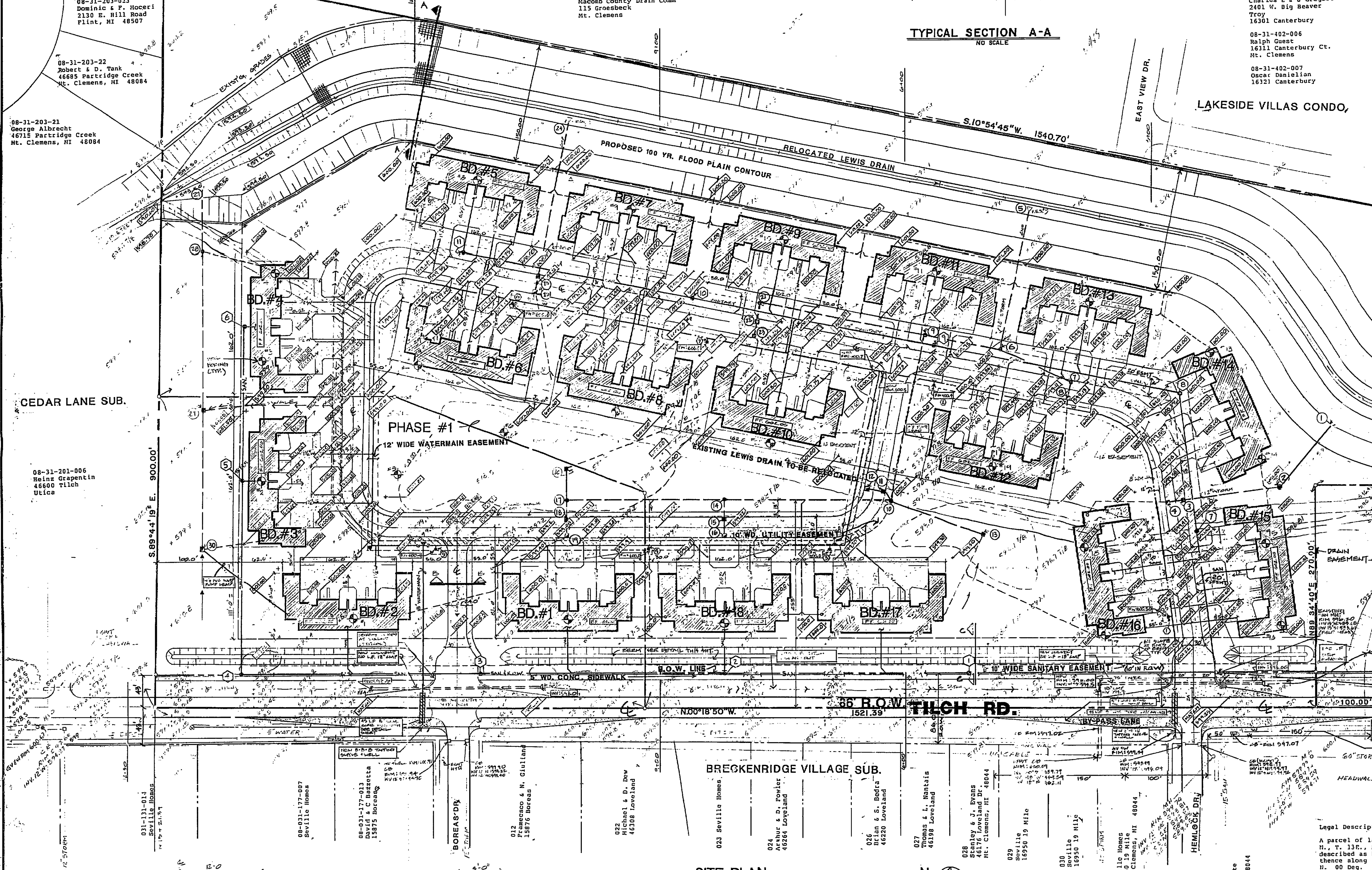
Trench backfill in County R.O.W. shall conform to M.C.R.C. requirements and be subject to the approval of the M.C.R.C. Engineer.

All work on the Lewis Drain relocation shall comply with the current standards and specifications of the D.N.R. and the Macomb County Drain Office.

All work within the Tilch Rd. R.O.W. shall conform to the current stds. & specs. of the Macomb County Road Commission.

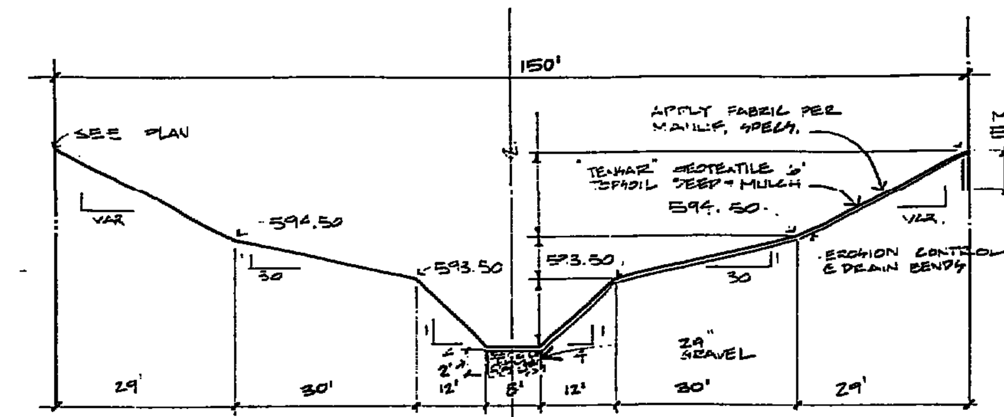
SITE BENCH MARKS

1. SPIKE IN WEST SIDE OF POWER POLE, EAST SIDE TILCH RD. 160 FT. SOUTH OF SOUTH PROPERTY LINE. ELEV. 600.07
2. TOP OF MONUMENT AT CENTERLINE ON BRIDGE AT SOUTHWEST PROPERTY CORNER ELEV. 601.95
3. RIM OF GATE VALVE IN WELL, WEST SIDE OF TILCH RD. 300 FT. NORTH OF SOUTH PROPERTY LINE ELEV. 599.54
4. ARROW ON HYD. WEST SIDE OF TILCH RD. 100 FT. NORTH OF NORTH PROPERTY LINE ELEV. 601.99



SITE PLAN

SCALE: 1"=50'-0"



TYPICAL SECTION A-A

NO SCALE

08-31-402-001
Bruno & N. Markowicz
16332 Canterbury Ct.
Mt. Clemens, MI 48084

08-31-402-002
Norbert & G. Rybicki
16322 Canterbury

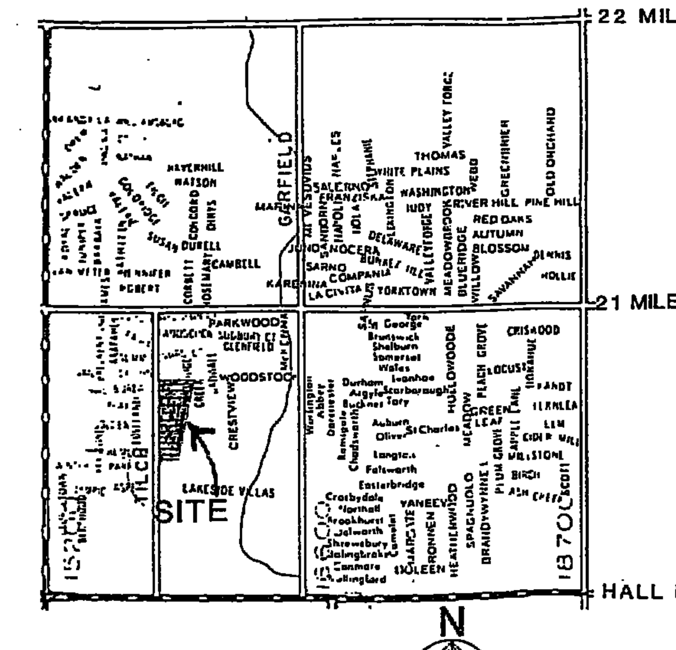
08-31-402-003
Virginia Serra
16312 Canterbury

08-31-402-004
Donald & C. Roussin
16302 Canterbury

08-31-402-005
Charles E & J Gregart
2401 W. Big Beaver
Troy
16301 Canterbury

08-31-402-006
Ralph Guest
16311 Canterbury Ct.
Mt. Clemens

08-31-402-007
Oscar Danielian
16321 Canterbury



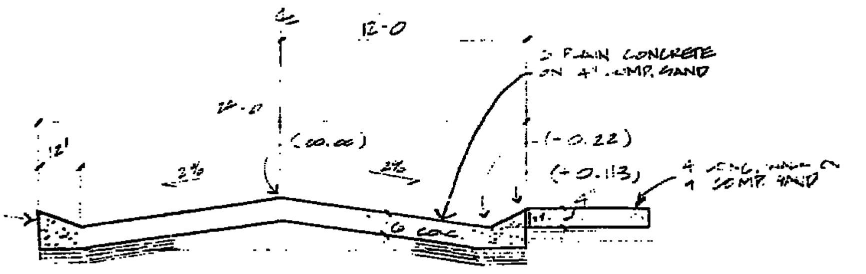
LOCATION MAP

NO SCALE

5000 Sq. Yrs. "TENSAR" - GEOTEXTILE EROSION CONTROL GRATING TOTAL ALL LOCATIONS

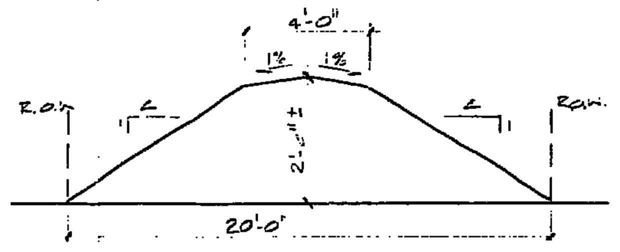
LEGEND

- FIRE HYDRANT
- MANHOLE
- CATCHBASIN
- SANITARY LINE
- WATER LINE
- STORM LINE
- FINISH FLOOR ELEVATION
- PROPERTY LINE
- EXISTING GRADES
- PROPOSED GRADES



ROAD PROFILE B-B

NO SCALE



BERM PROFILE C-C

NO SCALE

W.M. QUANTITIES
2515 L.F. 8" WATERMAIN
[illegible]
[illegible]
4 EA. 8" [illegible]
7 [illegible] SETTINGS

SHEET INDEX		
NOTE: SEE SHEET	CE-2	FOR PAVING PLAN
SEE SHEET	CE-3	FOR SAN. SEWER PROFILES
SEE SHEET	CE-4	FOR STORM SEWER [illegible]
SEE SHEET	CE-5	FOR SOIL EROSION PLAN
SEE SHEET	CE-6	FOR SPECIFICATIONS
SEE SHEET	CE-7	FOR DRAINAGE DIST. MAP

LEGAL DESCRIPTION FOR PHASE I

A PARCEL OF LAND IN THE NORTHWEST 1/4 OF SECTION 31, T.3N., T. 13 E., MACOMB TOWNSHIP, MACOMB COUNTY, MICHIGAN DESCRIBED AS BEGINNING AT THE CENTER POST OF SAID SECTION 31, THENCE ALONG THE NORTH AND SOUTH 1/4 LINE OF SAID SECTION 31, N. 00 DEG. 18 MIN. 50 SEC. E. 1521.39 FEET; THENCE S. 89 DEG. 44 MIN. 19 SEC. E. 43 FEET; THENCE S. 89 DEG. 44 MIN. 19 SEC. E. 330 FEET; THENCE S. 00 DEG. 18 MIN. 50 DEC. E. 290 FEET; THENCE S. 12 DEG. 0 MIN. 18 SEC. W. 328.09 FEET; THENCE N. 89 DEG. 41 MIN. 10 SEC. W. 260 FEET; THENCE N. 00 DEG. 18 MIN 50 SEC. W. 611 FEET; CONTAINING 4.37 ACRES OF LAND.

Legal Description

A parcel of land in the Northwest 1/4 of section 31, T. 3 N., T. 13E., Macomb Township, Macomb County, Michigan described as beginning at the center post of said section 31, thence along the North and South 1/4 line of said section 31, N. 00 Deg. 18 min. 50 sec. W. 1521.39 feet, thence S. 89 Deg. 44 min. 19 sec. E. 900.00 feet; thence S. 10 Deg. 54 min. 45 sec. W. 1540.70 feet to a point on the East and West 1/4 line of section 31, said point being S. 89 Deg. 34 min. 30 sec. W. 2057.03 feet from the East 1/4 corner of section 31; thence along said East and West 1/4 line of section 31, S. 89 Deg. 34 min. 30 sec. W. 600.00 feet to the point of beginning. Excepting there from the South 100 feet of the West 270 feet. Containing 25.50 acres of land. Subject to an implied R.O.W. for the Lewis Drain and subject to the rights of the public in that part of Tilch Road taken, used or deeded for road purposes.

ROBERT J. TOBIN & ASSOC. P.C.
ARCHITECTS ENGINEERS
1000 JOHN R SUITE 210
TROY, MICHIGAN 48083
(313) 589-3202

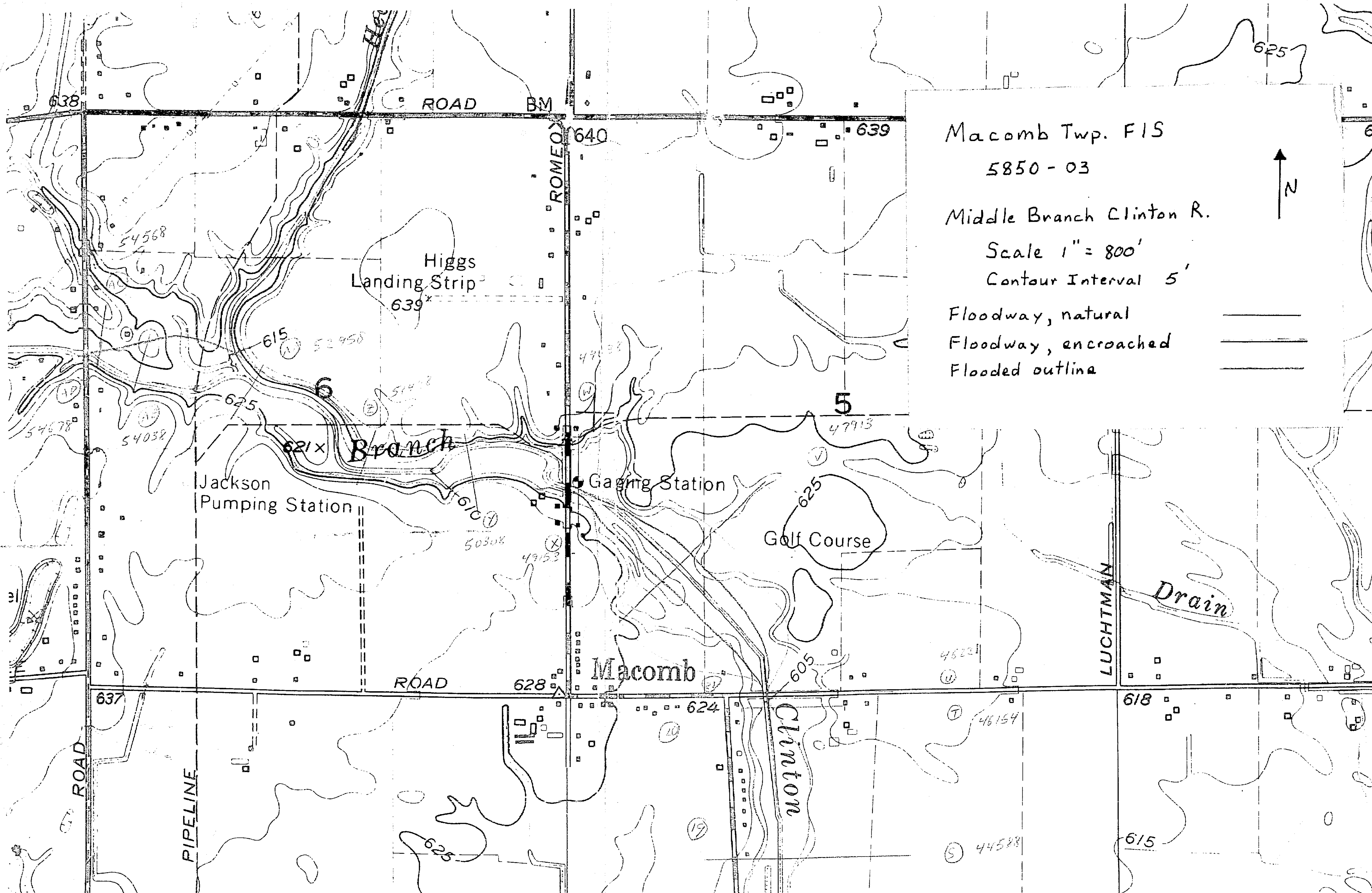
DATE	ITEM	DATE	ITEM	DATE	ITEM
4/1/87	PRELIM. DWG. REVIEW				
7/6/87	ENGR. REVIEW				

SHEET TITLE:
SITE ENGINEERING AND GRADING PLAN

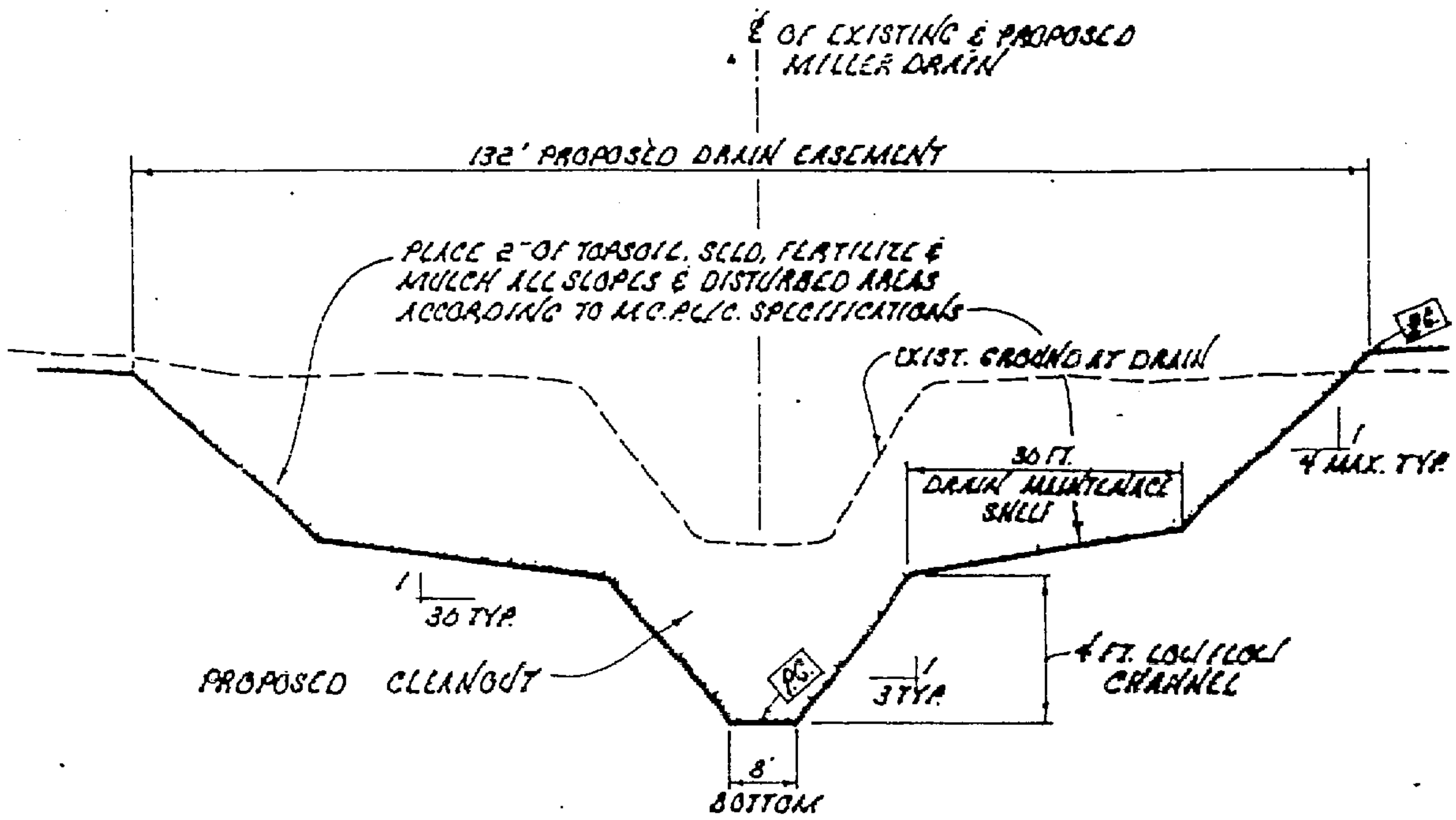
JOB DESCRIPTION:
LORING WOOD CONDOMINIUM DEVELOPMENT
C&M LAND PROPERTIES
19615 ELIZABETH ST.
ST. CLAIR SHORES, MI. 48080

JOB NO. 86147

SHEET NO. CE-1

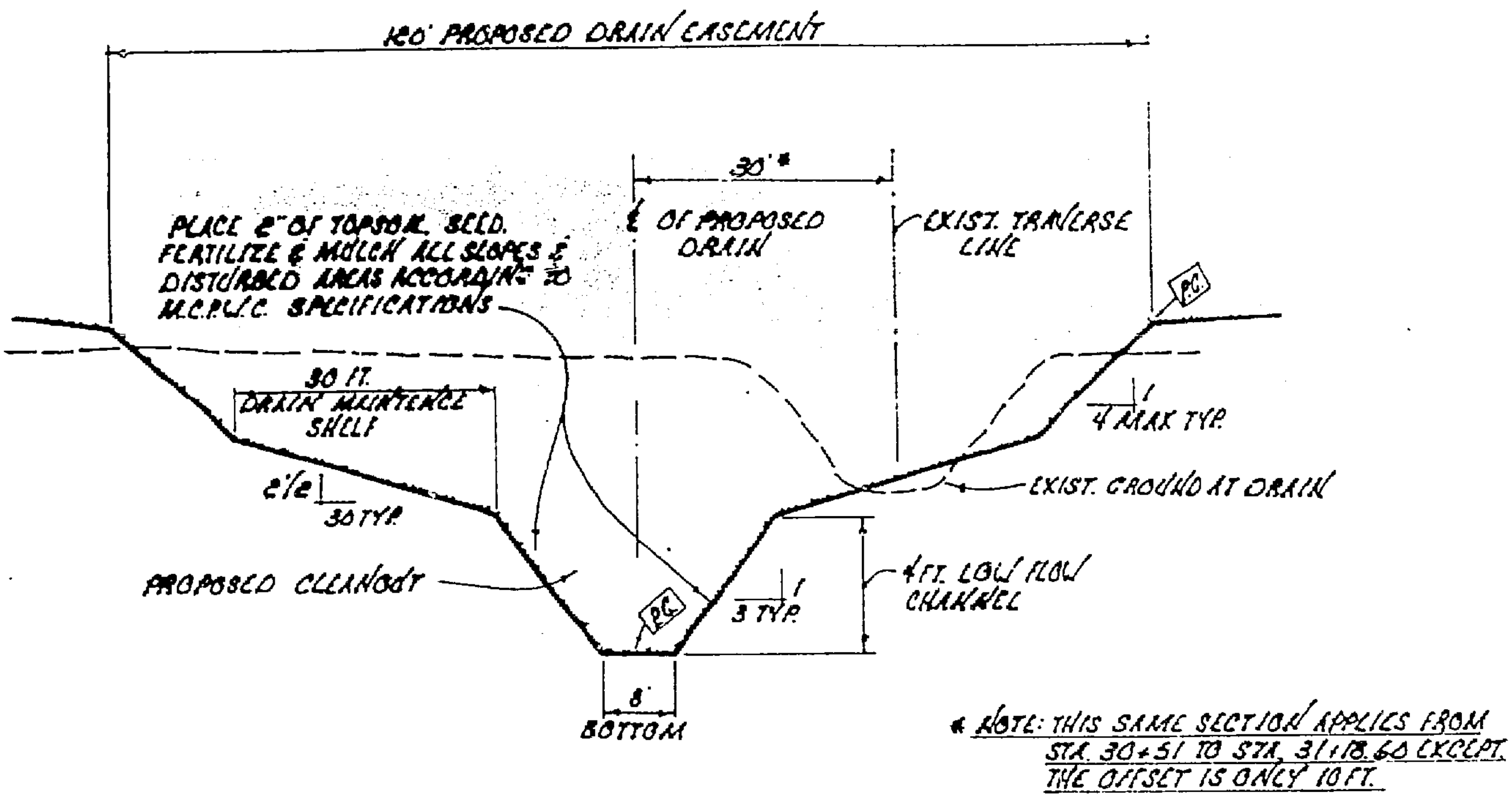


Macomb Twp. FIS
5850 - 03
N
Middle Branch Clinton R.
Scale 1" = 800'
Contour Interval 5'
Floodway, natural
Floodway, encroached
Flooded outline
ROAD
BM
ROMEO
640
639
638
625
Higgs
Landing Strip
639
615
6
5
Branch
621
Jackson
Pumping Station
Gaging Station
Golf Course
Drain
LUCHTMAN
Macomb
ROAD
628
637
624
618
605
Clinton
ROAD
PIPELINE
615
625



TYPICAL FULL DRAIN SECTION (132' EASEMENT)

APPLIES STA. 10+60 TO STA. 14+10



TYPICAL FULL DRAIN SECTION (120' EASEMENT)

APPLIES STA. 14+10 TO STA. 31+18.60

FOTEC 6-34 7788F

REVISIONS	DATE	REMARKS	DATE	REMARKS

48 HOURS BEFORE YOU DIG CALL MISS DIG 800-482-7171 (TOLL FREE)

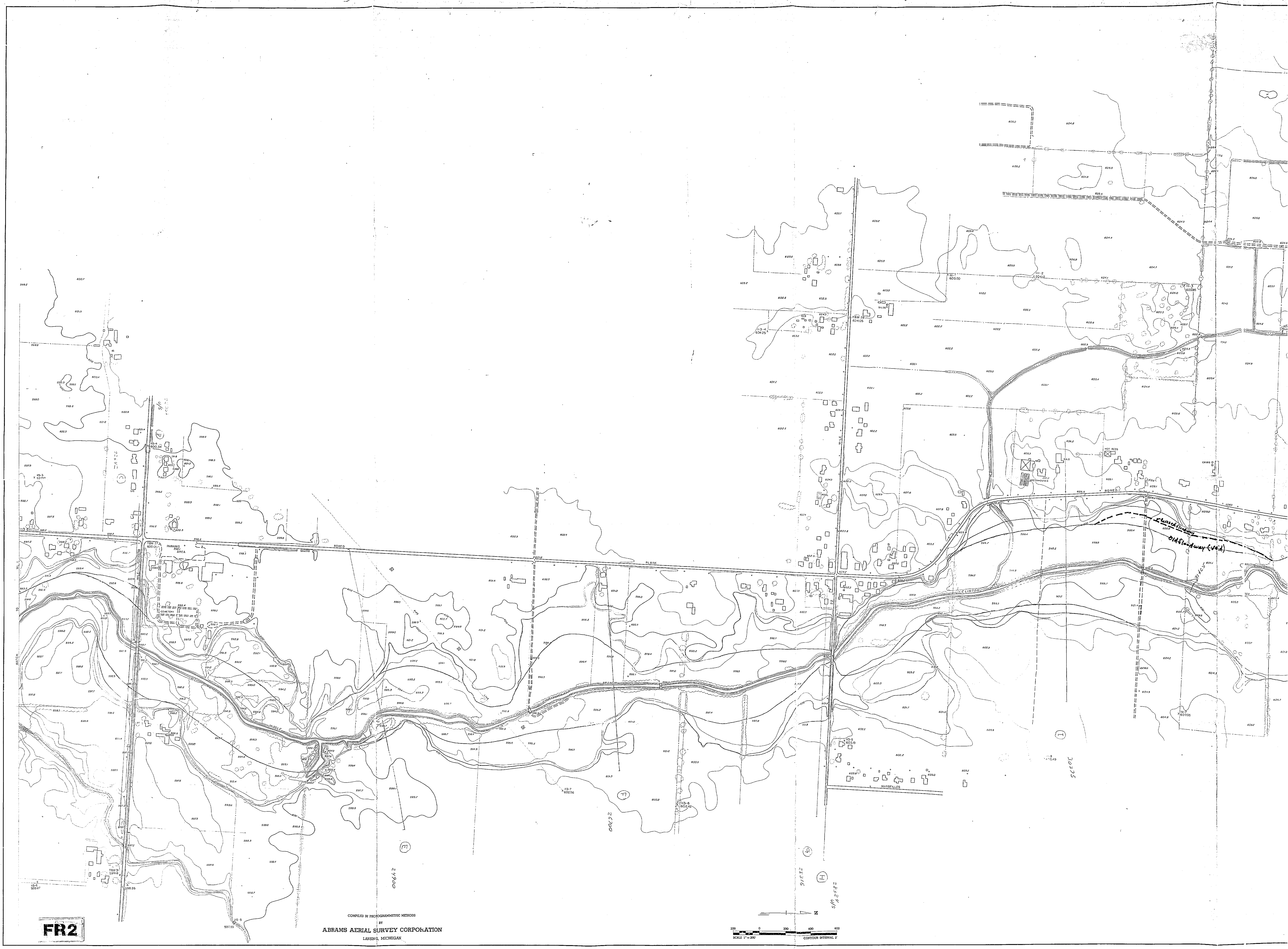
CROSS CREEK ESTATES

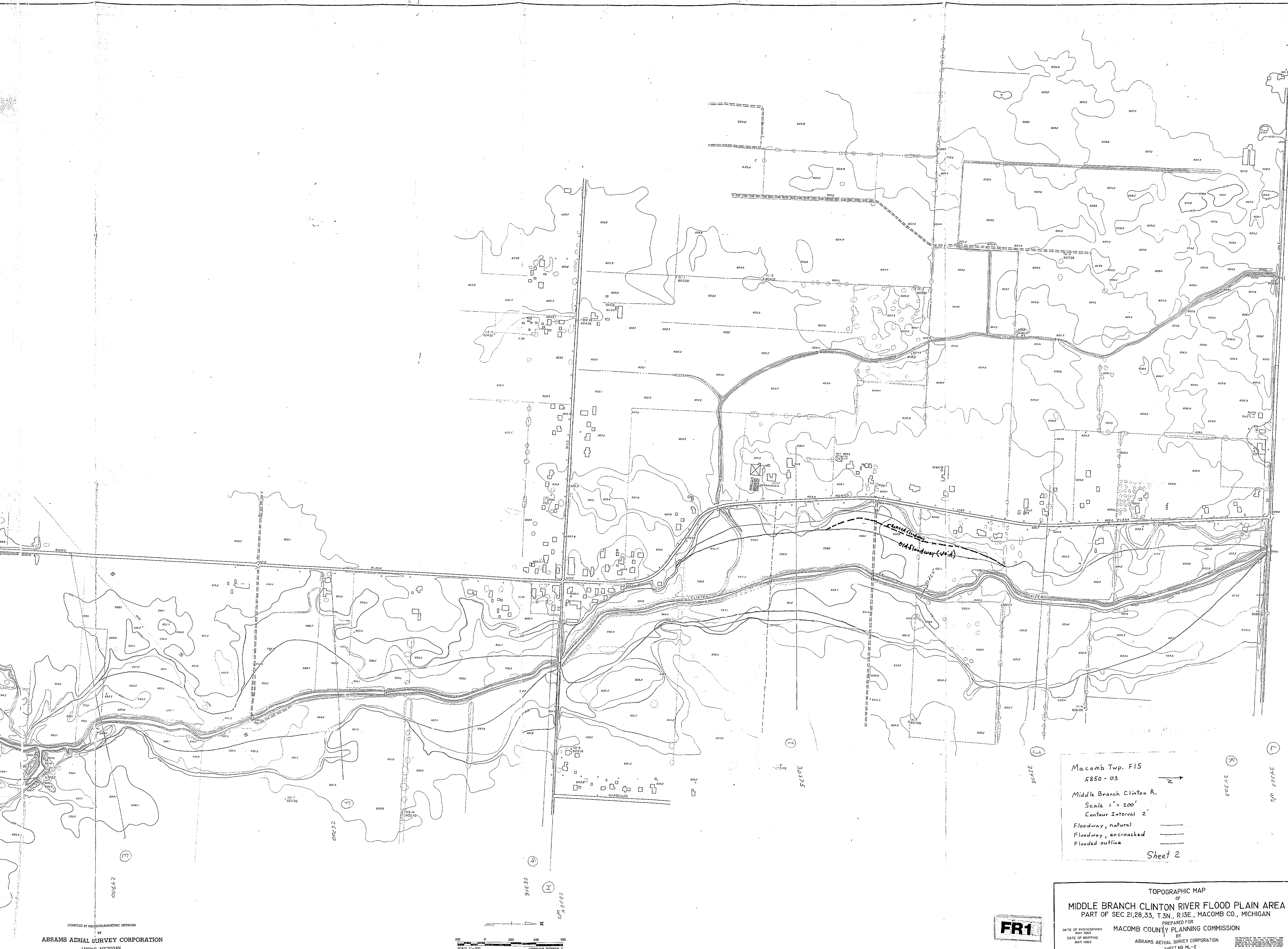
ANDERSON, ECKSTEIN AND WESTRICK INC.
CIVIL ENGINEERS
42800 GARFIELD ROAD
MOUNT CLEMENS, MICHIGAN 48044
PHONE (313) 286-1234

CRITTENDEN DRAIN IMPROVEMENTS
PLAN AND PROFILE

- [x] PRELIMINARY
- [ ] CONSTRUCTION
- [ ] AS - BUILT

CLIENT	DATE	PROJECT NO.
A. VITTIGLIO	MAY, 1988	26028
SCALE	DRAWN BY	SHEET NO.
1" = 100'		
	CHECKED BY	1 OF 4

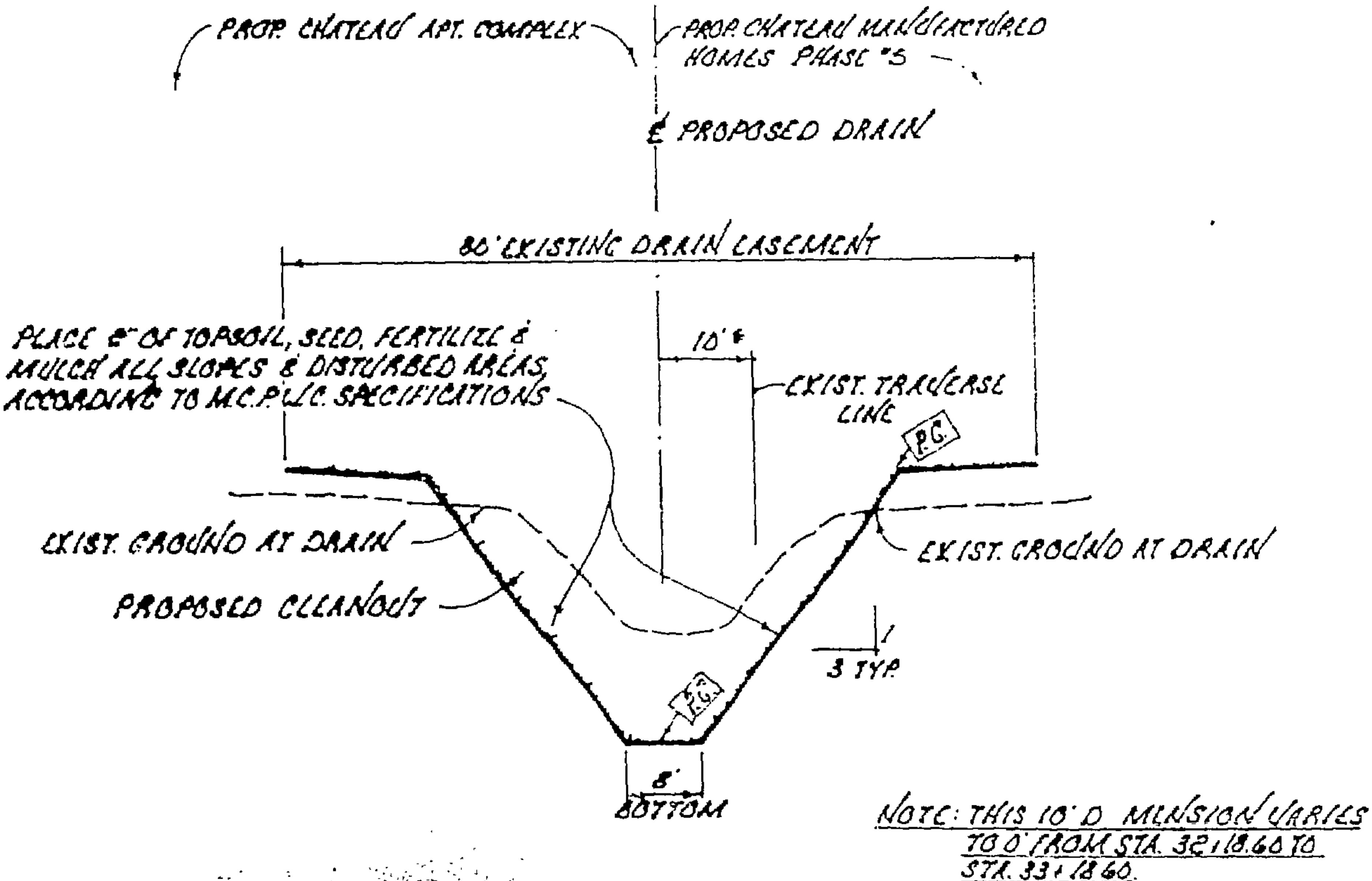

Closed Floodway
Old Floodway (Void)
ROMEO
PLANK
CLINTON
CRIBS
24900
28316
28384 U/S
H
COMPILED BY PHOTOGRAMMETRIC METHODS
BY
ABRAMS AERIAL SURVEY CORPORATION
LANSING, MICHIGAN
SCALE 1" = 200'
CONTOUR INTERVAL 2'
N
FR2



FR1

TOPOGRAPHIC MAP
OF
MIDDLE BRANCH CLINTON RIVER FLOOD PLAIN AREA
PART OF SEC. 21,28,33, T.3N., R.13E., MACOMB CO., MICHIGAN
PREPARED FOR
MACOMB COUNTY PLANNING COMMISSION
BY
ABRAMS AERIAL SURVEY CORPORATION
SHEET NO ML-2

DATE OF PHOTOGRAPHY
MAY 1964
DATE OF MAPPING
MAY 1965



TYPICAL UPSTREAM DRAIN SECTION

APPLIES STA. 31+18.60 TO STA. 33+18.60(EXISTING)

SCALE:
HORIZ. – 1" = 40'
VERT. – 1" = 2'

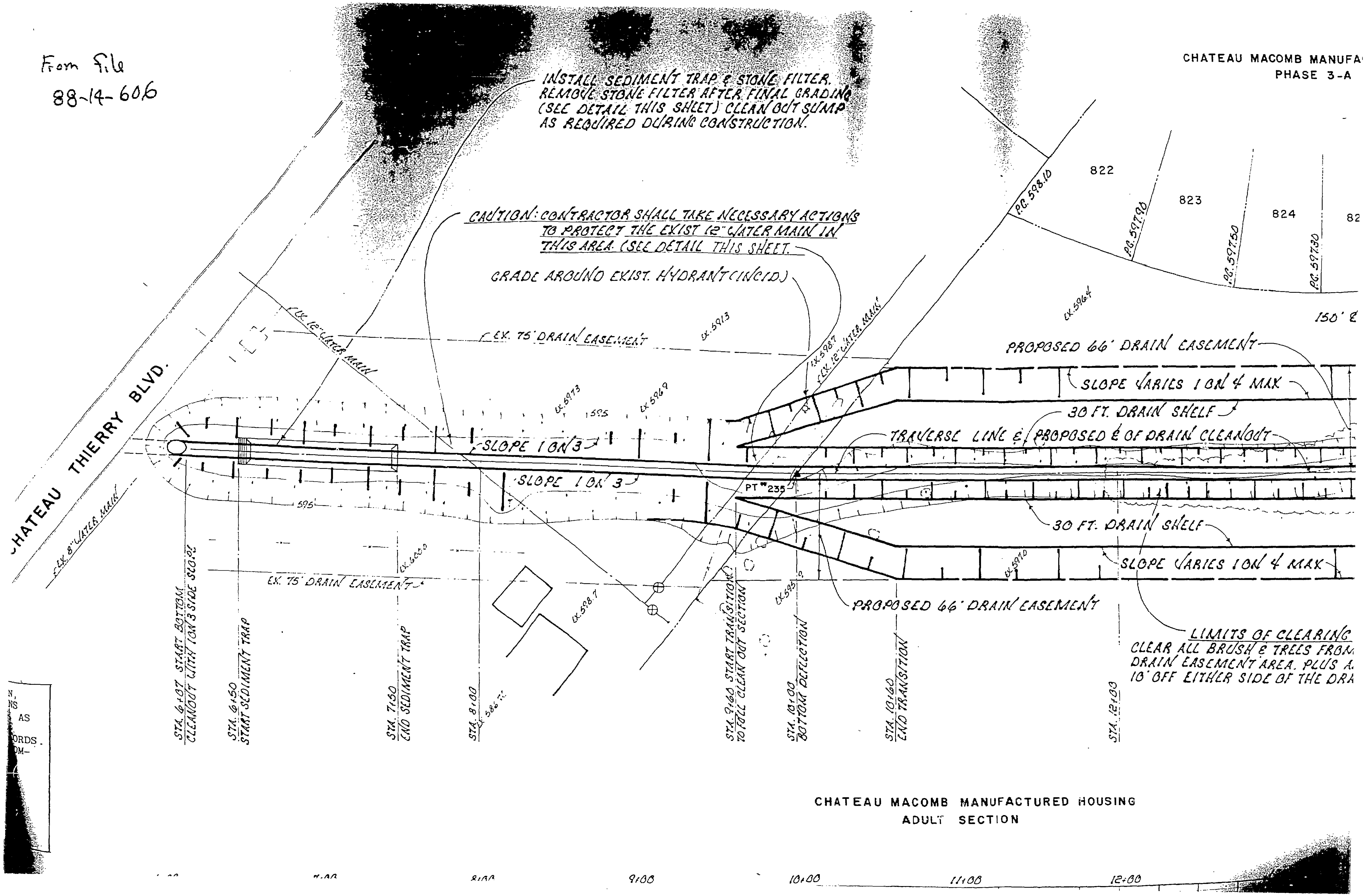
FINAL SURVEY		BY	DATE
NOTE BOOK	SURVEYED		
	PLOTTED		
	TEMPLATE		
	AREAS		
NO.	AREAS CHECKED		

ORIGINAL SURVEY		BY	DATE
NOTE BOOK	SURVEYED		
	PLOTTED		
	TEMPLATE		
	AREAS		
NO.	AREAS CHECKED		


INSET
MATCH TO INSET
MATCH TO SHEET No. 1
MATCH TO SHEET No. 1
ROAD
MILE ROAD
PARKING AREA
PARTRIDGE CREEK
COUNTRY CLUB
CEMETERY
MIDDLE BRANCH
FR2
COMPILED BY PHOTOGRAMMETRIC METHODS
BY
ABRAMS AERIAL SURVEY CORPORATION
LANSING, MICHIGAN
SCALE 1" = 200'
CONTOUR INTERVAL 2'
Macomb Twp. #15
5850-03
Middle Branch Clinton R.
Scale 1" = 200'
Contour Interval 2'
Floodway, natural
Floodway, encroached
Flooded outline
Sheet 1


PARTRIDGE CREEK
COUNTRY CLUB
PARKING AREA
ROMEO
PLANK
CEMETERY
MIDDLE BRANCH
CLINTON
18100
20200
FR1
Macomb Twp. FIS
5850 - 03
N
Middle Branch Clinton R.
Scale 1" = 200'
Contour Interval 2'
Floodway, natural
Floodway, encroached
Flooded outline
Sheet 1
SCALE 1"=200'
CONTOUR INTERVAL 2'
TOPOGRAPHIC MAP
OF
MIDDLE BRANCH CLINTON RIVER FLOOD PLAIN AREA
PART OF SEC. 4, 5, T.2N., R.13E., MACOMB CO., MICHIGAN
PREPARED FOR
MACOMB COUNTY PLANNING COMMISSION
BY
ABRAMS AERIAL SURVEY CORPORATION
SHEET NO ML-1
DATE OF PHOTOGRAPHY
MAY 1964
DATE OF MAPPING
MAY 1965

From file
88-14-606

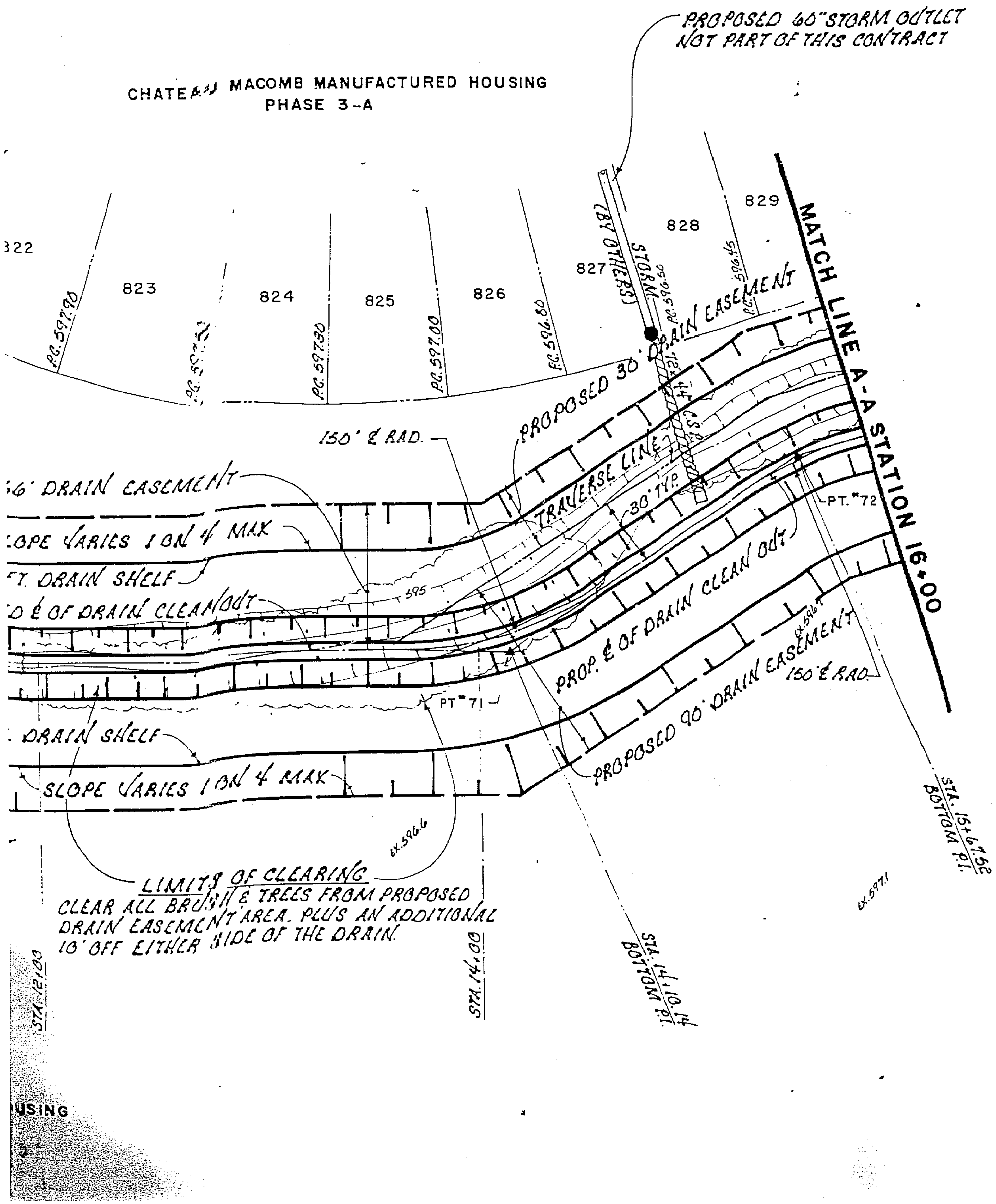


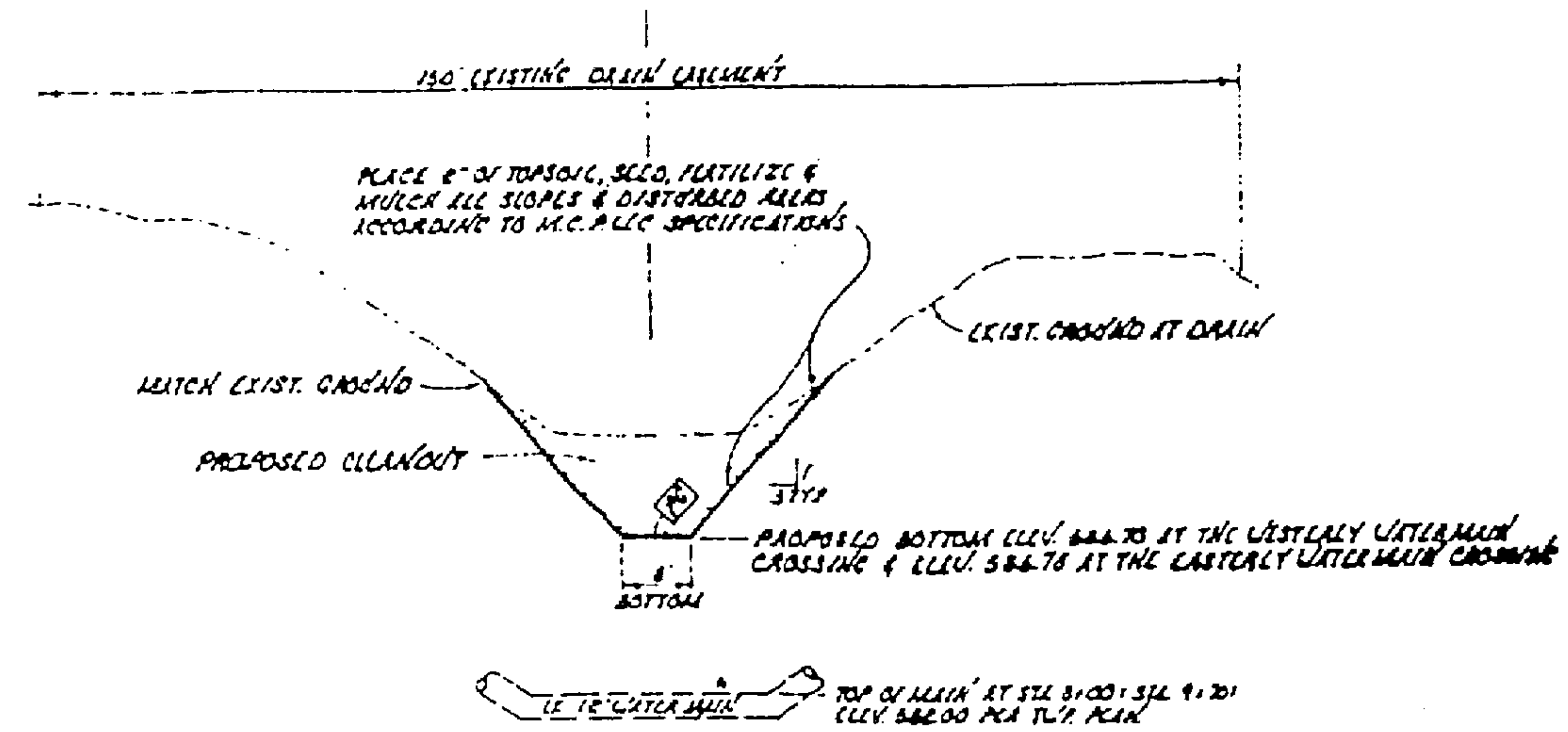
CHATEAU MACOMB MANUFACTURED HOUSING
ADULT SECTION


SCALE:
HORIZ. - 1"=40'
VERT. - 1"=2'
WEST PROP. LINE
CENTER LINE
PROP. 60' R.O.W.
EAST PROP. LINE
SECTION E-E (LOOKING NORTH)
1214 FT. SOUTH OF 22 MILE RD.
596.82
SECTION F-F (LOOKING NORTH)
1674 FT. SOUTH OF 22 MILE RD.
596.50
SECTION G-G (LOOKING NORTH)
2079 FT. SOUTH OF 22 MILE RD.
596.22
SECTION H-H (LOOKING NORTH)
2471 FT. SOUTH OF 22 MILE RD.
595.93
CROSS CREEK ESTATES
CRITTENDON DRAIN
AEW # 26028
FINAL SURVEY
ORIGINAL SURVEY
SURVEYED
PLOTTED
TEMPLATE
AREAS
AREAS CHECKED
NOTE BOOK
NO.
BY
DATE


CARD ROAD
NORTH BRANCH CLINTON
Encroached (0.1) Floodway
Natural Floodway
Flood Boundary
FR2
COMPILED BY PHOTOGRAMMETRIC METHODS
BY
ABRAMS AERIAL SURVEY CORPORATION
LANSING, MICHIGAN
SCALE 1"=200'
CONTOUR INTERVAL 2'
MACOMB TOWNSHIP FIS
HYDRAULIC ANALYSIS
JOHNSON & ANDERSON ... JULY 1978


FR1
TOPOGRAPHIC MAP
OF
NORTH BRANCH CLINTON RIVER FLOOD PLAIN AREA
PART OF SEC. 26, 35, T.3N., R.13E., MACOMB CO., MICHIGAN
PREPARED FOR
MACOMB COUNTY PLANNING COMMISSION
BY
ABRAMS AERIAL SURVEY CORPORATION
SHEET NO N-2
DATE OF PHOTOGRAPHY
MAY 1964
DATE OF MAPPING
APRIL 1965
SCALE 1"=200'
CONTOUR INTERVAL 2'
200 0 200 400 600
MACOMB TOWNSHIP FIS
HYDRAULIC ANALYSIS
JOHNSON & ANDERSON JULY 1978
BURNING TREE GOLF & COUNTRY CLUB





TYPICAL DOWNSTREAM DRAIN SECTION

APPLIES STA. 6+07 TO STA. 9+60

DISTANCE ALONG PROPOSED CENTERLINE OF MILLER DRAIN

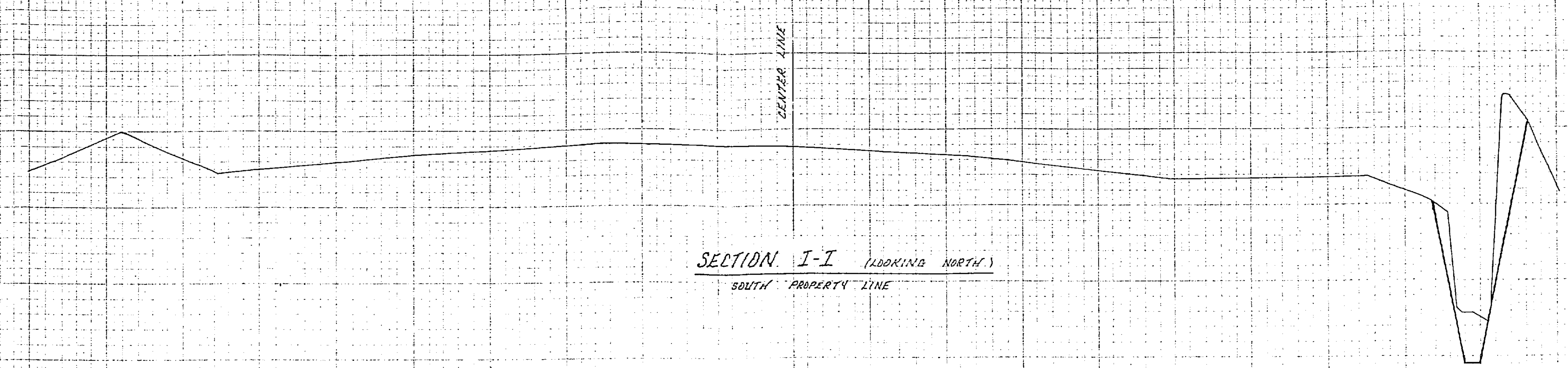
FROM	BEARING	DISTANCE	N COORD	E COORD	PT#
			10099.250	7993.285	235
235	N 51 08 46 E	410.136	10356.544	8312.677	71
71	N 18 00 01 E	157.384	10506.225	8361.312	72
72	N 35 13 53 E	100.370	10588.211	8419.213	73
73	N 64 43 59 E	87.999	10625.772	8498.794	74
74	N 85 57 55 E	115.752	10633.916	8614.259	75
75	S 68 04 17 E	254.210	10538.981	8850.077	76
76	N 52 37 43 E	200.400	10660.620	9009.339	77
77	N 26 23 19 E	246.119	10881.093	9118.728	78
78	N 43 05 41 E	84.824	10943.034	9176.681	79
79	N 61 39 59 E	280.591	11076.203	9423.657	80
80	N 28 53 29 E	113.711	11175.761	9478.597	81
81	N 01 42 20 W	167.115	11342.802	9473.623	82

STATION EQUATION

ADD 13066 TO ALL STATIONING ON CONSTRUCTION DRAWINGS TO CORRELATE THE LOCATIONS OF FLOOD INSURANCE STUDY CROSS SECTIONS.

ORIGINAL SURVEY		BY	DATE
NOTE BOOK	SURVEYED		
NO.	PLOTTED		
	TEMPLATE		
	AREAS		
	AREAS CHECKED		

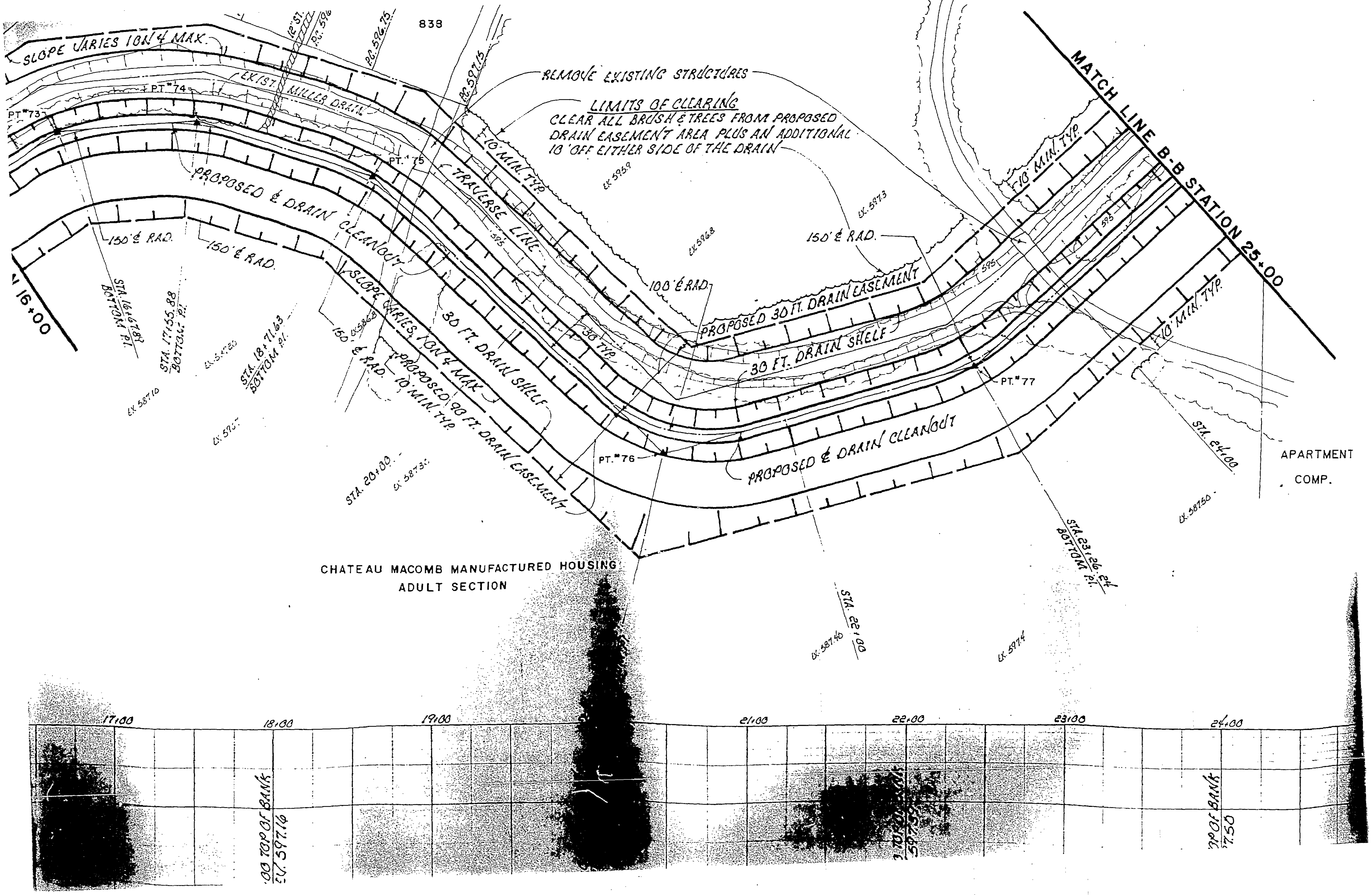
FINAL SURVEY		BY	DATE
NOTE BOOK	SURVEYED		
NO.	PLOTTED		
	TEMPLATE		
	AREAS		
	AREAS CHECKED		



SECTION I-I (LOOKING NORTH)

SOUTH PROPERTY LINE

Macomb Twp. FIS
5850-03
Middle Branch Clinton R.
Scale 1" = 200'
Contour Interval 2'
Floodway, natural
Floodway, encroached
Flooded outline
Sheet 3
N
FR2
COMPILED BY PHOTOGRAMMETRIC METHODS
BY
ABRAMS AERIAL SURVEY CORPORATION
LANSING, MICHIGAN


SLOPE VARIES 1ON 4 MAX.
PT.#73
PT.#74
EXIST. MILLER DRAIN
12" ST.
PC. 596.75
PC. 597.15
REMOVE EXISTING STRUCTURES
LIMITS OF CLEARING
CLEAR ALL BRUSH & TREES FROM PROPOSED
DRAIN EASEMENT AREA PLUS AN ADDITIONAL
10' OFF EITHER SIDE OF THE DRAIN
MATCH LINE B-B STATION 25+00
10' MIN. TYP.
PT.#75
TRAVERSE LINE
PROPOSED ℄ DRAIN CLEANOUT
150' ℄ RAD.
150' ℄ RAD.
N 16+00
STA. 16+67.87 BOTTOM P.I.
STA. 17+55.88 BOTTOM P.I.
STA. 18+71.63 BOTTOM P.I.
SLOPE VARIES 1ON 4 MAX
30 FT. DRAIN SHELF
150' ℄ RAD.
PROPOSED 90 FT. DRAIN EASEMENT
10' MIN. TYP.
30' TYP.
100' ℄ RAD.
PROPOSED 30 FT. DRAIN EASEMENT
30 FT. DRAIN SHELF
150' ℄ RAD.
PT.#77
PT.#76
PROPOSED ℄ DRAIN CLEANOUT
STA. 20+00
STA. 24+00
APARTMENT COMP.
STA. 23+26.24 BOTTOM P.I.
STA. 22+00
CHATEAU MACOMB MANUFACTURED HOUSING
ADULT SECTION
17+00
18+00
19+00
21+00
22+00
23+00
24+00
TOP OF BANK
EL. 597.16

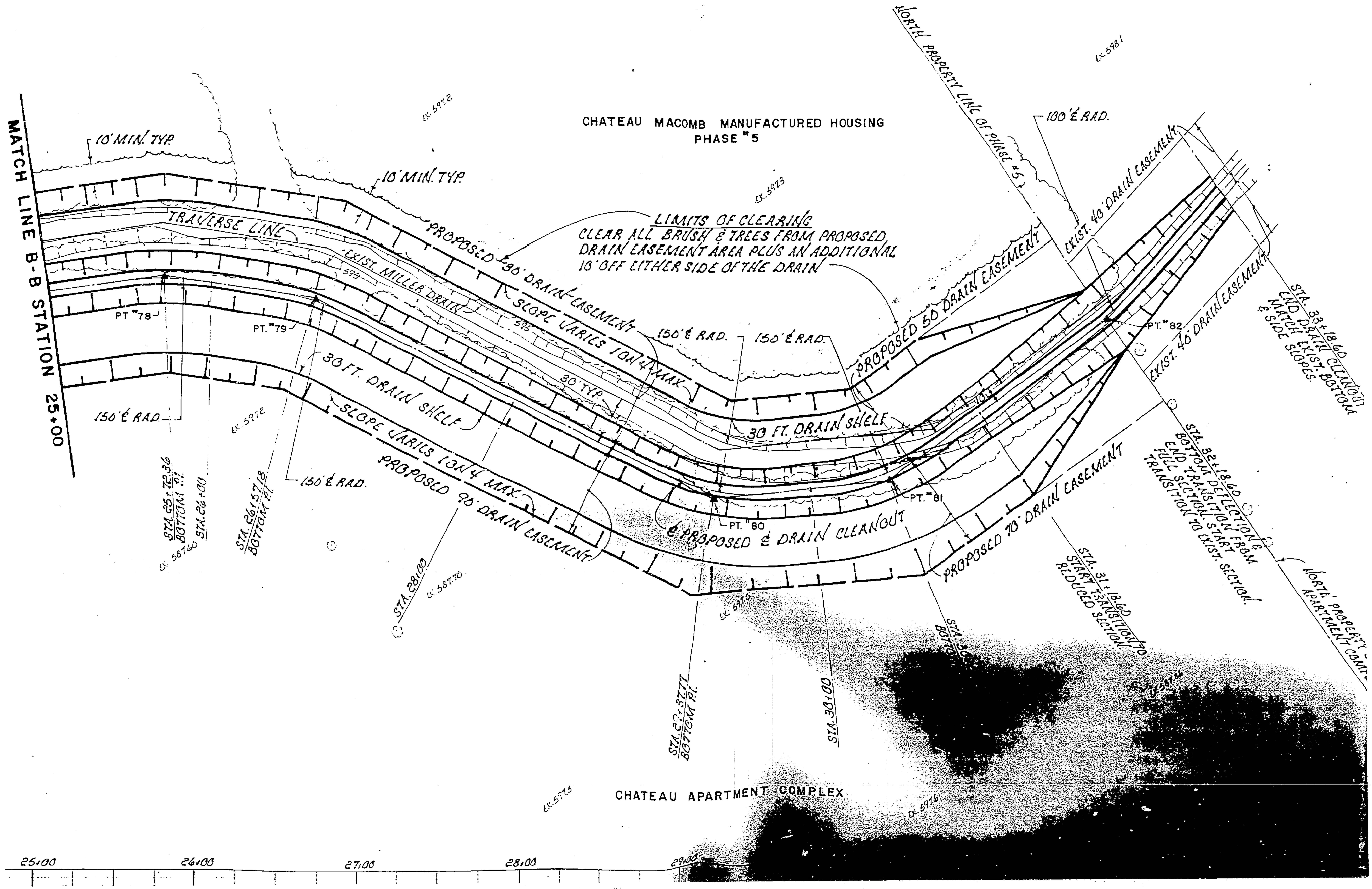
Macomb Twp. FIS
5850-03
Middle Branch Clinton R.
Scale 1" = 200'
Contour Interval 2'
Floodway, natural
Floodway, encroached
Flooded outline
Sheet 3

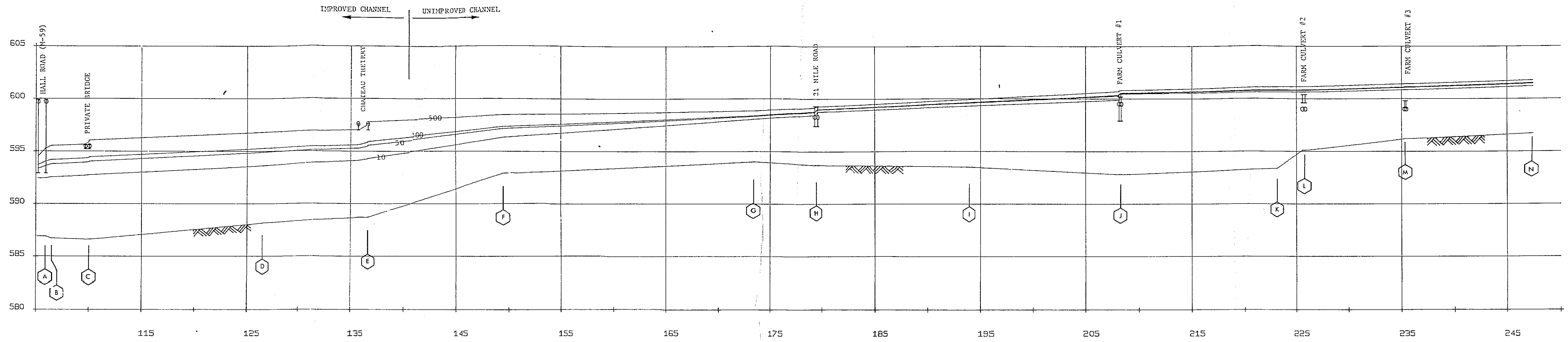
FR1

Sheet 3

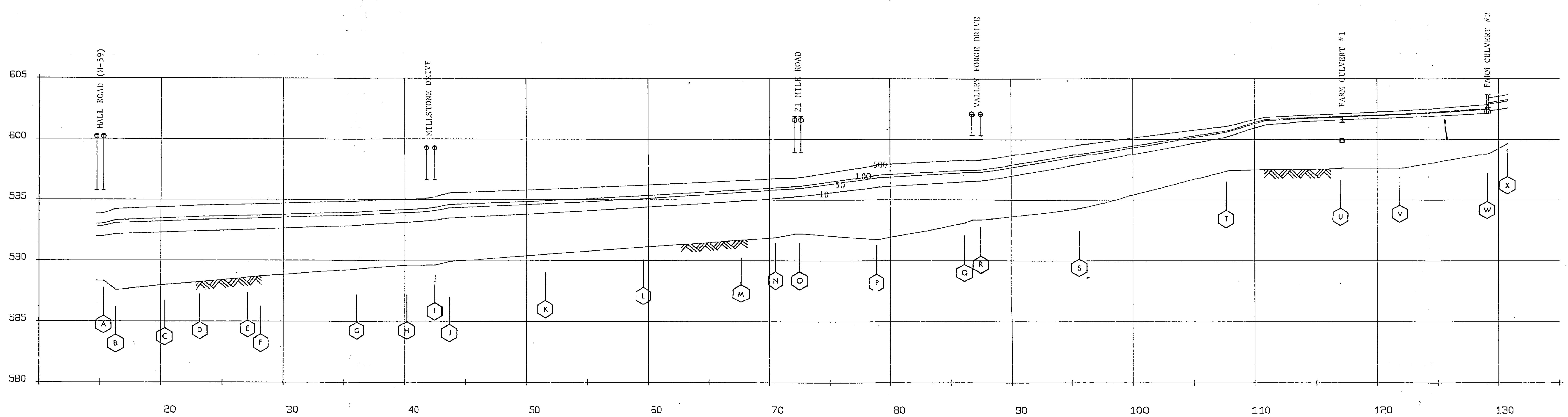
TOPOGRAPHIC MAP
OF
MIDDLE BRANCH CLINTON RIVER FLOOD PLAIN AREA
PART OF SEC: 17. 8, T 3N., R.13E., MACOMB CO., MICHIGAN
PREPARED FOR
MACOMB COUNTY PLANNING COMMISSION
BY
ABRAMS AERIAL SURVEY CORPORATION
SHEET NO ML-3

DATE OF PHOTOGRAPHY
APRIL 1964
DATE OF MAPPING
JULY 1967


CHATEAU MACOMB MANUFACTURED HOUSING
PHASE #5
MATCH LINE B-B STATION 25+00
10' MIN. TYP.
10' MIN. TYP.
TRAVERSE LINE
EXIST. MILLER DRAIN
PROPOSED 80' DRAIN EASEMENT
SLOPE VARIES 1 ON 4 MAX.
LIMITS OF CLEARING
CLEAR ALL BRUSH & TREES FROM PROPOSED
DRAIN EASEMENT AREA PLUS AN ADDITIONAL
10' OFF EITHER SIDE OF THE DRAIN
PROPOSED 50' DRAIN EASEMENT
NORTH PROPERTY LINE OF PHASE #5
100' ℄ RAD.
EXIST. 40' DRAIN EASEMENT
EXIST. 40' DRAIN EASEMENT
STA. 33+18.60
END DRAIN CLEANOUT
MATCH EXIST. BOTTOM
& SIDE SLOPES.
PT. #78
PT. #79
PT. #80
PT. #81
PT. #82
150' ℄ RAD.
150' ℄ RAD.
150' ℄ RAD.
150' ℄ RAD.
30 FT. DRAIN SHELF
30 FT. DRAIN SHELF
30' TYP.
SLOPE VARIES 1 ON 4 MAX.
PROPOSED 90' DRAIN EASEMENT
℄ PROPOSED ℄ DRAIN CLEANOUT
PROPOSED 70' DRAIN EASEMENT
STA. 32+18.60
BOTTOM DEFLECTION &
END TRANSITION FROM
FULL SECTION. START
TRANSITION TO EXIST. SECTION.
STA. 31+18.60
START TRANSITION TO
REDUCED SECTION.
NORTH PROPERTY
APARTMENT COMP
STA. 25+72.36
BOTTOM P.I.
STA. 26+00
STA. 26+57.18
BOTTOM P.I.
STA. 28+00
STA. 29+37.77
BOTTOM P.I.
STA. 30+00
EX. 597.2
EX. 597.3
EX. 598.1
EX. 597.2
EX. 587.60
EX. 587.70
EX. 597.6
EX. 597.3
EX. 597.6
595
595
CHATEAU APARTMENT COMPLEX
25+00
26+00
27+00
28+00
29+00



MILLER DRAIN



CRITTENDEN DRAIN

TOPOGRAPHIC INFORMATION		DATE	BY	BY	BY	BY
DATE OBTAINED		V.I.				
DATE UPDATED						

DRAWING ISSUE DATES				
OWNER				
UTILITIES	TEL:	ELEC:	GAS:	PIPE LINE:
APPR. AGENCIES				
BIDDERS				

CHECKED	DATE	BY
P.M.		
QA.		
CONSTR.		

Job No.	Contr. No.	Cost Tab No.	Type of Job No.	Sheet No. or Sheet No. of Sheets	As Built	Section	City No. in County	Twp. No. in County	Village No. in County	County No. in State	State	Construction Contract	Job Code No.
1 2 3 4 5 6	7 8	9 10 11	12 13 14 15	16 17 18 19 20 21 22 23	24 25 26 27	28 29	30 31 32 33	34 35 36	37 38 39	40 41 42	43 44 45	46 47 48 49 50	51 52 53 78 79 80

DRAWN:
DESIGN:

REVISIONS	MARK	ADDENDUM/CHANGE ORDER	DATE	MARK	ADDENDUM/CHANGE ORDER	DATE	MARK	ADDENDUM/CHANGE ORDER	DATE

SCALE: VERT. 1" = 5'
HORIZ. 1" = 500'

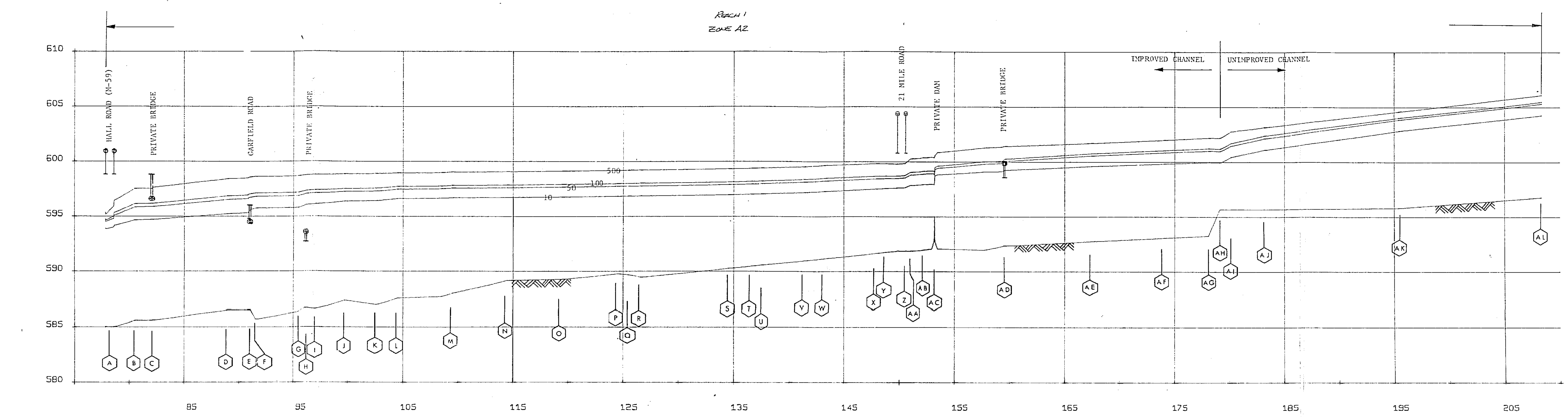
JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS
PONTIAC, MICHIGAN

MACOMB TOWNSHIP F.I.S.
MACOMB COUNTY, MI.

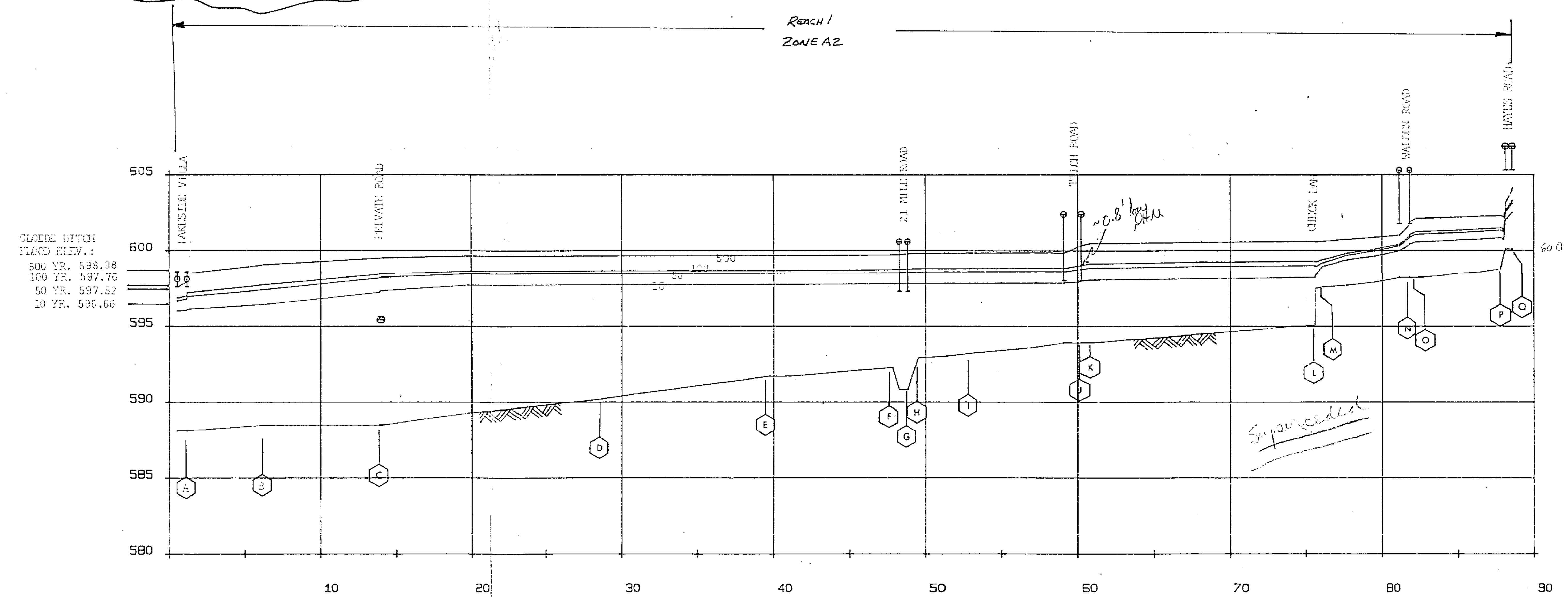
MILLER DRAIN - CRITTENDEN DRAIN

JOB NO. 5850-03-1

SHEET NO. 1 OF 3



GLOEDE DITCH



LEWIS DRAIN

RECEIVED
JUN 12 1979
WATER MANAGEMENT

TOPOGRAPHIC INFORMATION		DATE	BY
DATE OBTAINED		V I	
DATE UPDATED			

DRAWING ISSUE DATES			
OWNER			
UTILITIES	TEL	ELEC	GAS	PIPE LINE
APPR. AGENCIES			
BIDDERS			

CHECKED	DATE	BY
P.M.		
QA		
CONSTR		

DRAWN:
DESIGN:

REVISIONS	MARK	ADDENDUM-CHANGE ORDER	DATE
	RSM	New Lewis Dr. Profile	6/1/79

SCALE: VERT. 1" = 5'
HORIZ. 1" = 500'

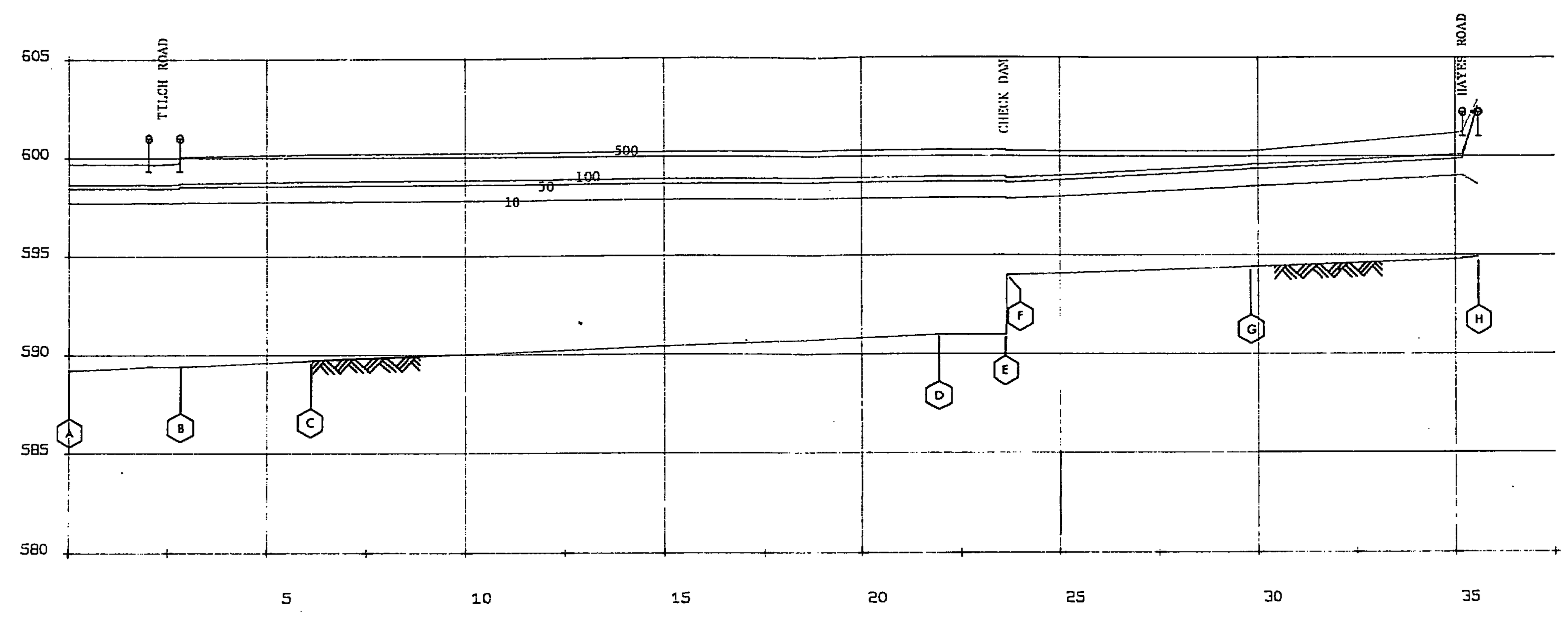
JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS
PONTIAC, MICHIGAN

MACOMB TOWNSHIP F.I.S.
MACOMB COUNTY, MI.

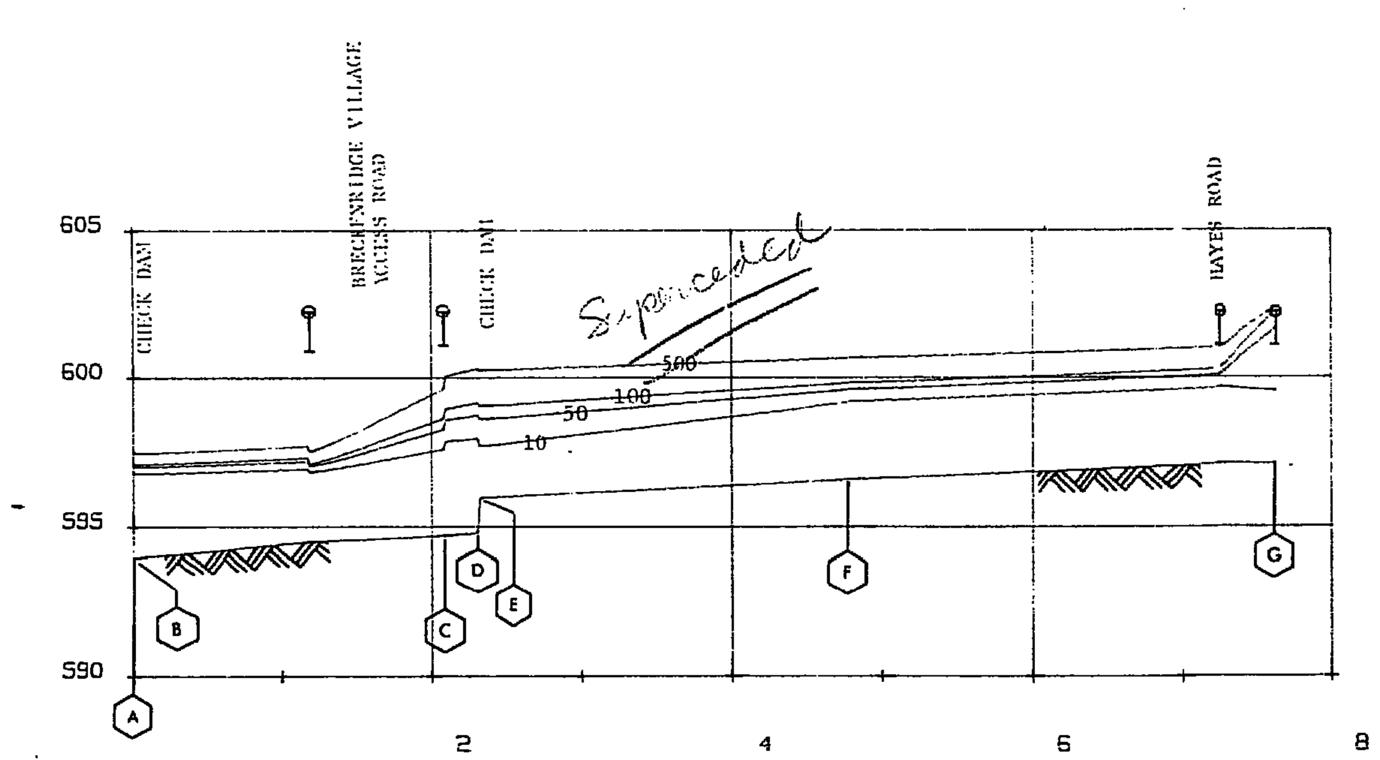
GLOEDE DITCH-LEWIS DRAIN

JOB NO. 58 50-03-1

SHEET NO. 2 OF 3



DUNN DRAIN SCALE: V: 1" = 5' H: 1" = 250'



BANISTER DRAIN SCALE: V: 1" = 5' H: 1" = 100'

TOPOGRAPHIC INFORMATION	
DATE OBTAINED	V.I.
DATE UPDATED	

DATE BY BY BY BY

DRAWING ISSUE DATES

OWNER				
UTILITIES	TEL.	ELEC.	GAS	PIPE LINE
APPR. AGENCIES				
BIDDERS				

CHECKED	DATE	BY
P.M.		
QA.		
CONSTR.		

Job No. Contr. No. Cost Tab No. Type of Job No. Sheet No. or Sheet No. of Sheets As Built Section City No. in County Twp. No. in County Village No. in County County No. in State State Construction Contract Job Code No.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 78 79 80

DRAWN:
DESIGN:

REVISIONS

MARK	ADDENDUM/CHANGE ORDER	DATE	MARK	ADDENDUM/CHANGE ORDER	DATE	MARK	ADDENDUM/CHANGE ORDER	DATE

JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS
PONTIAC, MICHIGAN

MACOMB TOWNSHIP F.I.S.
MACOMB COUNTY, MI.

DUNN DRAIN - BANISTER DRAIN

SCALE: VERT. HORIZ. AS SHOWN

JOB NO. 5850-03-1

SHEET NO. 3 OF 3


M A C O M B
St Isidores Sch
23 MILE ROAD
22 MILE ROAD
21 MILE ROAD
HALL ROAD
ROMEO PLANK
Herz-Macomb Airport
Waldenburg
Oil Well
Immanuel Sch
Ojibwa Sch
Gas Well
Trailer Park
Gaging Station
Hickory Hollow Golf Course
Burning Tree Country Club
Atwood Sch
Cem
Gravel Pit
Gloede Ditch
Lewis Drain
Dunn Drain
Crittenden Drain
Middle Branch
Clinton River
North Branch
Tilch Drain
Rose Ditch
Zander Drain
Bobcean Drain
Pingle Drain
Heydenreich Drain
Nicol Drain
Arndt Drain
Miller Drain
Hahn Drain
Hafel Drain
Coates Drain
Conklin Drain
Fairbleorn Drain
Hart Drain
Steinbrin
GARFIELD
HAYES ROAD
TILCH ROAD
CARD ROAD
HEYDENREICH ROAD
BOWMAN
PIPELINE
LEWIS
DELAWARE
LEXINGTON
MILLSTONE DR
Rerouted Bannister Drain
MACOMB TWP. FIS
J&A FILE No. 5850-03
MILLER DRAIN
CRITTENDEN DRAIN
GLOEDE DITCH
LEWIS DRAIN
DUNN DRAIN
BANNISTER DRAIN
NATURAL FLOODWAY
ENCROACHED FLOODWAY
FLOOD FRINGE
1" = 800'
N
T 3 N
T 2 N
R. 13 E.
57'30"
FRASER 6 MI
C L I N T O N
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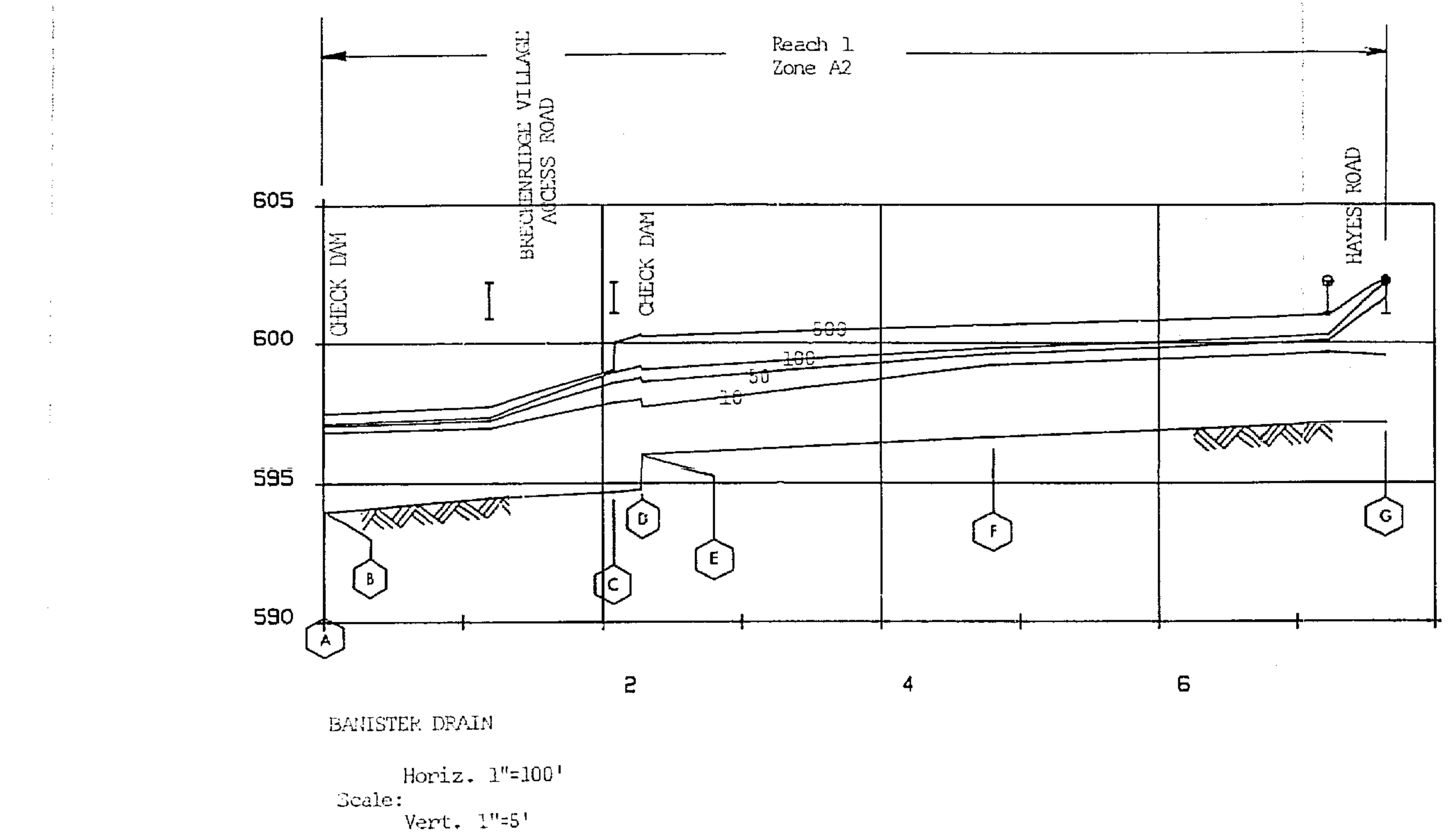

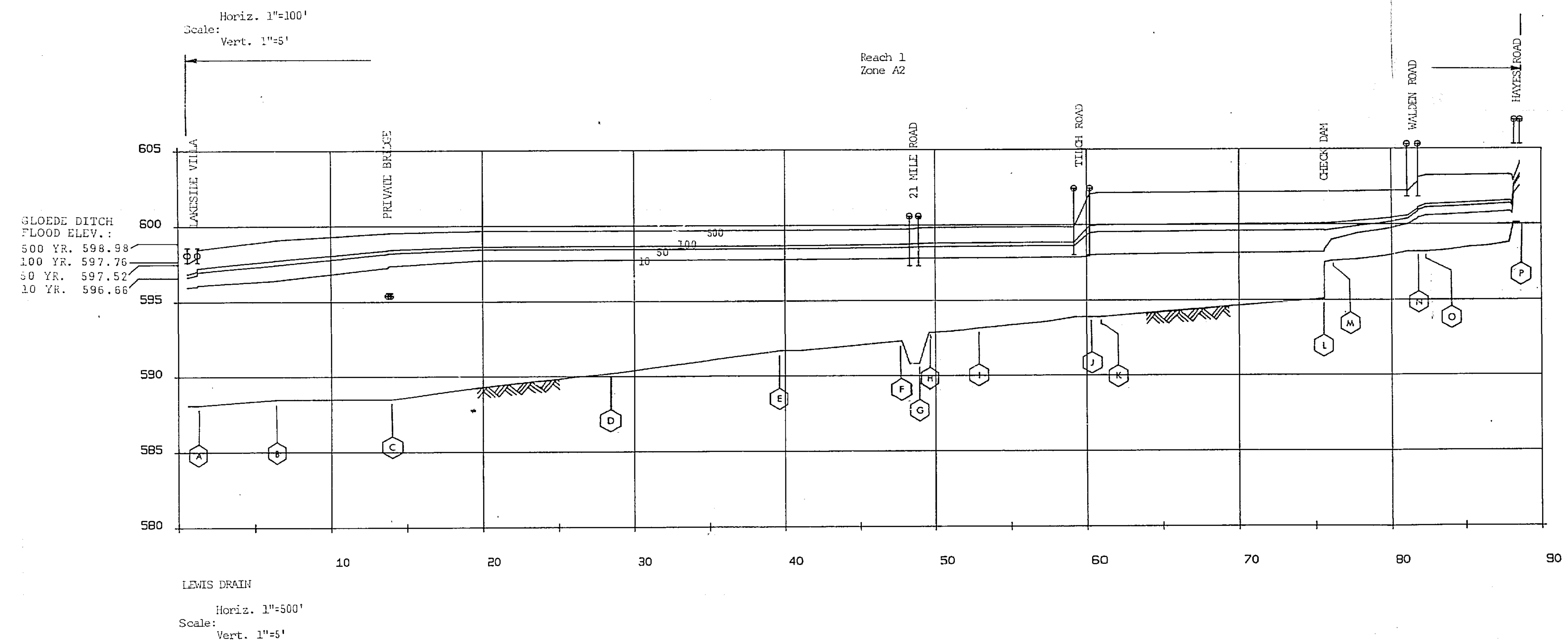

RECEIVED
AUG 1 5 1979

SCALE: VERT. HORIZ. AS SHOWN

REVISIONS								
MARK	ADDENDUM/CHANGE ORDER	DATE	MARK	ADDENDUM/CHANGE ORDER	DATE	MARK	ADDENDUM/CHANGE ORDER	DATE

DRAWN:
DESIGN:

JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS
PONTIAC, MICHIGAN

MACOMB TOWNSHIP F.I.S.
MACOMB COUNTY, MI.

BANISTER DRAIN - LEWIS DRAIN
REVISED PROFILES

JOB NO. 5850-03
8-6-79
SHEET NO.

TOPOGRAPHIC INFORMATION		DATE	BY	BY	BY	BY
DATE OBTAINED	V.I.					
DATE UPDATED						

	DRAWING ISSUE DATES			
OWNER				
UTILITIES	TEL.	ELEC.	GAS	PIPE LINE
APPR. AGENCIES				
BIDDERS				

	DATE	BY
CHECKED		
P.M.		
QA.		
CONSTR.		

Job No.	Contr. No.	Cost Tab No.	Type of Job No.	Sheet No. or Sheet No. of Sheets	As Built	Section	City No. in County	Twp. No. in County	Village No. in County	County No. in State	State	Construction Contract	Job Code No.
1 2 3 4 5	6 7 8	9 10 11	12 13 14 15	16 17 18 19 20 21 22 23	24 25 26	27 28 29	30 31 32	33 34 35	36 37 38	39 40 41	42 43 44	45 46 47 48 49 50	51 52 53 78 79 80